

Original Articles

A Study on the Clinical Features of Ordinary Sleeping Patterns Based on the Sasang Constitution, Using the Logistic Regression

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Objective : This study was undertaken for discovering the characteristics of sleep in ordinary symptoms based on the Sasang Constitution. The result of this study could be helpful to understand and to identify patients such as Taeumin, Soyangin Soeumin or Taeyangin.

Methods : There were 1,229 patients (529 men), who answered the questionnaire about their ordinary sleeping patterns. They were diagnosed, including their clinical Sasang Constitution, by the Sasang Constitution specialist at Bundang Oriental Hospital of Dongguk University. By applying the multinomial and binary logistic regression analysis to those collected materials, we can measure the characteristics and the influence of ordinary sleeping patterns to the dependent variable (Sasang Constitution).

Results : In order of the item's influence that had decided one's constitution, between Taeumin and Soeumin, Taeumin snored frequently or well more than Soeumin, Soeumin had more dreams and more sleeping times than Taeumin, and Taeumin struggled frequently or well more than Soeumin. Between Soyangin and Soeumin, Soeumin dreams more frequently than Soyangin, Soyangin snored frequently or well more than Soeumin, and Soeumin has more sleeping times than Taeumin. Between Taeumin and Soyangin, Taeumin snored frequently or well more than Soyangin. Between Taeyangin and a group of the other constitutions, Taeyangin felt unwell after sleeping more than the other constitutions, the other constitutions awakened frequently more than Taeyangin during sleeping.

Conclusion : This study will be used for identifying patients as Taeumin, Soyangin, Soeumin or Taeyangin by contrast with each other.

Key Words: Sasang Constitution, Sleep, Questionnaire, Logistic Regression.

Introduction

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Sleep is a very important aspect of life, which dominates about one-third of one's whole life. Therefore, to know about sleep is necessary to maintain human life and health. Lee Je-ma wrote, in his books, the lethargy or the sleeplessness at the pathological courses, the sleep situation at the healing courses, the

decision of prognosis by the sleep situation, the fine sleep situation in ordinary time, etc.

According to the Sasang Constitutional Medicine (SCM), the sleep situation is observed as a category of the ordinary symptoms¹⁾ in company with sweat²⁾, defecation of stools³⁾, defecation of urine, and digestion⁴⁾. Moreover, it is used for identifying one's constitution and the constitutional diseases.

A comparative study has been made for discovering the features of sleep depending on each Sasang constitution by using a questionnaire before⁵⁾. However, it was found that the questionnaire, used in that former study, had low internal correlations by the analysis of reliability. Besides, it was reported that the questionnaire was not suitable for the respondents because of some items on the questionnaire including the several questions in one item's own^{1-3,5)}.

Additionally, that former study⁵⁾ had shown the differences of each constitution as a result of the correlation analysis on each item. However, the priority order of the items, which could decide one's constitution, was not presented.

So, we complemented and corrected these problems, and reformed the questionnaire for the respondents to reply more easily. By applying the multinomial and binary logistic regression analysis to those collected responses about the ordinary sleeping patterns, we can measure the characteristics and the influence of ordinary sleeping patterns to the dependent variable (Sasang Constitution).

Materials and Methods

1. Object

From the 28th of Oct. 2002 to the 16th of Feb. 2004, the 1,229 patients, who had come in the department of Sasang Constitution for the first medical examination, was selected.

2. Method

1) Collection of Data

We used the questionnaire in this study, which was composed of ordinary sleeping patterns. It was based on Lee Jae-ma's books and on the major symptoms in clinical approaches. The questionnaire was composed of 10 items, which asked about the person's ordinary sleeping patterns. The contents of the items were showed at Table 5.

The answer sheet was composed by 'never(절대 아니다)', 'not(아니다)', 'normal(보통)', 'right(그렇다)', and 'Absolutely(매우 그렇다)' of ordinal scale. The 1,229 respondents answered the questionnaire by themselves, but if any of them couldn't do that, their guardians were asked to help them.

