

Association between Sleep Quality and Psychologic Factors among University Students in Korea

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The mentophysical disease causes diseases in digestive, respiratory, circulating systems, including chronic pain, through combined reactions from different individual characteristics, mental stress and temperamental factors. The most common symptom related to orofacial area is pain and the contributive factors include biological, behavioral, environmental, social, emotional, recognitive factors. These factors affect the course of the symptom according to individual's character and human nature.

In pain, sleep acts as a contributive factor, and pain could bring about sleep disturbance and vice versa. Deterioration of sleep quality would act as a factor that aggravates mental stress. Therefore, relatively accurate and simple mental examinations and sleep quality test should be carried out for the patients with symptoms related to orofacial area. This study evaluated the mental state in relation to the sleep quality which could affect orofacial pain.

The number of poor sleeper was 18 in male subjects, and 1 in female subjects and PSQI global index was higher in male(6.11 ± 2.38) than female(4.67 ± 2.18).

SCL-90-R index showed no sex difference. Poor sleeper showed significantly high value in SOM, O-C, I-S, ANX, PHOB, PSY, GSI, PST. When SCL-90-R T scores were compared according to sleep quality, higher the subjective sleep quality score, O-C and I-S showed significant increase. As sleep disturbances score increased, PAR, PSY, PST showed statistically significant increase. In comparison of SCL-90-R T score according to daytime dysfunction, statistically significant increase in DEP, ANX, HOS, PHOB, PAR, GSI was observed.

Therefore, the quality of sleep and psychological status have a high correlation. This is likely to influence chronic pain in the orofacial field. As a result, clinicians treating orofacial pain should evaluate the sleep quality and psychological status of the patient. Further studies of larger sample sizes including various age, occupation, and pain groups are necessary in order to apply the results to clinical practice.

Key words: PSQI, SCL-90-R, Orofacial pain

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I. INTRODUCTION

Physical disease accompanies mental state, and mental stress arouses various mental as well as physical symptoms. Such mentophysical disease presents uncommon and complex symptoms through combined reactions from different individual characteristics, mental stress and temperamental factors. The mentophysical disease causes diseases in digestive, respiratory, circulating systems, including chronic pain. The most common symptom related to orofacial area is pain, which is often multifactorial, indefinite, of unknown cause, and hence various conditions arousing and aggravating the pain are called contributive factors. The contributive factors include biological, behavioral, environmental, social, emotional, cognitive factors. These factors do not apply uniformly to each individual, rather affect the course of the symptom according to individual's character and human nature. The individual adapts or shows various symptoms according to one's management ability against social affairs or stress, tension, anxiety derived from personal relations. Therefore, relatively accurate and simple mental examinations should be carried out for the patients with symptoms related to orofacial area.

There are questionnaires for evaluation of mental state of an individual, such as, Social Readjustment Rating Scale(SRRS), Minnesota Multiphasic Personality Inventory(MMPI), Symptom Checklist-90-Revision(SCL-90-R).¹⁾ The patients mark on the questionnaire by themselves, and the questionnaires are standardized according to Korean situation.²⁾

SCL-90-R, based on Cornell medical index, consists of 90 questions and is standardized for Korean situation by Kim et al. SCL-90-R is easily used in clinic, evaluated by non-specialist, and can be completed in short time.

In dentistry, such mental examinations were carried out against patients with TMD, BMS, oral halitosis.³⁻⁵⁾ This study evaluated the mental state in relation to the sleep quality which could affect orofacial pain. Sleep is more than a periodic resting

condition of the body and the nervous system; it is a phase during which both can recuperate the formation and synthesis of proteins.⁶⁾ Likewise, inadequate as well as poor quality sleep are related to increased health concerns, irritability, depression, fatigue, attention and concentration difficulties, and poor academic performance.⁷⁾ In pain, sleep acts as a contributive factor, and pain could bring about sleep disturbance and vice versa.⁸⁻¹⁰⁾ The mental state as well could affect sleep quality. Sleeping relieves the mental fatigue during the day, and recovers one's physical state by relieving mental stress and tension through REM sleep stage. Deterioration of sleep quality would act as a factor that aggravates mental stress.

