

Influential factors on the quality of life and dental health of university students in a specific area.

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Abstract

Health is an important factor that determines a person's quality of life, which is a major issue in the health and medical field. It is also used in different health-related quality-of-life parameters. This study was conducted by obtaining 130 Google-based self-administrative questionnaires from students in 3 departments of Kangwon National University. The correlation analysis regarding the level of interest on dental health and dental disease symptoms showed a significant correlation between the symptoms (e.g., infection, halitosis, and food stuck between the teeth) and level of interest. The subjects are more aware of the symptoms in advance due to an increased level of interest on their dental health. Tooth brushing instruction (TBI) education also had a significant correlation with the level of interest, as broader knowledge resulted in a higher awareness of dental health. It is necessary to integrate systematic dental health management during the university student's term. In addition, dental health education is critical to the improvement of their dental health. Therefore, this study aims to improve the awareness on correct dental health concepts and the importance of introducing dental health education programs to university curriculums in order to improve their quality of life.

Keywords: Dental health, Quality of life, TBI education, University students.

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Introduction

Health is the main factor that determines a person's quality of life, which is a major issue in the health and medical field. It is used in various health-related quality-of-life parameters and serves as a part of the physical condition assessment, as well as the strategy and policy development aimed at promoting good health [1]. As the income level improved along with a growing economy, the public became more interested on a life that satisfies their own standards rather than a life based on objective standards. Since raising the awareness of the university students on their quality of life has been established, it is necessary to induce health behavior change for the improvement of their health level and to eliminate health risk factors. Health promotion services, including physical examination, and the university's effort to activate health education programs are necessary [2].

The university student's term is a preparatory stage and a transition period from adolescence to adult. It is a very important period because it determines what a person is going to be as an adult; therefore, the awareness of maintaining a healthy life during this period is gradually becoming prevalent

[3]. The students are reluctant to receive dental treatment due to their dental diseases that have accumulated over the years. In addition, they are not financially independent. Irregular eating habits, smoking, and alcohol use can cause nutritional imbalance and negatively impact their dental health [4]. According to Lee [5], 80.1% of the university students are in a subjectively poor dental health.

Dental problem is not only related to dental function state, but it is also correlated to the overall physical condition, sociality, confidence, and life satisfaction [6]. Healthy habits that were established during adolescence, including the university student's term, can determine their health behavior as an adult [7], and the ideal health behavior established during this period is known to affect their quality of life. Kim [8] also states that a good dental status corresponds to good mental health and high quality of life. The university student's term serves as a preparation for becoming future leaders; therefore, their dental health is an important factor that will enable them to perform well in their studies, as well as gain physiological confidence and a healthy physique [9]. Most of the previous studies conducted on the dental health problems of university students

dealt with factors, such as smoking, alcohol, and diet, or assessed the awareness of a subjective dental health state [10-12]. However, there were only a few studies conducted on the quality of life that reflected dental health.

Therefore, this study investigates the quality of life of the university students in relation to dental health in order to raise the awareness and attention on dental health, seek strategies to improve the quality of life into a higher level, and provide fundamental data necessary for making national dental health policies.

Materials and Methods

Study subject and method

From March 2016 to April 2016, students in 3 majors at Kangwon University Dogye Campus answered a self-administered Google-based survey on the quality of life related to dental health. The 135 questionnaires were obtained, and 130 questionnaires were selected for the analysis, excluding 5 that were left unanswered or omitted. We obtain consent for the information.

Study instruments

The questionnaires were reconstructed for the study objectives that referred to the previous studies according to the quality of life and dental health status of the university students. They were revised in order to supplement the study instruments used in the referred studies. The survey content consisted of sections on the subject's general features, subjective dental health state and practice, dental disease symptoms, and dental health-related quality of life.

Statistical analysis

SPSS statistics program (ver. 19.0) was used for the statistical analysis. Frequency analysis was conducted on the general features. Pearson's correlation coefficient was used for the correlation of the level of interest on dental health and dental health education, and the correlation of the level of interest on dental health and dental disease symptoms. Frequency analysis and descriptive statistics were used to understand the factors related to the quality of life in regard to dental health. In addition, multiple regression analysis was conducted in order to analyze the factors that are affecting the quality of life relevant to dental health.

Results

General features

For the general features shown in Table 1, the age distribution were '20 years old' 37.5%, '21 years old' 22.5%, '22 years old' 15.8%, '23 years old' 9.2%, '24 years old' 10.8%, and '25+' 4.2%. The distribution of age was 25% for 'male students' and 75% for 'female students'. 'Freshman' showed the highest grade distribution of 43.3%, followed by

'sophomore' with 27.5%, 'junior' with 16.7%, and 'senior' with 12.5%. For the type of residence, 'dormitory' was ranked first with 85.8%, followed by 'self-residence' with 13.3%, and 'home with family' with 0.8%.

Table 1. General features.