2) Processing and Statistics

The answers of the questionnaire were coded, 'never' was coded as 1, 'not' was 2, 'normal' was 3, 'right' was 4, and 'Absolutely' was 5. However, the answer of the item ⑩ was coded by itself. At the same time, the respondent's constitution was coded and inputted.

In the general features of the respondents, BMI (body mass index, weight(kg)/height(m)²⁾ was compared by the ANOVA test. If there was some significance, the multiple comparison by Scheffe's method was conducted.

To find the item that affected the diagnosis of Sasang Constitution except Taeyangin, we conducted the multinomial regression. Therefore, the models of Taeumin by contrast with Soeumin, Soyangin by contrast with Soeumin, and Taeumin by contrast with Soyangin were set up.

To find the item that affected the diagnosis of Taeyangin, we conducted the binary regression. Taeyangin and the group of the people who were not Taeyangin (non-Taeyangin) were set up. Because

Taeyangin patients were only 14 people, only 14 people in each constitution were selected at random to maintain the balance of each constitution (Taeumin, Soyangin and Soeumin). So, the non-Taeumin group had a total 42 people.

To select the more items as much as possible, we had set up $p < 0.1$.

We use SAS 8.1 on all of the statistical analysis.

Results

1. General Features

1) The Distribution of Sex according to Sasang Constitution

There were 1,229 patients (529 men) who had answered the questionnaire about their ordinary sleeping patterns. Their ages were distributed from 8 to 88 years, and the mean age was 38.6 years. They had been diagnosed, including their Sasang Constitution by the Sasang Constitution specialist at Bundang Oriental Hospital of Dongguk University.

The distribution of their sex and age was showed at Table 1.

There were 361 people in Taeumin group, 365 in Soyangin, 489 in Soeumin, and 14 in Taeyangin. The distribution of sex according to Sasang Constitution was showed at Table 2.

Table 1. The Distribution of the Sex and the Age

	N(%)				
	≤19	20~39	40~59	≤60	total
Male	59(4.8)	240(19.5)	179(14.6)	51(4.1)	529(43.0)
Female	52(4.2)	325(26.4)	261(21.2)	62(5.0)	700(57.0)
total	111(9.0)	565(46.0)	440(35.8)	113(9.2)	1229(100.0)

% within total

Table 2. The Distrubution of the Sex according to Sasang Constitution

	N(%)				
	Taeumin	Soyangin	Soeumin	Taeyangin	total
Male	207(57.3)	261(71.5)	50(10.2)	11(78.6)	529(43.0)
Female	154(42.7)	104(28.5)	439(89.8)	3(21.4)	700(57.0)
total	361(100.0)	365(100.0)	489(100.0)	14(100.0)	1229(100.0)

% within Sasang Constitution

Table 3. The Sasang Constitution and BMI(except Taeyangin in statistical method)

	mean ± S.D.				
Constitution	Taeumin (N=361)	Soyangin (N=365)	Soeumin (N=489)	Taeyangin (N=14)	total (N=1229)
BMI	25.85 ± 2.65	22.84 ± 2.47	20.77 ± 2.21	19.61 ± 1.62	22.86 ± 3.21

$p < 0.01$ ($p = 0.000$)

Table 4. The Mutiple Comparison of BMI according to Sasang Constitution(by Scheffe)

(I) Constitution	(J) Constitution	MeanDifference(I-J)	Std. Error	Sig.
Taeumin	Soyangin	3.0048	0.180	0.000*
	Soeumin	5.0731	0.169	0.000*
Soyangin	Taeumin	-3.0048	0.180	0.000*
	Soeumin	2.0683	0.169	0.000*
Soeumin	Taeumin	-5.0731	0.169	0.000*
	Soyangin	-2.0683	0.168	0.000*