The aim of this study was to investigate the association between sleep quality and psychological factor by comparing the SCL-90-R according to different sleep quality. In the future, more studies on the influence of the association between sleep and psychological factor on orofacial pain are needed.

II. MATERIALS AND METHODS

1. Subjects

36 volunteers with no history of mental, neural disorders were included in this study. The participants consisted of 27 male(average age 26.19 ±3.21 year-old), 9 female(average age 25.97±2.81 year-old), and total average age was 25.9 years old.

2. Methods

The participants filled out Pittsburgh Sleep Quality Index(PSQI) and Symptom Checklist-90-Revision(SCL-90-R), and they were fully explained until they completely understood.

PSQI consists of 19 items, evaluates on the basis of the patient's subjective sleep ability through 7 fields, which are, subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbance, use of sleeping medication, and

each field is composed of 0-3 index. The total indices were added from the 7 fields to obtain total sleep index(0-21), the lower the index, the better the sleep quality. The sleep index less than 5 indicates good sleeper, and that more than 5 indicates poor sleeper.

SCL-90-R is composed of 90 items. 9 indices of symptom and 3 total indices, obtained by combining each item, were used for diagnostic analysis. 9 indices of symptom include Somatization(SOM), Obsessive-Compulsive(O-C), Interpersonal Sensitivity(I-S), Depression(DEP), Anxiety(ANX), Hostility(HOS), Phobic Anxiety (PHOB), Paranoid Ideation(PAR), Psychoticism (PSY), and 3 total indices include Global severity index(GSI), Positive symptom distress index (PSDI), Positive symptom total(PST). In this study, T-value, converted from the original value of each index item, was used for data analysis.

The collected data were statistically analysed with SPSS window® program(Ver. 11.5).

III. RESULTS

Total sleep index was analysed, and out of 36 participants, the incidence of poor sleeper(52.8%, 19 participants) was higher than that of good sleeper(33.3%, 9 participants). According to the classification by sex, out of 27 male, good sleeper was 33.3%(9 participants) and poor sleeper was 66.7%(18 participants), whereas, in female group, good sleeper was 88.9%(8 participants) and poor sleeper was 2.8%(1 participant), hence, male was found to have higher incidence of poor sleeper compared to female(Table 1).

When sleep index was compared, daytime dysfunction was found to be highest in both the male and the female. PSQI global index was higher

Table 1. Comparison of good and poor sleeper between men and women

	Good sleeper (n=17)	Poor sleeper (n=19)
Male (n=27)	9	18
Female (n=9)	8	1
Total (n=36)	17 (47.2%)	19 (52.8%)

$X^2 = 8.329$ $p=0.004$

Table 2. Comparison of PSQI score in the subgroup divided by sex

	male (n=27)	female (n=9)	p value
Subjective sleep quality	1.11±0.64	0.67±0.71	0.088 (NS)
Sleep latency	1.04±1.02	0.33±1.00	0.080 (NS)
Sleep duration	0.93±0.73	0.78±0.83	0.614 (NS)
Habitual sleep efficiency	0.15±0.36	0.11±0.33	0.788 (NS)
Sleep disturbances	0.85±0.46	1.11±0.33	0.127 (NS)
Use of sleeping medication	0.04±0.19	0.00±0.00	0.571 (NS)
Daytime dysfunction	2.00±0.74	1.67±0.87	0.267 (NS)
PSQI global score	6.11±2.38	4.67±2.18	0.117 (NS)

NS: not significant

Table 3. Comparison of T score of SCL-90-R in the subgroup divided by sex

	male	female	p value
SOM	48.04±10.48	45.89±5.82	0.564 (NS)
O-C	45.89±10.96	41.22±7.29	0.243 (NS)
I-S	46.85±11.40	44.44±9.23	0.571 (NS)
DEP	45.74±10.57	42.00±8.06	0.340 (NS)
ANX	46.11±9.32	43.89±8.71	0.534 (NS)
HOS	47.56±9.08	45.22±7.92	0.496 (NS)
PHOB	47.81±8.48	44.56±3.91	0.276 (NS)
PAR	45.00±8.34	43.44±6.50	0.614 (NS)
PSY	46.93±9.62	43.67±7.70	0.364 (NS)
GSI	46.22±10.46	42.44±7.83	0.329 (NS)
PDSI	49.37±9.48	47.22±11.74	0.583 (NS)
PST	44.85±11.39	41.33±13.32	0.447 (NS)