Characteristic	Classification	Frequency (%)
Age	20 years old	45 (37.5)
	21 years old	27 (22.5)
	22 years old	19 (15.8)
	23 years old	11(9.2)
	24 years old	13 (10.8)
	25+	5 (4.2)
Gender	Male	30 (25.0)
	Female	90 (75.0)
Grade	Freshman	52 (43.3)
	Sophomore	33 (27.5)
	Junior	20 (16.7)
	Senior	15 (12.5)
Type of residence	Dormitory	103 (85.8)
	Self-Residence	16 (13.3)
	Home with Family	1 (0.8)

Table 2. Tooth brushing training experience and level of interest on dental health.

		Dental Health Education Experience	Dental Health Level of Interest
Tooth Brushing Training Experience	Pearson correlation coefficient	1	.256**
	Significance probability (both sides)		.005
Dental Health Level of Interest	Pearson correlation coefficient	.256**	1
	Significance probability (both sides)	.005	

The level of interest on dental health according to dental health education experience

The level of interest on dental health has a significant correlation with tooth brushing training. The more experience the subject had with tooth brushing training, the more interest they had on dental health (Table 2).

Correlation of level of interest on dental health and dental disease symptoms

The correlation analysis result of the subject’s level of interest on dental health and dental symptoms showed that a higher interest on dental health would reduce the experience of soreness or pain due to inflammation in the mouth, the experience of having a bad breath, and the experience of having a foreign object between the teeth. It shows that a person will notice the symptoms earlier if there is a high level of interest on dental health (Table 3).

Table 3. Dental health awareness and dental health level of interest.

		Dental Health Level of Interest	Experience of Soreness or Pain due to Inflammation in the Mouth	Experience of Having a Bad Breath	Experience of Having a Foreign Object Between the Teeth
Dental Health Level of Interest	Pearson correlation coefficient	1	-.196*	-.229*	-.199*
	Significance probability (both sides)		.032	.012	.029
Experience of Soreness or Pain due to Inflammation in the Mouth	Pearson correlation coefficient	-.196*	1	.490**	.563**
	Significance probability (both sides)	.032		.000	.000
Experience of Having a Bad Breath	Pearson correlation coefficient	-.229*	.490**	1	.611**
	Significance probability (both sides)	.012	.000		.000
Experience of Having a Foreign Object Between the Teeth	Pearson correlation coefficient	-.199*	-.563**	.611**	1
	Significance probability (both sides)	.029	.000	.000	

Table 4. The correlation of the dental health symptoms and the dental health-related quality of life.

	Mean	S.D.

Table 5. Factors affecting the dental health-related quality of life.

Factor	B	Std. err.	β	t	VIF
Age	0.027	0.024	0.067	1.118	1.173
Caries	0.136	0.077	0.104	1.755†	1.135
Information on caries	-0.096	0.073	-0.076	-1.32	1.081

Dental health-related quality of life	4.518	.613
Age	21.458	1.533
Biting or chewing difficulty	1.475	.898
Bleeding when brushing the teeth	1.992	.912
Gap between the teeth	1.267	.730
Bad breath	2.050	.878
Chilling sensation when gargling or rinsing with cold water	2.242	.953
Pain or discomfort when opening the mouth	1.675	1.014
Gum or candy use due to dry sensation in the mouth	1.233	.695

Dental health symptoms and dental health-related quality of life

Various dental disease symptoms and dental function levels related to the quality of life were examined. As shown in Table 4, a higher score means that the dental disease symptoms are severe and the dental function is poor. While most of the subjects had good dental health condition, the most frequent dental symptoms were ‘bad breath’ (Mean=2.050), followed by ‘chilling sensation when gargling or rinsing with cold water’ (Mean=2.242), and ‘bleeding when brushing the teeth’ (Mean=1.992).

Factors affecting the dental health-related quality of life

A regression analysis on different factors, including the function factor, were conducted as independent variables in order to examine what influences dental health-related quality of life. As shown in Table 5, the model fit (F=19.789, p<0.01) was acceptable and its ability to account for the model was 63.5%. The function factor had a statistically significant influence with less than 0.05 significance level. The dental health-related quality of life was reduced based on the following results: ‘Gap between the teeth’ (β=-.345), ‘gum or candy use due to dry sensation in the mouth’ (β=-.202), ‘bad breath’ (β=-.198), ‘chilling sensation when gargling or rinsing with cold water’ (β=-.145), and ‘pain or discomfort when opening the mouth’ (β=-.131). This indicates that the dental health-related quality of life negatively influences the quality of life via factors on dental function.