* $p < 0.01$

Table 5. The Distribution and the Frequency of the Responses

Item	Constitution	Mean ± S.D.(gray cell), N(%)					total	
		<1>	<2>	<3>	<4>	<5>		
①잘자는 편이다. (sleep well)	TE	3.41 ± 0.97	13(3.8)	48(13.9)	102(29.5)	149(43.1)	34(9.8)	346(100.0)
	SY	3.30 ± 0.97	10(2.8)	71(20.1)	105(29.7)	139(39.3)	29(8.2)	354(100.0)
	SE	3.31 ± 0.94	16(3.3)	76(15.7)	167(34.6)	189(39.1)	35(7.2)	483(100.0)
	TY	3.36 ± 0.84	1(7.1)	0(0.0)	6(42.9)	7(50.0)	0(0.0)	14(100.0)
	total	3.34 ± 0.96	40(3.3)	195(16.3)	380(31.7)	484(40.4)	98(8.2)	1197(100.0)
②잠을 들기가 힘들다. (hard to fall a sleep)	TE	2.63 ± 0.97	28(8.1)	154(44.8)	88(25.6)	65(18.9)	9(2.6)	344(100.0)
	SY	2.74 ± 1.03	30(8.4)	142(39.8)	90(25.2)	81(22.7)	14(3.9)	357(100.0)
	SE	2.72 ± 0.97	27(5.6)	212(44.1)	130(27.0)	94(19.5)	18(3.7)	481(100.0)
	TY	2.64 ± 0.7	40(0.0)	7(50.0)	5(35.7)	2(14.3)	0(0.0)	14(100.0)
	total	2.70 ± 0.98	85(7.1)	515(43.1)	313(26.2)	242(20.2)	41(3.4)	1196(100.0)
③낮잠을 잘 자는 편이다. (take a nap frequently or well)	TE	2.78 ± 1.00	30(8.7)	119(34.6)	101(29.4)	86(25.0)	8(2.3)	344(100.0)
	SY	2.78 ± 0.94	24(6.8)	127(35.9)	112(31.6)	85(24.0)	6(1.7)	354(100.0)
	SE	2.82 ± 0.99	33(6.9)	173(36.0)	136(28.3)	124(25.8)	14(2.9)	480(100.0)
	TY	2.79 ± 0.98	1(7.1)	4(28.6)	7(50.0)	1(7.1)	1(7.1)	14(100.0)
	total	2.79 ± 0.98	88(7.4)	423(35.5)	356(29.9)	296(24.8)	29(2.4)	1192(100.0)
④잠을 자고 나서도 몸이 무겁다. (feel unwell after sleeping)	TE	3.29 ± 0.94	7(2.0)	73(21.2)	99(28.8)	142(41.3)	23(6.7)	344(100.0)
	SY	3.25 ± 0.95	10(2.8)	80(22.7)	92(26.1)	155(43.9)	16(4.5)	353(100.0)
	SE	3.37 ± 0.92	8(1.7)	82(17.1)	152(31.7)	199(41.5)	39(8.1)	480(100.0)
	TY	3.57 ± 0.94	0(0.0)	2(14.3)	4(28.6)	6(42.9)	2(14.3)	14(100.0)
	total	3.31 ± 0.94	25(2.1)	237(19.9)	347(29.1)	502(42.1)	80(6.7)	1191(100.0)
⑤잠을 자는 중 자주 깬다. (awake frequently, during sleeping)	TE	2.92 ± 1.04	20(5.8)	117(34.1)	99(28.9)	84(24.5)	23(6.7)	343(100.0)
	SY	2.89 ± 1.03	25(7.1)	121(34.2)	86(24.3)	111(31.4)	11(3.1)	354(100.0)
	SE	2.91 ± 1.053	8(7.9)	147(30.6)	143(29.8)	125(26.0)	27(5.6)	480(100.0)
	TY	2.50 ± 1.16	2(14.3)	7(50.0)	2(14.3)	2(14.3)	1(7.1)	14(100.0)