NS: not significant

Table 4. Comparison of T-score of SCL-90-R between good sleeper and poor sleeper

	Good sleeper (n=17)	Poor sleeper (n=19)	p value
SOM	43.41±4.40	51.16±11.32	0.012 (*)
O-C	39.53±6.25	49.37±11.06	0.002 (**)
I-S	42.53±7.79	49.58±12.21	0.049 (*)
DEP	42.00±8.46	47.32±10.85	0.113 (NS)
ANX	42.29±7.16	48.47±9.82	0.040 (*)
HOS	44.06±6.65	49.58±9.72	0.058 (NS)
PHOB	43.53±3.47	50.11±9.08	0.007 (**)
PAR	42.71±6.32	46.32±8.84	0.172 (NS)
PSY	42.29±6.27	49.53±10.14	0.016 (*)
GSI	40.94±6.37	49.16±11.00	0.011 (*)
PDSI	48.82±10.22	48.84±10.00	0.996 (NS)
PST	38.41±10.51	48.95±10.84	0.006 (**)

NS: not significant, *: p<0.05, **: p<0.01

Table 5. Comparison of T-score of SCL-90-R according to subjective sleep quality score

	0 (n=8)	1 (n=20)	2 (n=8)	3 (n=0)	p value
SOM	45.63±5.42	46.10±6.44	52.88±16.32	0	0.194 (NS)
O-C	40.25±5.55	43.40±9.20	52.50±13.04	0	0.035 (*)
I-S	41.50±7.73	44.60±8.44	55.13±14.46	0	0.020 (*)
DEP	42.75±9.41	43.75±8.78	49.50±13.09	0	0.324 (NS)
ANX	42.38±6.52	45.15±7.85	49.75±13.12	0	0.264 (NS)
HOS	42.63±3.66	48.20±10.06	48.25±8.19	0	0.289 (NS)
PHOB	46.00±5.83	45.75±5.93	51.13±11.85	0	0.231 (NS)
PAR	44.13±6.77	44.05±8.51	46.50±7.84	0	0.754 (NS)
PSY	43.88±7.66	45.40±9.80	50.13±8.74	0	0.356 (NS)
GSI	42.00±6.14	44.10±8.72	51.50±13.63	0	0.114 (NS)
PDSI	51.50±12.35	46.65±7.26	51.63±13.00	0	0.349 (NS)
PST	39.13±10.44	43.60±12.17	49.75±10.99	0	0.197 (NS)

NS: not significant, *: p<0.05

Table 6. Comparison of T-score of SCL-90-R according to sleep latency score

	0 (n=18)	1 (n=9)	2 (n=5)	3 (n=4)	p value
SOM	44.78±4.45	46.00±6.75	56.40±19.74	52.00±9.42	0.065 (NS)
O-C	41.00±6.56	48.00±10.63	50.80±17.15	46.50±10.60	0.160 (NS)
I-S	42.17±7.25	48.00±8.12	53.80±19.37	51.25±12.45	0.102 (NS)
DEP	42.17±7.98	44.78±6.57	49.00±17.72	51.50±12.12	0.279 (NS)
ANX	43.00±7.24	44.78±6.63	52.40±15.13	50.25±9.91	0.144 (NS)
HOS	44.39±6.96	47.67±7.52	48.60±10.04	55.00±14.21	0.159 (NS)
PHOB	44.61±4.89	46.11±6.07	52.60±13.61	52.75±8.62	0.073 (NS)
PAR	42.78±6.14	43.44±4.80	47.40±9.56	52.00±14.63	0.146 (NS)
PSY	42.94±6.99	48.67±8.23	46.00±5.79	54.75±17.37	0.088 (NS)
GSI	41.72±6.52	45.89±6.74	51.40±17.57	52.25±12.87	0.094 (NS)
PDSI	48.06±9.82	48.22±6.55	51.20±17.12	50.75±9.29	0.910 (NS)
PST	39.56±10.16	47.00±10.50	48.40±12.42	51.50±16.98	0.139 (NS)

