

Cultural Competence and Influencing Factors of Dental Hygiene Students

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The purpose of this study was to investigate the level of cultural competence and its influencing factors among 530 dental hygiene students. The analysis was performed using PASW Statistics ver. 18.0, and the following conclusions were drawn. Cultural knowledge levels showed a significant difference according to general characteristics in four components of cultural competence levels. Cultural competence and its four components were higher in subjects who have a religion ($p < 0.05$). The differences in cultural competence levels according to culture-related characteristics are as follows. In individuals with experience of taking foreign culture-related classes, intention to work overseas, or fluency in a foreign language, cultural competence levels and its four components such as cultural comfort, knowledge, awareness, and behavior intent were higher ($p < 0.05$). Intention of overseas employment was the factor most strongly influencing the level of cultural competence of the subjects. The more intention the subjects have to work overseas, the more they have experienced foreign culture-related lessons, the more fluently they speak a foreign language, and the higher level of cultural competency they reached ($p < 0.05$). As the research results show, it is necessary to establish a continuing plan to understand and communicate with individuals of other cultures through foreign language and foreign culture classes in schools in order to improve the level of cultural competence. This education would reduce the fear and stress that subjects might make a mistake in meeting with people from other cultures, and it could be a preparatory process to actively carry out dental hygiene practice with foreigners.

Key Words: Cultural competence, Dental hygiene student

Introduction

Korean society is experiencing a continued increase in the number of foreigners residing in Korea, owing to a growing trend toward globalization, along with increased numbers of married immigrants and foreign students, as well as an influx of foreign workers. In 2015, the number of foreigners residing in Korea was 1.74 million, accounting for 3.4% of the entire Korean population, and this figure is predicted to exceed 9.2% by 2050¹⁾. Such growth in the number of foreigners residing in Korea is leading to transformation into a multicultural society in which diverse languages, religions, and cultures coexist, while also resulting in changes in various aspects of life, such as culture, healthcare, and welfare²⁾. In particular, with the

promotion of medical tourism as a new engine of national growth, the number of foreign patients visiting Korea is also increasing³⁾, and thus, both the number of foreigners residing in Korea and the medical tourism market are expected to demonstrate continued growth. Such changes reflect not only the globalization of medical services, but also an increase in the number of users of dental hygiene and dental service with diverse cultural and social backgrounds.

Culture can be defined as a comprehensive pattern of human behavior that includes language, thought, communication, behavior, customs, beliefs, and values. Culture can also affect belief systems regarding health, healing, and well-being; disease awareness; and behavior and attitudes toward use of healthcare⁴⁾. In other words, beliefs

Received: April 14, 2017, Revised: May 8, 2017, Accepted: May 28, 2017

ISSN 1598-4478 (Print) / ISSN 2233-7679 (Online)

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about health and disease may be inherent in an individual's values, worldview, and life patterns⁵⁾. Therefore, healthcare providers should strive to understand the cultural background of multicultural subjects and develop the cultural competence to respond to the needs of those with different cultures⁶⁾.

The United States and Australia, comprising racially and ethnically diverse societies, have supported cultural and social diversity in patients and have recommended reinforcement of cultural competence elements in the training of healthcare providers^{7,8)}. In this context, dental hygienists who provide dental hygiene care to multicultural patients should be equipped, as part of their occupational competence, with cultural competence in recognizing cultural differences among subjects and responding proactively.

Cultural competence refers to the ability to understand the characteristics of different cultures and interacting with people from different cultures in an appropriate and effective manner without indiscriminately applying one's own values or determinations^{9,10)}. This comprises cultural awareness about different cultural backgrounds and understanding of their differences; cultural knowledge about multicultural groups; cultural skills that include communication and trust-building with multicultural groups; and cultural values and attitudes that respect the culture of various groups^{10,11)}. Such cultural competence can be acquired if an individual has experience living abroad, can speak a foreign language, and/or has had significant contact with people from different cultures. In particular, culture-related characteristics of an individual, such as his or her educational experience related to cultural competence, are known to be key influencing factors^{8,12)}. Therefore, in order to prepare dental hygienists to be equipped with cultural competence, education at the student level must come first.

Recently, Korea has attempted studies related to the cultural competence of health service providers and made an effort to improve their interactions in this area. However, such efforts have been limited mostly to nursing students^{2,13-19)} or nurses^{8,20,21)}, while there have been no studies that have identified the cultural competence level and influencing factors among dental hygiene students.