	total	2.90 ± 1.04	85(7.1)	392(32.9)	330(27.7)	322(27.0)	62(5.2)	1191(100.0)
⑥잠을 잘때 꿈이 많은 편이다. (many dreams, during sleeping)	TE	2.92 ± 0.97	18(5.2)	106(30.6)	126(36.4)	79(22.8)	17(4.9)	346(100.0)
	SY	2.87 ± 0.99	20(5.6)	121(34.1)	119(33.5)	76(21.4)	19(5.4)	355(100.0)
	SE	3.25 ± 0.99	9(1.9)	107(22.3)	175(36.5)	131(27.3)	57(11.9)	479(100.0)
	TY	2.93 ± 1.00	1(7.1)	3(21.4)	7(50.0)	2(14.3)	1(7.1)	14(100.0)
	total	3.04 ± 1.00	48(4.0)	337(28.2)	427(35.8)	288(24.1)	94(7.9)	1194(100.0)
⑦코를 고는 편이다. (snore frequently or well)	TE	3.15 ± 1.06	16(4.6)	93(26.7)	94(27.0)	112(32.2)	33(9.5)	348(100.0)
	SY	2.64 ± 0.98	28(7.9)	159(44.7)	97(27.2)	58(16.3)	14(3.9)	356(100.0)
	SE	2.30 ± 0.88	74(15.3)	244(50.5)	118(24.4)	39(8.1)	8(1.7)	483(100.0)
	TY	2.14 ± 0.77	2(14.3)	9(64.3)	2(14.3)	1(7.1)	0(0.0)	14(100.0)
	total	2.65 ± 1.031	20(10.0)	505(42.0)	311(25.9)	210(17.5)	55(4.6)	1201(100.0)
⑧몸부림을 치는 편이다. (struggle well, during sleeping)	TE	2.86 ± 0.93	12(3.5)	130(37.5)	110(31.7)	85(24.5)	10(2.9)	347(100.0)
	SY	2.72 ± 0.90	15(4.3)	150(42.6)	115(32.7)	62(17.6)	10(2.8)	352(100.0)
	SE	2.63 ± 0.92	33(6.9)	213(44.5)	145(30.3)	76(15.9)	12(2.5)	479(100.0)
	TY	2.50 ± 0.94	1(7.1)	8(57.1)	2(14.3)	3(21.4)	0(0.0)	14(100.0)
	total	2.72 ± 0.92	61(5.1)	501(42.0)	372(31.2)	226(19.0)	32(2.7)	1192(100.0)
⑨커피를 마시면 잠을 못 잔다. (hard to sleep after some of coffee)	TE	2.56 ± 1.10	51(15.0)	147(43.2)	59(17.4)	68(20.0)	15(4.4)	340(100.0)
	SY	2.56 ± 1.12	51(14.7)	155(44.8)	53(15.3)	69(19.9)	18(5.2)	346(100.0)
	SE	2.62 ± 1.12	57(12.1)	215(45.6)	84(17.8)	83(17.6)	33(7.0)	472(100.0)
	TY	2.71 ± 1.07	1(7.1)	7(50.0)	1(7.1)	5(35.7)	0(0.0)	14(100.0)
	total	2.58 ± 1.111	60(13.7)	524(44.7)	197(16.8)	225(19.2)	66(5.6)	1172(100.0)
Item	Constitution	below 5hrs	5~6hrs	6~7hrs	7~8hrs	over 8hrs	total	
⑩평소 수면 시간은? (How much time, spend in sleep)	TE	12(3.5)	77(22.6)	138(40.%)	88(25.8)	26(7.6)	341(100.0)	
	SY	20(5.7)	81(23.1)	137(39.%)	85(24.3)	27(7.7)	350(100.0)	
	SE	16(3.4)	82(17.2)	161(33.%)	158(33.%)	60(12.6)	477(100.0)	
	TY	0(0.0)	2(14.3)	7(50.0)	3(21.4)	2(14.3)	14(100.0)	
	total	48(4.1)	242(20.%)	443(37.%)	334(28.%)	115(9.7)	1182(100.0)	