NS: not significant

Table 7. Comparison of T-score of SCL-90-R according to sleep duration score

	0 (n=12)	1 (n=16)	2 (n=8)	3 (n=0)	p value
SOM	43.17±4.82	50.31±12.24	48.38±6.52	0	0.137 (NS)
O-C	42.08±7.34	47.50±12.60	43.13±8.37	0	0.350 (NS)
I-S	43.58±6.60	49.94±13.55	42.88±8.22	0	0.189 (NS)
DEP	43.92±8.15	45.69±11.73	44.38±9.98	0	0.896 (NS)
ANX	44.17±7.20	47.13±11.37	44.50±6.76	0	0.662 (NS)
HOS	45.25±7.65	47.69±8.14	48.13±11.89	0	0.713 (NS)
PHOB	45.50±5.65	47.81±9.14	47.63±7.74	0	0.720 (NS)
PAR	45.08±6.42	44.44±9.93	44.25±5.70	0	0.968 (NS)
PSY	44.25±7.15	48.19±10.69	44.75±8.84	0	0.488 (NS)
GSI	42.92±6.71	47.38±12.21	44.63±8.93	0	0.501 (NS)
PDSI	47.42±8.17	51.19±12.14	46.25±7.15	0	0.445 (NS)
PST	42.50±11.01	45.38±13.15	43.38±11.29	0	0.814 (NS)

NS: not significant

Table 8. Comparison of T-score of SCL-90-R according to habitual sleep efficiency score

	0 (n=31)	1 (n=5)	2 (n=0)	3 (n=0)	p value
SOM	47.29±9.98	48.80±6.26	0	0	0.747 (NS)
O-C	45.26±10.63	41.40±7.77	0	0	0.444 (NS)
I-S	47.13±11.03	40.80±8.35	0	0	0.230 (NS)
DEP	45.23±9.93	42.20±11.39	0	0	0.539 (NS)
ANX	45.97±9.51	43.00±6.12	0	0	0.507 (NS)
HOS	46.90±7.80	47.40±13.79	0	0	0.908 (NS)
PHOB	46.71±7.54	48.80±9.20	0	0	0.580 (NS)
PAR	45.00±8.17	42.20±5.63	0	0	0.468 (NS)
PSY	46.97±9.51	40.80±4.21	0	0	0.166 (NS)
GSI	45.71±10.11	42.60±8.96	0	0	0.522 (NS)
PDSI	49.35±10.23	45.60±8.21	0	0	0.442 (NS)
PST	44.58±12.07	40.20±10.33	0	0	0.449 (NS)

NS: not significant

Table 9. Comparison of T-score of SCL-90-R according to sleep disturbances score

	0 (n=5)	1 (n=29)	2 (n=2)	3 (n=0)	p value
SOM	43.00±3.74	47.69±10.09	56.00±1.41	0	0.261 (NS)
O-C	37.80±7.19	45.38±10.52	52.50±3.53	0	0.173 (NS)
I-S	41.60±9.07	46.21±10.94	58.50±3.54	0	0.177 (NS)
DEP	41.20±8.58	44.69±10.21	55.50±3.54	0	0.237 (NS)
ANX	42.00±7.48	45.45±9.15	56.00±7.07	0	0.185 (NS)
HOS	41.80±2.68	47.34±9.14	54.50±7.78	0	0.197 (NS)
PHOB	42.40±3.13	47.31±7.90	54.00±8.49	0	0.175 (NS)
PAR	40.00±3.74	44.34±6.65	60.00±16.97	0	0.006 (**)
PSY	42.40±7.89	45.24±7.29	68.00±12.73	0	0.001 (**)
GSI	40.0±6.60	45.24±9.80	59.00±7.07	0	0.068 (NS)
PDSI	49.80±8.35	48.38±10.57	53.00±4.24	0	0.805 (NS)
PST	36.60±9.86	44.00±11.24	62.00±5.66		0.032 (*)