Accordingly, the present study aimed to identify the cultural competence level and influencing factors among dental hygiene students for demonstrating the need for education designed to enhance the cultural competence of dental hygiene students, who will become future oral health professionals.

Materials and Methods

1. Subjects and methods

The present study was performed with a convenience sample of dental hygiene students from one 3-year and one 4-year institution located in Gyeonggi Province, Korea. Dental hygiene students, as well as the entire student population, were surveyed between February 28 and March 10, 2017. After subjects had been provided with an explanation of the study objectives, those who consented to participate in the study filled out the survey via a self-reporting method. A total of 530 samples were used as the final data for analysis. The present study was conducted with approval from the Institutional Review Board at Eulji University (EU17-06).

2. Study tools

For general characteristics, 5 items were measured, which consisted of sex, age, school year, religion, and clinical practicum experience (including part-time). For culture-related characteristics, a total of 8 items were measured, which consisted of overseas travel experience, overseas residency and/or stay experience, foreign language course experience, foreign culture-related course experience, having relatives or friends who are foreign nationals, previous contact with patients who were foreigners, desire for overseas employment, and ability to speak a foreign language. The tool used for cultural competence was a modified and supplemented version of an instrument suited for dental hygiene students, which was based on a tool by Park²²⁾, who modified and supplemented the "Caffrey Cultural Competence in Healthcare Scale" by Caffrey et al.²³⁾ and "Cultural Competence Assessment" by Schim et al.¹¹⁾ for use on Korean nursing students. The tool was composed of a total of 38 items, including 12 items on cultural acceptance, 10 items on cultural know

Table 1. Differences of Cultural Competence according to General Characteristics

Characteristic	Category	n (%)	Cultural competency			Sub-dimension of cultural competency			Behavior intent			
			Mean±SD	p		Mean±SD	p		Mean±SD	p		
Sex	Female	523 (98.7)	2.79±0.462	0.365	2.75±0.557	0.493	2.39±0.617	0.257	2.72±0.592	0.801	3.30±0.569	0.193
	Male	7 (1.3)	2.95±0.397		2.89±0.597		2.66±0.408		2.67±0.616		3.59±0.511	
Age (y)	19 ~ 20	145 (27.4)	2.85±0.426 ^{ab}	0.008	2.79±0.530	0.071	2.53±0.569 ^a	0.001	2.72±0.535 ^{ab}	0.013	3.37±0.529	0.260
	21 ~ 22	271 (51.1)	2.73±0.474 ^a		2.70±0.568		2.30±0.619 ^b		2.66±0.601 ^a		3.27±0.569	
	≥23	114 (21.5)	2.86±0.456 ^b		2.83±0.559		2.46±0.627 ^{ab}		2.86±0.619 ^b		3.31±0.613	
Grade	1	151 (28.5)	2.86±0.463 ^{ab}	0.005	2.82±0.561	0.016	2.53±0.617 ^a	< 0.001	2.73±0.545 ^a	0.004	3.36±0.555	0.467
	2	152 (28.7)	2.73±0.442 ^a		2.69±0.512		2.33±0.572 ^{ab}		2.64±0.593 ^a		3.26±0.525	
	3	154 (29.1)	2.74±0.429 ^a		2.68±0.569		2.26±0.565 ^b		2.69±0.557 ^a		3.31±0.572	
	4	72 (13.8)	2.91±0.525 ^b		2.87±0.587		2.53±0.721 ^a		2.94±0.698 ^b		3.29±0.672	
Religion	Yes	175 (33.0)	2.89±0.447	0.001	2.85±0.576	0.004	2.48±0.585	0.023	2.82±0.604	0.008	3.41±0.595	0.003
	No	355 (67.0)	2.75±0.461		2.70±0.542		2.35±0.625		2.67±0.580		3.26±0.549	
Clinical practice experience	Yes	332 (62.6)	2.81±0.458	0.296	2.77±0.565	0.188	2.38±0.601	0.592	2.75±0.608	0.230	3.33±0.577	0.154
	No	198 (37.4)	2.77±0.466		2.71±0.543		2.41±0.639		2.68±0.561		3.26±0.554	
Total		530 (100.0)	2.79±0.461		2.75±0.558		2.40±0.615		2.72±0.591		3.31±0.569	

Data was analysed by t-test and one-way ANOVA statistics.

SD: standard deviation.