※ N(%), N=the number of people, % within Constitution..

<1>, never; <2>, not; <3>, normal; <4>, right; <5>, absolutely. TE, Taeumin; SY, Soyangin; SE, Soeumin; TY, Taeyangin

Table 6. The results of the Multinomial Logistic Analysis about the Ordinary Sleeping Patterns(except TY)

constitution	TE vs SE		SY vs SE		TE vs SY	
⑥ 잠을 잘 때 꿈이 많은 편이다. (many dreams, during sleeping)	-0.3618*	b	-0.4238*	a	0.0620	
⑦ 코를 고는 편이다. (snore frequently or well)	0.8736*	a	0.3429*	b	0.5307*	a
⑧ 몸부림을 치는 편이다. (struggle well, during sleeping)	0.1632*	d	0.1215		0.0417	
⑩ 평소 수면시간은? (How much time, spend in sleep)	-0.1869*	c	-0.2678*	c	0.0809	

* $p < 0.1$

※ TE, Taeumin; SY, Soyangin; SE, Soeumin; TY, Taeyangin

a, b, c, d means the items were put in order according to the size of coefficient.

The minus(-) value means that the latter will answer 'never' or 'not' lesser than the former.

Table 7. The Results of the Binary Logistic Analysis about the Ordinary Sleeping Patterns between TY and non-TY

Item	coefficient	STB
④ 잠을 자고 나서도 몸이 무겁다(feel unwell after sleeping).	1.0139	0.5472*
⑤ 잠을 자는 중 자주 깬다(awake frequently, during sleeping).	-0.9629	-0.5291*

* $p < 0.1$

※ TY, Taeyangin; non-TY, the people who were not Tayangin.

The minus(-) value means that the latter will answer 'never' or 'not' lesser than the former.

2) BMI Index according to Sasang Constitution

As a result that we compared clinical Sasang Constitution with BMI index, There was a significant distinction according to Sasang constitution (Table 3). BMI was higher in the order of Taeumin, Soyangin, Soeumin, and Taeyangin. As a result of the multiple comparison except Taeyangin, 'Taeumin ≠ Soyangin ≠ Soeumin' was revealed (Table 4). In other words, one of Taeumin, Soyangin and Soeumin were different from the others.

2. The Distribution of the Response about the Questionnaire according to Sasang Constitution

The distribution and the frequency of the responses was showed at Table 5.

From item ① to item ⑨, The responses were coded and inputted. The average and the standard deviation (S.D) were calculated with the coded responses. The average of each item means positive or negative

tendency that the respondents will reply to that item. In other words, If the average of an item is over 3, the respondents have a tendency that they gave a positive answer ('right' or 'absolutely') to that item. On the contrary, if the average of an item is below 3, the respondents have a tendency that they gave a negative answer ('never' or 'not') to that item.

The average and the standard deviation of the items' responses, classified into the Sasang Constitution and the items, were showed at the gray cells of Table 5.

3. The Multinomial Logistic Analysis except Taeyangin

The results of the multinomial logistic analysis except Taeyangin were showed at Table 6. The value of each cell at Table 6 was a coefficient of the item.

At the item ⑥ and ⑩, who answered the high score had the high possibility that he could be Soeumin (Soeumin) (Taeumin, Soyangin). And at the item ⑩, the response of the higher score meant the

respondent had more sleeping times.

About the item ⑦, who answered the high score had the higher possibility that he could be Soeumin by contrast with Soyangin and Soeumin, and had high possibility that he could be Soyangin by contrast with Soeumin(Taeumin > Soyangin > Soeumin).

About the item ⑧, who answered the high score had the higher possibility that he could be Taeumin by contrast with Soeumin(Taeumin > Soeumin).

In the cells of Table 6, 'a', 'b', 'c', and 'd' meant the order according to the scale of coefficient.