NS: not significant, *: p<0.05, **: p<0.01

Table 10. Comparison of T-score of SCL-90-R according to daytime dysfunction

	0 (n=2)	1 (n=6)	2 (n=21)	3 (n=7)	p value
SOM	45.50±0.71	45.00±6.45	46.52±6.33	53.14±17.60	0.375 (NS)
O-C	31.50±2.12	41.17±9.11	45.19±9.47	50.14±11.85	0.105 (NS)
I-S	36.00±2.83	45.33±9.91	44.67±9.26	54.71±13.65	0.080 (NS)
DEP	35.00±1.41	47.67±10.67	41.81±6.90	54.14±12.62	0.010 (*)
ANX	39.00±5.66	45.67±9.18	43.48±6.52	53.57±12.70	0.048 (*)
HOS	40.50±0.707	49.17±8.30	44.52±6.65	54.29±11.83	0.038 (*)
PHOB	41.50±2.12	45.50±3.02	45.57±6.47	54.15±10.82	0.037 (*)
PAR	42.00±5.66	46.67±7.76	41.67±4.19	52.43±11.76	0.009 (**)
PSY	39.50±4.95	46.83±8.87	44.57±7.77	52.00±12.53	0.211 (NS)
GSI	36.50±3.54	45.33±8.48	43.19±7.37	54.00±14.12	0.039 (*)
PDSI	40.50±0.71	49.33±7.31	48.24±9.15	52.57±14.62	0.496 (NS)
PST	33.00±8.49	44.0±13.65	41.90±10.76	53.29±10.19	0.074 (NS)

NS: not significant, *: p<0.05, **: p<0.01

in male(6.11±2.38) than female(4.67±2.18) (Table 2).

SCL-90-R index showed no sex difference(Table 3). Poor sleeper showed significantly high value in SOM, O-C, I-S, ANX, PHOB, PSY, GSI, PST (Table 4).

When SCL-90-R scores were compared according to the 7 fields of PSQI, higher the subjective sleep quality score, overall increase of SCL-90-R scores was observed, especially, O-C and I-S showed significant increase(Table 5). SCL-90-R score according to sleep latency score showed no statistical difference (Table 6).

In comparative analysis of SCL-90-R according to sleep duration score and habitual sleep efficiency score, no significant increase or decrease was observed in every item(Table 7, 8).

As sleep disturbances score increased, overall increase of SCL-90-R score in all items was seen, especially, PAR, PSY, PST showed statistically significant increase(Table 9).

In comparison of SCL-90-R according to daytime dysfunction, statistically significant increase in DEP, ANX, HOS, PHOB, PAR, GSI was observed(Table 10).

IV. DISCUSSION

The purpose of this study was to investigate the correlation between sleep and psychological status through evaluating the SCL-90-R according to the quality of sleep evaluated by the PSQI questionnaire.

As our life style gets more complex with higher mental stress, sleep disturbances are becoming more common. It has been reported that people with sleep disturbances have less capacity to maintain a balanced life style compared to those who don't.¹¹⁾ Items for sleep analysis should include whether the patient is satisfied with his sleep patterns, whether he is sleepy during the day, and whether the person sleeping with the patient complains of the patient's sleep patterns. A valid way to gather information about the patient's sleep is to have the patient keep a sleep diary for more than 2 weeks. Such sleep

diary may show a correlation between sleep and other factors that the patient may not realize, and it may provide information on sleep-related incidents that occur periodically. Sleep diary is beneficial in providing information, but it is limited by time and patient's cooperation. Other tests to evaluate sleep include, polysomnography, multiple sleep latency test(MSLT), maintenance of wakefulness test, night penile tumescence test, etc. Such testing methods efficiently provide information regarding sleep, but they are also limited by time and cost. They are also difficult to conduct since they require specialists. Therefore, the writers used PSQI, which is comprehensive and easy to perform in the dental field, and evaluates the sleep in various aspects. PSQI was developed with several goals: (1) to provide a reliable, valid, and standardized measure of sleep quality; (2) to discriminate between "good" and "poor" sleepers; (3) to provide an index that is easy for subjects to use and for clinicians and researchers to interpret; and (4) to provide a brief, clinically useful assessment of a variety of sleep disturbances that might affect sleep quality.¹²⁾ PSQI evaluates subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbance, use of sleeping medication, and daytime dysfunction. It is advantageous in terms of cost and time.

