



## The Relationship of Oral Health between Psychological States in Adults of South Korea

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### Dear Editor-in-Chief

Oral health plays an important role in maintaining the quality of life of the individual's psychological health (1). To confirm the relationship oral health between psychological states, the difference of satisfaction according to the degree of depression was investigated, and the subjects with severe depression were more dissatisfied with the full denture (2). There is also a cross-sectional study of the relationship between anxiety, depression and oral health. In this study, the higher the frequency of anxiety and depression gum bleeding, and toothache were 2.9 times higher than normal subjects (3).

Psychological states are emerging as one of the important health problems of modern people as societies change and become increasingly complex, and these psychological states are closely related to oral health (4, 5).

However, there is a lack of research on the relationship between the psychological states and disability of mastication and speaking functional cognition of subjects who are subjective indicators of oral health. This study aimed to determine the oral masticatory function among mental health in over 20-yr-old South Korean.

The 2007 Korea National Health and Nutrition Survey (KNHANES) had the complex survey design which considers non-response rates and

post-stratification adjustment to match Korean population by gender and age structures (Table 1).

The logistic regression model was used to estimate the association between psychological problems and oral discomforts. In particular, we used PROC SURVEYLOGISTIC procedure of SAS version 9.1 due to the reason why the KNHANES data were collected from National Survey program designed as complex sampling. For statistical inferences, PROC SURVEYLOGISTIC incorporates complex survey sample designs, including designs with stratification, clustering, and unequal weighting.

Table 2 shows the relationships between the psychological status and disabilities of speaking and mastication, respectively.

The people with disability of speaking had a 1.33 times higher likelihood of perceived high amount of stress, 1.64 higher of the depression during recent 2 wk, and a 1.82 higher of the impulse of suicide during recent a year than normal subjects. Moreover, the people with disability of mastication had a 1.54 times higher likelihood of perceived high amount of stress, a 2.17 higher of the depression during recent 2 wk, and a 1.87 higher of the impulse of suicide during recent a year than normal subjects.

**Table 1:** Distribution of demographic characteristics, oral health and mental health status

<i>Characteristics</i>	<i>No. of Subjects (n=3335)</i>	<i>Weighted percent (SE)</i>
Sex		
Male	1,242	49.3 (0.8)
Female	1,741	50.7 (0.8)
Age group		
20-40	974	43.6 (1.4)
40-64	1,287	43.4 (1.4)
65≤	722	13.0 (0.8)
TMD (Temporomandibular Disorder)		
Yes	82	3.2 (0.4)
No	2,901	96.8 (0.4)
Income (household)		
1 <sup>st</sup> quantile	631	16.1 (1.5)
2 <sup>nd</sup> quantile	742	26.1 (1.7)
3 <sup>rd</sup> quantile	726	28.6 (1.4)
4 <sup>th</sup> quantile	745	29.2 (2.2)
Disability of Mastication		
Yes	1,036	29.2 (1)
No	1,942	70.8 (1)
Disability of Speaking		
Yes	375	9.9 (0.8)
No	2,601	90.1 (0.8)
The amount of stress		
High	780	27.1 (0.9)
Low	2,198	72.9 (0.9)
Depression during recent 2wk		
Yes	436	12.7 (0.6)
No	2,544	87.3 (0.6)
Impulse of suicide during recent a year		
Yes	521	15.0 (0.9)
No	2,452	85.0 (0.9)
Prosthetic status (maxillar)		
Sound teeth or filling or single crown	1,841	70.8 (0.9)
One bridge	481	15.5 (0.7)
Over two bridges	215	5.5 (0.4)
Only partial denture	91	1.8 (0.2)
Bridges and partial denture	109	2.5 (0.3)
Full denture	188	3.8 (0.4)
Prosthetic status (mandibular)		
Sound teeth or filling or single crown	1,898	73.4 (0.9)
One bridge	394	11.6 (0.7)
Over two bridges	252	6.7 (0.5)
Only partial denture	112	2.2 (0.3)
Bridges and partial denture	151	3.8 (0.4)
Full denture	118	2.3 (0.4)

There was a disability of mastication and speaking affect depression. Maintaining oral health will help you improvement psychological states. In other words, keeping oral health, trying to avoid mastication and speaking problems will help im-

prove mental health. Conversely, when consulting for mental problems or developing a program to improve mental health, it may be helpful to verify that there is no oral health or mastication and speaking problems.

**Table 2:** Relationship between the psychological states and disability of mastication and speaking OR (95% CI)

Predictors	Disability of mastication			Disability of speaking		
	Amount of stress	Depression during Recent 2 wk	Impulse of suicide during Recent a year	Amount of stress	Depression during Recent 2 wk	Impulse of Suicide during Recent a year
Sex						
Male	1.00	1.00	1.00	1.00	1.00	1.00
Female	1.4(1.14-1.73)	2.41 (1.83-3.16)	2.53 (1.93-3.33)	1.4 (1.13-1.73)	2.39 (1.83-3.13)	2.5 (1.9-3.27)
Age group						
20-40	1.00	1.00	1.00	1.00	1.00	1.00
40-64	0.9(0.69-1.18)	1.32 (0.94-1.87)	1.2 (0.87-1.64)	0.92 (0.7-1.2)	1.36 (0.97-1.9)	1.26 (0.92-1.74)
65≤	0.8(0.56-1.14)	1.72 (1.16-2.56)	2.21 (1.53-3.19)	0.8 (0.56-1.15)	1.69 (1.16-2.46)	2.34 (1.61-3.4)
TMD*						
Yes	1.89(1.15-3.11)	1.34 (0.66-2.72)	2.1 (1.04-4.22)	1.93 (1.16-3.21)	1.36 (0.66-2.79)	2.13 (1.03-4.38)
No	1.00	1.00	1.00	1.00	1.00	1.00
Income (household)						
1 <sup>st</sup> quantile	1.17(0.78-1.76)	2 (1.41-2.83)	2.21 (1.41-3.44)	1.19 (0.79-1.8)	2.05 (1.44-2.94)	2.36 (1.51-3.69)
2 <sup>nd</sup> quantile	1.21(0.91-1.61)	1.52 (1.08-2.14)	2.29 (1.55-3.38)	1.24 (0.93-1.65)	1.58 (1.11-2.26)	2.42 (1.64-3.59)
3 <sup>rd</sup> quantile	1.14(0.88-1.49)	1.36 (0.94-1.96)	1.01 (0.67-1.51)	1.16 (0.89-1.5)	1.39 (0.97-2)	1.04 (0.7-1.56)
4 <sup>th</sup> quantile	1.00	1.00	1.00	1.00	1.00	1.00
Disability of Speaking						
Yes	1.33(1.09-1.62)	1.64 (1.21-2.24)	1.82 (1.37-2.42)	1.54 (1.19-1.98)	2.17 (1.65-2.86)	1.87 (1.38-2.55)
No	1.00	1.00	1.00	1.00	1.00	1.00

\*TMD (Temporomandibular Disorder)

## Conflict of interests

The authors declare that there is no conflict of interests.

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