If considering the order of the items' influence, between Taeumin and Soeumin there were the item ⑦, ⑥, ⑩, and ⑧ in order. Taeumin answered the higher score at the item ⑦ and ⑧, and Soeumin answered the higher score at the item ⑥ and ⑩.

Between Soyangin and Soeumin, there were the item ⑥, ⑦ and ⑩. Soyangin answered the higher score at the item 7, and Soeumin answered the higher score at the item ⑥ and ⑩.

Between Taeumin and Soyangin, there was only the item ⑦. Taeumin answered the higher score at the item ⑦.

4. The Analysis of Taeyangin' s Responses

To find the item that affected the diagnosis of Taeyangin, we conducted the binomial regression. Taeyangin and non-Taeyangin were set up. Because Taeyangin patients were 14 people, only 14 patients were selected at random in Taeumin, Soyangin and Soeumin, to maintain the balance of each constitution. If comparing Taeyangin with the whole people who were not Taeyangin, the characteristics of Taeyangin were not found, because the number of Taeyangin was very small.

To find the items' influence that affected the diagnosis of Taeyangin, we used the standardized coefficient (STB). STB is the standards of the relative influence on the items, which is used widely in social

sciences. If STB is positive, Taeyangin replies the positive answer on the item. If STB is negative, Taeyangin replies the negative answer. And, the scale of STB is larger in number, the item' s influence is larger.

The results of the binary logistic analysis between Taeyangin and non-Taeyangin were showed at Table 7.

There were two significant items, the item ④ and ⑤. About the item ④, who answered the high score had the higher possibility that he was Taeyangin by contrast with non-Taeyangin. About the item ⑤, who answered the low score had the higher possibility that he was Taeyangin.

Discussion

The concept of the ordinary symptoms of Sasang Constitutions was presented by Lee Je-ma in his books. Those didn' t mean diseases directly, but had some relevance to the constitutional symptoms, the decision of Sasang Constitution, and the index of the management of disease¹⁾. These ordinary symptoms, observed by Sasang Constitution specialist, are the sweat, the defecation of stools, the defecation of urine, the sleep, the digestion and the other special symptoms. In this study, we used the questionnaire about the ordinary sleeping patterns to find out the features of the sleep in clinics, and applied the logistic regression analysis to each item about the items of the questionnaire.

When analyzing the relative relevancy between one dependent variable and the several independent variable, the regression analysis is conducted usually. In the linear regression analysis, the dependent variable is a quantitative variable that has been measured in a continuous scale. But, if it is a qualitative variable that has been measured in a categorial variable, the logistic regression is more useful. Because in this case, the normal distribution and the homogeneity of variance,

which are the basic suppositions in the regression analysis, are not satisfied.

In this study, to select the more items as much as possible, we had set up $p < 0.1$. If $p < 0.05$, there were few selected item. If the selected item is only one or nothing, logistic coefficient or STB has no meaning. Each of them means the relative influence, so two or more items are needed.

In the binary logistic analysis that compared Taeyangin with non-Taeyangin, Taeyangin patients were only 14 people. To maintain the balance of each constitution (Taeumin, Soyangin and Soeumin), 14 people in each constitution were selected at random. So, the total population had 56, non-Taeumin had 42. Because, if without such selection, there was a chance that the mean error was large, and that coefficient had an instability.

In the aspect of the philological studies, Lee et al⁶⁾ refer to the concept of the ordinary symptoms of Lee Jema's Dongyi Suse Bowon (longevity and life preservation in oriental medicine). Kim et al.¹⁾ arranged the ordinary symptoms. And there were the studies about the stools⁷⁾, the urine⁸⁾, the sweat⁹⁻¹⁰⁾ and the sleep¹¹⁾.

In the aspect of the clinical studies, there were the studies about sweat¹⁾, defecation of the stools²⁾, the sleep⁵⁾ and the digestion³⁾, which was researched by the questionnaire.