Loss of teeth	-0.193	0.111	-0.105	-1.733 [†]	1.186
Dental disease symptoms					
Biting or chewing difficulty	-0.064	0.049	-0.094	-1.318	1.658
Bleeding when brushing the teeth	-0.067	0.044	-0.099	-1.522	1.38
Gap between the teeth	-0.29	0.06	-0.345	-4.861 ^{***}	1.643
Bad breath	-0.138	0.045	-0.198	-3.061 ^{**}	1.365
Chilling sensation when gargling or rinsing with cold water	-0.093	0.044	-0.145	-2.138 [*]	1.504
Pain or discomfort when opening the mouth	-0.079	0.038	-0.131	-2.092 [*]	1.279
Gum or candy use due to dry sensation in the mouth	-0.178	0.061	-0.202	-2.899 ^{**}	1.579
(constant)	5.933	0.134		44.22 ^{***}	-
R-sq	-	-	-	0.668	-
adj. R-sq	-	-	-	0.635	-
F	-	-	-	19.789 ^{***}	-
†p<0.1, *p<0.05, **p<0.01, ***p<0.001					

Discussion

In the past, the connection between dental health and physical condition was irrelevant. However, recent studies showed that people are becoming more aware of the effects of dental health on the improvement of their quality of life. Quality of life is influenced by the satisfaction and happiness felt subjectively by an individual through social relations and complexities, such as psychological state and physical health [13]. Wilson and Cleary [14] stated that dental symptoms can influence dental function, determine the subjective dental health state, and eventually affect the quality of life. Many advanced countries are researching and developing questionnaires related to the quality of life and dental health in order to provide a high-quality life to their citizens [15-17]. For this reason, dental health is a critical determining factor for the quality of life.

University students are invaluable individuals who are in charge of their future, and it is important that they become aware of their health as individuals who are establishing independence from their parents [18]. In the case of university students who are searching for a job, they have an increased level of interest on their physical appearance, and they experience stress from factors affecting their job searching, such as qualifications, career maturity, and job search stress [19]. Furthermore, they are experiencing interpersonal stress, which originated from the psychological separation from their parents and their friends, and ego stress [20]. These stressors make them reluctant to receive dental care, thus resulting in dental symptoms, such as dental caries and periodontal diseases [21]. Systematic dental health education and management is critical, as irregular nutrition and diet substantially influences the dental health of the university students. Although dental health education for dental health improvement is needed, students are often busy with major-

oriented classes. Awareness on dental health at this stage will affect their dental care behaviors, and it will also influence their long-term dental health [22]. Although many previous studies were conducted on geriatric dental health and their quality of life [23,24], only a few studies were conducted on university students. Studies on the dental health of the university students will bring about a better understanding of their general dental health and quality of life. They are also expected to provide health education programs for the university students. This study emphasizes the significance of dental health awareness and dental health education on university students, and it provides an opportunity to improve their quality of life.

As a result of examining the correlation between the students' dental health education experience and the level of interest on dental health, more experience with dental health education showed a higher level of interest on dental health. Bakdash [25] emphasized the necessity of motivation in establishing a dental health education program, and stated that the self-motivated interest in dental health is crucial to its success. Dental health awareness of primary school students with school-based dental health office was higher than that of schools without the facility [26], which is similar to the result of this study. Likewise, Baek's study [27] showed that the self-level of interest on dental health has significantly increased following the dental health education given to occupational nurses. This result demonstrates that dental health education gives a substantial influence to the level of interest on dental health care and disease prevention of adults. For this reason, it is necessary for the government to actively support the university students, whose transition to adulthood is in progress, in becoming aware of dental health care.

As a result of examining the correlation between dental disease symptoms and the level of interest on dental health, a higher

level of interest on dental health means a higher awareness on self-care practices. Moreover, the higher level of interest on dental health was correlated with a higher level of awareness to the prevention of dental diseases [28]. These are similar to the results in this study, and the interest on dental health is expected to influence self-care practice on dental health and disease prevention. It is previously reported that dental diseases can negatively affect a person's quality of life [29]. Steele et al. [30] reported that an individual with more than one type of dental disease may experience a lower quality of life. In the multiple regression analysis conducted in this study to understand the factors of dental health awareness that influence the quality of life, more incidence rate of events, such as gap between the teeth, gum or candy use due to dry sensation in the mouth, bad breath, chilling sensation when gargling or rinsing with cold water, and pain or discomfort when opening the mouth, were related to a lower quality of life. This implies that the dental health-related quality of life is affected by factors regarding dental function. It has a negative impact on a person's quality of life, as the functional factor of the teeth continues for a long period of time.

Fernandes et al. [31] also reported that dental health education and dental disease symptoms are in close relation with dental health-related quality of life. A higher interest on dental health means that the individual is becoming more interested in an active dental health care and a faster recognition of the symptoms, thereby leading to a high dentist's office visit rate. Therefore, a specialized and systematic dental health education is highly required for the prevention and the early treatment of dental disease. However, the limitation of this study is in some areas. The actual research design may investigate a more thorough region of the college group's in the future work.

Conclusion

This study was conducted a person's quality of life, which is a major issue in the health and medical field from students in 3 departments of Kangwon National University. The subjects are more aware of the symptoms in advance due to an increased level of interest on their dental health. Tooth brushing instruction (TBI) education also had a significant correlation with the level of interest, as broader knowledge resulted in a higher awareness of dental health. It is also recommended that the university students' interest on their dental health is improved by providing dental health educational opportunities in order to ensure a healthy adulthood.

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