^{a,b}The same letter indicates no significant difference by Scheffe.

ledge, 6 items on cultural awareness, and 10 items on cultural dental hygiene behavioral intention. Each item was graded on a 5-point Likert scale with 1 point for “not at all” to 5 points for “very much so.” Higher total scores indicated higher cultural competence. Reliability testing on the 4 types of cultural competence showed values of Cronbach’s α of 0.907, 0.885, 0.664, and 0.686 for cultural acceptance, cultural knowledge, cultural awareness, and cultural dental hygiene behavioral intention, respectively.

3. Data analysis

PASW Statistics ver. 18.0 (IBM Co., Armonk, NY, USA) was used on the collected data, with frequency analysis for general characteristics and culture-related characteristics of the subjects and descriptive statistics analysis for examination of cultural competence levels. In addition, the t-test and one-way analysis of variance were performed to compare differences in cultural competence levels according to general and culture-related characteristics. Levene’s statistic was used for equality of variance testing, while Scheffe’s post-hoc test was performed to look for significant intergroup differences. A stepwise multiple regression analysis was performed to identify the influencing factors of cultural competence, with qualitative variables used as dummy variables. For the analysis, the significance level was set to 0.05.

Results

1. Differences in cultural competence levels according to general characteristics

Differences in cultural competence levels according to general characteristics were as shown in Table 1. There were differences in cultural competence levels according to age ($p=0.008$), with individuals ≥ 23 years old showing the highest score of 2.86, followed in order by the groups of students aged 19~20 and 21~22 years. In the subscales, the group aged 19~20 years old had the highest score of 2.53 for cultural knowledge ($p=0.001$), and those ≥ 23 years old showed the highest score of 2.86 for cultural awareness ($p=0.013$), with a statistically significant difference in the results. With respect to cultural competence levels according to school years, 4th year students

showed the highest score for overall cultural competence level ($p=0.005$), while 4th year students also showed the highest scores in the subscales of cultural acceptance, cultural knowledge, and cultural awareness ($p < 0.05$). The scores for cultural competence ($p=0.001$) and the 4 subscales were higher in students with a religion, with a statistically significant difference.

2. Differences in cultural competence levels according to culture-related characteristics

According to culture-related characteristics, students with overseas travel experience showed high cultural acceptance ($p=0.028$) and cultural knowledge ($p=0.013$). Those with overseas residency or a stay of over 1 month showed statistically significant differences in scores in cultural acceptance, cultural knowledge, and cultural dental hygiene behavioral intention ($p < 0.05$). Those with experience of taking foreign language courses showed a high cultural competence level of 2.82 ($p=0.007$), while also showing statistically significant differences in cultural awareness ($p=0.033$) and cultural dental hygiene behavioral intention ($p=0.004$). Students with experience of taking foreign culture-related courses showed a statistically significantly high level of overall competency. Individuals who had relatives and/or friends who are foreign nationals showed statistically significant differences in overall cultural competence, cultural acceptance, cultural knowledge, and cultural dental hygiene behavioral intention ($p < 0.05$). Those with experience in having had contact with patients who were foreigners showed statistically significant differences in levels of cultural awareness ($p=0.014$) and cultural dental hygiene behavioral intention ($p=0.039$). Meanwhile, students who had a desire for overseas employment and were fluent in a foreign language showed high levels of overall cultural competence and all 4 subscales ($p < 0.05$; Table 2).

3. Influencing factors of cultural competence

Among the influencing factors, desire for overseas employment had the biggest influence on cultural competence. Culture competence level appeared higher in individuals with a desire for overseas employment ($p < 0.001$), experience in taking foreign culture-related courses

Table 2. Differences of Cultural Competence according to Cultural Characteristics