Especially, a clinical research was reported, that made a comparative study about the sleep depending on each Sasang constitution by using the questionnaire⁵⁾. However, it was found by the analysis of reliability that the questionnaire, used in that former study, had low internal correlations. And, it was reported that the questionnaire was not suitable for the respondents, because of some items of the questionnaire including the several questions in one item's own^{1-3,5)}.

Additionally, that former study⁵⁾ had shown the

differences of each constitution as a result of the correlation analysis on each item. However, the priority order of the items, which could decide one's constitution, was not presented.

So, we complemented and corrected these problems, and reformed the questionnaire for the respondents to reply more easily. And, applying the logistic regression analysis to each item about the ordinary sleeping patterns, we can measure the characteristics and the influence of the ordinary sleeping patterns to the dependent variable (Sasang Constitution).

If considering the order of the items' influence, between Taeumin and Soeumin, there were the item ⑦, ⑥, ⑩, and ⑧ in order. Taeumin answered the higher score at the item ⑦ and ⑧, and Soeumin answered the higher score at the item ⑥ and ⑩. In other words, Taeumin snores more frequently or well than Soeumin. Soeumin has more dreams during sleeping than Taeumin. Soeumin has more sleeping times than Taeumin. Taeumin struggles more frequently or well than Soeumin.

Between Soyangin and Soeumin, there were the item ⑥, ⑦ and ⑩. Soyangin answered the higher score at the item ⑦, and Soeumin answered the higher score at the item ⑥ and ⑩. Soeumin has more dreams during sleeping than Soyangin. Soyangin snores more frequently or well than Soeumin. Soeumin has more sleeping times than Soyangin.

Between Taeumin and Soyangin, there was only the item ⑦. Taeumin answered the higher score at the item ⑦. Taeumin snores more frequently or well than Soyangin.

In the multinomial regression, we analyzed the items except Taeyangin. So, to find the items' influence that affected the diagnosis of Taeyangin, we used the STB by the binary regression analysis. STB is the standards of the relative influence on the items, which use widely in the social sciences. If STB is positive, Taeyangin

relplies the positive answer on the item. If STB is negative, Taeyangin relplies the negative answer.

There were two significant items, the item ④ and ⑤.

If considering the order of the items' influence, Taeyangin feels unwell after sleeping more than non-Taeyangin. Non-Taeyangin awakes more frequently during sleeping than Taeyangin.

It is the same with the results of Choi et al.'s study⁵⁾, that Soeumin dreams more than Taeumin or Soyangin. Choi et al.⁵⁾ had presented that Taeumin has less sleeping time than Soeumin and Soyangin; however, we presented that Soeumin has more sleeping time than Taeumin and Soyangin.

When using these results in clinics, we can diagnose one's constitution more easily. For example, when there is some possibility that a patient is Taeumin or Soeumin, between Taeumin and Soeumin, we can check and consult the item in order of the items' influence. However, the number of Taeyangin was very small, therefore, Taeyangin was not analyzed equally with other constitutions. After the enough samples of Taeyangin are collected, a study on the clinical features of Taeyangin will be needed.

Conclusion

From the 28th of Oct. 2002 to the 16th of Feb. 2004, the 1,229 patients, who came in the department of Sasang Constitution for the first medical examination, replied to the questionnaire about their ordinary sleeping patterns. We received the results of the following by the logistic regression analysis from the respondents' replies. The results were presented in order of the item's influence that had decided one's constitution.

1. Between Taeumin and Soeumin, Taeumin snored frequently or well more than Soeumin. Soeumin

had more dreams and more sleeping time than Taeumin. And, Taeumin struggled frequently or well more than Soeumin.

2. Between Soyangin and Soeumin, Soeumin dreams more frequently than Soyangin. Soyangin snored frequently or well more than Soeumin. And Soeumin has more sleeping time than Taeumin.
3. Between Taeumin and Soyangin, Taeumin snored frequently or well more than Soyangin.
4. Between Taeyangin and a group of the other constitutions, Taeyangin felt unwell after sleeping more than the other constitutions. The other constitutions awakened frequently more than Taeyangin during sleeping.

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