Symptom checklist-90-R(SCL-90-R) consists of 90 items, and items are combined to form 9 dimensions and 3 supplementary global indices for diagnostic analysis. Among 9 dimensions, somatization (SOM) shows the disorders of circulatory system, digestive system, pulmonary system, other organs and other symptoms such as headaches and pain. Obsessive-Compulsive (O-C) include symptoms of obsessive and compulsive disorders, which reflect thoughts and actions repeated by the patients despite of himself. Interpersonal Sensitivity (I-S) evaluates discomfort, ineffectiveness, and inferiority in relations with others. Depression (DEP) indicates symptoms of depression such as depressed mood, emotion,

disinterest, lack of motivation, despair, and thoughts of suicide. Anxiety (ANX) includes physical symptoms related to anxiety, tension, fear, and anxiousness. Hostility (HOS) expresses thoughts, emotion, and action related to negative emotions such as anger, hostility, nervousness, and rage. Phobic Anxiety (PHOB) coincides with the definition of agoraphobia, which is a condition in which there is a continued and irrational fear of a specific person, place, and situation. Paranoid Ideation (PAR) measures the paranoid tendency and reflects militant, hostility, suspicion, and delusion. Psychoticism (PSY) include a wide range of symptoms from simple estrangement to psychotic behaviour. Among 3 additional global indices, Global severity index (GSI) is the quotient of the total score divided by the total number of items. Positive symptom distress index (PSDI) is the number of items with scores greater than 1. Positive symptom total (PST) is the quotient of the total score divided by the number of items with scores greater than 1. This shows the reaction of the patient, i. e. whether the patient increases or decreases the symptom.^{13,14)}

There were several studies with SCL-90-R to analyze psychological status in some pain condition such as temporomandibular disorder, burning mouth syndrome, glossodynia, dental pain, etc.¹⁵⁻²²⁾ However, the study about relation between sleep quality and psychogenic status was still insufficient.

Among 27 male subjects, 9 were good sleepers while 18 were poor sleepers. Among 9 female subjects, 8 were good sleepers and 1 was a poor sleeper. As a result, a significantly larger proportion of male subjects in this study were poor sleepers. PSQI global score was also higher in males with 6.11 ± 2.38 for males and 4.67 ± 2.18 for females.

In several studies, sex difference in sleeping quality was reported in college students,²³⁾ and young adults.²⁴⁾ Other studies usually indicated that females tended to have somewhat poorer sleep quality compared to males,²⁵⁾ this study showed contrary results. Further studies with larger sample sizes are necessary in the future.

Among each PSQI score, daytime dysfunction showed the highest value in both male and female. This result suggested that it is necessary to consider causing factors or modifying factors to daytime sleep disturbance.

SCL-90-R T scores of good sleeper and poor sleeper as indicated by the PSQI global score were compared. In all items, the poor sleepers had higher SCL-90-R T score than good sleepers. These differences were statistically significant in Somatization(SOM), Obsessive-Compulsive(O-C), Interpersonal Sensitivity(I-S), Anxiety(ANX), Phobic Anxiety(PHOB), Psychoticism(PSY), Global severity index(GSI), and Positive symptom total(PST) categories. This result showed close relation between sleep quality and psychogenic status.

In comparative analysis of SCL-90-R T score according to each PSQI score, sleep latency, sleep duration score, and habitual sleep efficiency score didn't show any significant difference while subjective sleep quality score, sleep disturbance score, and daytime dysfunction score did. In each subjective sleep quality score item, as the PSQI score increased in Obsessive-Compulsive(O-C) and Interpersonal Sensitivity(I-S) categories, SCL-90-R T score increased significantly. In sleep disturbances score, Paranoid Ideation(PAR), Psychoticism(PSY), and Positive symptom total(PST) categories showed significantly higher score. In daytime dysfunction score, categories such as Depression(DEP), Anxiety(ANX), Hostility (HOS), Phobic Anxiety(PHOB), Paranoid Ideation (PAR), and Global severity index(GSI) showed significantly higher results. Such tendency indicates that daytime dysfunction leads to changes in mood and emotions such as depression, anger, anxiety, and the accompanied avoidance behaviour is shown in body symptoms.

In summary when the quality of sleep is decreased, many items in SCL-90-R tends to show higher values. Therefore, the quality of sleep and psychological status have a high correlation. This is likely to influence the clinical pain onset,

aggravation, and continuance of chronic pain in the orofacial field. As a result, clinicians treating orofacial pain should evaluate the sleep quality and psychological status of the patient. Further studies of larger sample sizes including various age, occupation, and pain groups are necessary in order to apply the results to clinical practice.