Characteristic	Category	n (%)	Cultural competency		Comfort		Sub-dimension of cultural competency					
			Mean±SD	p	Mean±SD	p	Mean±SD	p	Mean±SD	p	Mean±SD	p
Traveling abroad	Yes	316 (59.6)	2.83±0.459	0.053	2.79±0.543	0.028	2.45±0.609	0.013	2.73±0.613	0.884	3.33±0.593	0.205
	No	214 (40.4)	2.75±0.461		2.68±0.573		2.31±0.616		2.72±0.558		3.27±0.531	
Residence abroad more than a month	Yes	77 (14.5)	2.95±0.424	0.001	2.92±0.539	0.003	2.63±0.559	<0.001	2.82±0.544	0.134	3.43±0.650	0.037
	No	453 (85.5)	2.77±0.462		2.72±0.556		2.36±0.616		2.71±0.598		3.29±0.552	
Participating foreign language education	Yes	426 (80.4)	2.82±0.457	0.007	2.77±0.556	0.092	2.42±0.616	0.062	2.75±0.589	0.033	3.34±0.579	0.004
	No	104 (19.6)	2.68±0.463		2.67±0.560		2.29±0.601		2.61±0.589		3.17±0.506	
Participating cultural education	Yes	117 (22.1)	2.96±0.473	<0.001	2.93±0.545	<0.001	2.57±0.640	<0.001	2.87±0.662	0.002	3.48±0.611	<0.001
	No	413 (77.9)	2.75±0.447		2.70±0.552		2.35±0.599		2.68±0.563		3.26±0.548	
Foreign family or friends	Yes	124 (23.4)	2.91±0.455	0.001	2.91±0.565	<0.001	2.53±0.572	0.007	2.79±0.566	0.130	3.43±0.639	0.007
	No	406 (76.6)	2.76±0.457		2.70±0.547		2.36±0.623		2.70±0.598		3.27±0.541	
Caring foreign patients	Yes	150 (28.3)	2.85±0.462	0.064	2.82±0.584	0.071	2.38±0.552	0.723	2.82±0.630	0.014	3.39±0.611	0.039
	No	380 (71.7)	2.77±0.459		2.72±0.545		2.40±0.639		2.68±0.571		3.28±0.549	
Overseas employment intention	Yes	322 (60.8)	2.88±0.435	<0.001	2.85±0.545	<0.001	2.47±0.579	<0.001	2.79±0.589	0.002	3.40±0.563	<0.001
	No	208 (39.2)	2.67±0.471		2.59±0.541		2.28±0.650		2.62±0.583		3.17±0.550	
Fluency in foreign language	Fluency	24 (4.5)	3.16±0.409	<0.001	3.20±0.568	<0.001	2.90±0.470	<0.001	3.01±0.465	0.016	3.53±0.524	0.047
	Not fluency	506 (95.5)	2.78±0.456		2.73±0.549		2.37±0.611		2.71±0.594		3.30±0.569	
Total		530 (100.0)	2.79±0.461		2.75±0.558		2.40±0.615		2.72±0.591		3.31±0.569	

Data was analysed by t-test statistics.
SD: standard deviation.

Table 3. Variables Affecting Cultural Competency of Subjects (n=530)

Variable	B	SE	β	t	p
Cultural competence					
Overseas employment intention	0.166	0.040	0.176	4.133	<0.001
Participating cultural education	0.146	0.047	0.132	3.090	0.002
Fluency in foreign language	0.248	0.094	0.112	2.636	0.009
Religion	0.101	0.041	0.103	2.455	0.014

F=14.523, $R^2=0.100$, adjusted $R^2=0.093$, $p < 0.001$.

SE: standard error.

The data was analysed by the stepwise multiple regression analysis.

($p=0.002$), fluency in a foreign language ($p=0.009$), and having a religion ($p=0.014$; Table 3).

Discussion

The present study aimed to identify the influencing factors of cultural competence in dental hygiene students, with which the students should be equipped when administering dental hygiene care as future dental hygienists.

Measurement of cultural competence levels showed that the mean score was 2.79, and among the subscales, cultural knowledge had the lowest score of 2.40 while cultural dental hygiene behavioral intention had the highest score of 3.31. Overall, the scores in the present study were lower than those obtained in other studies^{2,13} that were performed in nursing students using the same tool, with cultural knowledge lower, among the subscales. It is believed that the explanation for the cultural knowledge score being the lowest was the lack of opportunities for multicultural education with in the dental hygiene curriculum. Cultural knowledge is based on development of cultural attitudes, and because there is a continued demand for such knowledge in providing dental hygiene care to patients from different cultures, it is necessary to acquire such knowledge through education and training. In contrast, the score in the present study was slightly higher than the 2.6 reported in a study on cultural competence of nurses in general hospitals located in Seoul and the capital region⁸. It is believed that such difference

is due to the subjects of the present study being dental hygiene students, as well as the modification of the cultural behavior category to behavioral intention, resulting in the score being slightly higher than that found in a study that examined actual behavior⁸. On the other hand, the score being lower than the 3.19 found in a study on nursing students in the United States²² is an obvious result when considering the environmental differences based on the education of the students in the United States in a multicultural society for a long time.

Differences in cultural competence levels according to general characteristics showed significant differences based on age and school year, but the differences did not follow a simple sequential order. These findings suggested that there are limitations in increasing cultural competence alone by existing education and natural maturation from simple increases in age and school year. Those with a religion showed high levels of cultural competence and all 4 subscales, a finding consistent with the results of a study by Cha and Yang¹⁷ on the culture competence of nursing students with a religion, which demonstrates that the characteristics of an individual with a religion related to acceptance of another person played a key role in understanding one's external environment²⁴.

Differences in cultural competence levels according to culture-related characteristics showed that individuals with experience of overseas travel and overseas residency or a stay of over a month had higher cultural acceptance and cultural knowledge. This finding was in the same context as another study that reported that those with overseas travel experience have a positive attitude toward foreigners²⁵. Considering that an overseas study²⁶ showed significant difference in improvement in cultural competence from participating in a trans-Pacific region student exchange program for nursing students from Europe and Canada and from operating a practical training that included multicultural experience for a set period of time in a foreign country in the curriculum for nursing college students²², overseas stay experience is believed to be helpful in heightening understanding and forming a positive attitude regarding multiple cultures. Students with experience in taking a foreign language course showed significant differences in cultural awareness and cultural

dental hygiene behavioral intention, while those with experience in having contact with patients who are foreign nationals also showed high cultural awareness and cultural dental hygiene behavioral intention. Moreover, those with relatives or friends who are foreign nationals showed differences in cultural acceptance and knowledge and behavioral intention. It is interpreted that the process of acquiring a foreign language or coming into contact with foreigners enhances the awareness of other cultures, while interactions with relatives or friends who are foreign nationals are not singular events, and thus, cultural knowledge or acceptance leads naturally to active behavioral intention. These findings were similar to the results of another study¹⁸⁾ that found higher cultural competence scores in individuals with friends who are foreign nationals or have experience interacting with foreigners. The fact that frequent contact with people from different cultures reduces distance with such people to help acquire cultural competence²⁷⁾ also supports the importance of maintaining a steady relationship rather than a transient experience. Statistically significant differences were observed in overall cultural competence, cultural acceptance, knowledge, awareness, and dental hygiene behavioral intention according to foreign culture-related course experience, desire for overseas employment, and the ability to speak a foreign language, and these findings were similar to the results of a study by Yang et al.¹⁹⁾. It is believed that having the desire for overseas employment would enhance the knowledge and acceptance of foreign cultures, as an individual acquires a foreign language with interest in various cultures, and as a result, such ability to speak a foreign language would lead to increased confidence that affects dental hygiene behavioral intention.

Finally, significant influencing factors of cultural competence in dental hygiene students were found to be desire for overseas employment, foreign culture-related course experience, and the ability to speak a foreign language. Intrinsic need, such as the desire for overseas employment, may be important, but there is also the need for organized support and effort toward foreign culture-related and foreign language courses. Such findings were partially consistent with precedent studies that reported that foreign language fluency, having foreigner

friends, overseas travel or living experience, and frequency of coming in contact with multicultural individuals were common factors among cultural competence-related factors^{8,13,19)}. Therefore, improved foreign language skills should be a prerequisite in enhancing the cultural competence of dental hygiene students. Moreover, considering the fact that college students who have experienced multicultural-related information have higher cultural competence^{15,19,28)} and that countries with multicultural societies are actively pursuing education and studies for acquiring cultural competence⁸⁾, it would be necessary to put forth the effort to include multicultural courses and experiences in the dental hygiene curriculum. Furthermore, Korean society has already transitioned to a multicultural society, and as such, dental hygiene students who will become future dental hygienists should foster cultural competence that aims to understand and communicate with individuals of various cultures without any prejudice or stereotypes, while also enhancing their cultural competence through multicultural education and volunteer activities.

The present study included a convenience sample from schools from a specific region, and thus, there are limitations in generalizing the findings. Moreover, the tool used to measure cultural competence was a modified and supplemented version of a tool developed for healthcare workers, and as such, the present study may be limited in that the situation of dental hygiene students was not sensitively reflected. Despite these limitations, the present study was significant in that it identified cultural competence levels in dental hygiene students and influencing factors of cultural competence. Future follow-up studies are needed to identify the cultural competence levels of dental hygienists who provide dental hygiene care to foreign patients in actual clinical settings.

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