V. CONCLUSION

1. 18 male subjects and 1 female subject were poor sleeper and PSQI global score was 6.11 ± 2.38 in men, 4.67 ± 2.18 in women.
2. SCL-90-R index showed no sex difference and poor sleeper showed significantly high value in Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Anxiety, Phobic Anxiety, Psychoticism, Global severity index, Positive symptom total.
3. When SCL-90-R T scores were compared according to sleep quality, higher the subjective sleep quality score, Obsessive-Compulsive and Interpersonal Sensitivity showed significant increase. As sleep disturbances score increased, Paranoid Ideation, Psychoticism, Positive symptom total showed statistically significant increase. In comparison of SCL-90-R T score according to daytime dysfunction, statistically significant increase in Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, Global severity index was observed.

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국문요약

한국인 대학생에서 수면의 질과 정서적 요인에 관한 상관관계

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정신신체질환은 개개인의 서로 다른 성격, 정서적 스트레스에 대한 반응과 기질적인 요소 등이 함께 반응하여 소화기계, 순환기계, 호흡기계 및 근골격계 등에 수많은 질환을 야기하며, 그 중에 만성통증도 역시 포함한다. 구강안면 영역의 증상으로 내원하는 이유 중 가장 많은 비율을 차지하는 것은 통증이며 증상에 영향을 주는 기여요인은 생물학적 요인, 행동요인, 환경요인, 사회요인, 정서요인, 인지요인 등을 포함한다. 이러한 기여요인은 개인의 성격, 인성에 좌우되어 증상의 경로에 영향을 미치게 된다. 통증에 있어 수면은 하나의 기여요인으로 작용하며, 통증은 수면장애를 가져오거나 악화시키기도 하며, 수면장애 역시 통증을 악화시킬 수 있다. 수면의 질의 저하는 정서적 스트레스를 가속화 시킬 수 있는 한 요인으로 작용할 수 있다. 이에 구강안면 영역에 증상을 보이는 환자에게 비교적 정확하고 간단하게 시행할 수 있는 수면의 질 평가 및 정신 검사를 필히 시행하여 평가해야 한다.

본 연구는 PSQI를 통한 수면의 질 평가와 간이정신진단검사(SCL-90-R)를 비교 평가하여 수면과 정서적, 심리적 상태와의 관계를 규명하고자 하였으며, 다음과 같은 결과를 얻었다. poor sleeper 는 남자가 18명, 여자가 1명이었으며, PSQI 총수면 지수는 남자에서 6.11±2.38, 여자에서 4.67±2.18로 나타났다.

SCL-90-R 지수는 남녀간 차이를 보이지 않았고 poor sleeper에서 신체화(SOM), 강박증(O-C), 대인예민성(I-S), 불안(ANX), 공포불안(PHOB), 정신증(Psy)에서 유의성 있게 높은 평균치를 보였으며 전체 심도지수(GSI), 표출증상합계(PST)가 유의성 있게 높았다.

또한 수면의 질에 따른 SCL-90-R의 T-점수는 주관적 수면의 질이 나쁠수록 강박증(O-C), 대인 예민성(I-S)에서, 수면장애가 심할수록 편집증(PAR), 정신증(Psy), 표출증상합계(Positive symptom total, PST)가, 주간수면장애에서는 우울(DEP), 불안(ANX), 적대감(HOS), 공포불안(PHOB), 편집증(PAR), 전체 심도지수(GSI)에서 유의하게 높은 평균치를 보였다.

이와 같이 수면의 질과 정서적 상태는 서로 밀접한 연관성을 지닌다고 할 수 있으며, 이는 구강안면 영역의 만성 통증에 영향을 미치리라 생각된다. 이에 구강안면통증을 다루는 임상가들은 환자의 수면의 질과 정서적 상태에 대해 적절히 평가하는 것이 반드시 필요하며, 향후 구강안면통증에 있어 수면과 정서적, 심리적 인성관계에 대한 연구가 더 필요하리라 사료된다.

주제어: 수면 질 검사, 간이정신검사, 구강안면통증