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Personal characteristics associated with Family APGAR in residents of Rumoi City, Hokkaido

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Abstract

Background

  We assessed the association of personal factors with Family APGAR not only among the subjects in non-single households, but also in single households.

Methods

  We randomly chose 1,000 persons aged from 50 to 89 years in Rumoi City of the west area of Hokkaido as study candidates, and 493 subjects responded to the survey. We compared the group of high Family APGAR (FA) score of more than or equal to seven with the group of low FA score of less than or equal to 6 with regard to health-related QOL(HRQOL), measured with SF-8, Index of Social Interaction (ISI), and other personal characteristics. Being in the low FA group indicates living with a status of poor family function.

Results

  As a result of the multivariate logistic regression model, living in single households, currently smoking, a low score of mental component summary (MCS) in HRQOL, and a low score of ISI were all significantly associated with being in the low FA group. A low score of MCS was significantly associated with being in the low FA group both in the stratum of non-single households, and in the stratum of single households.

Conclusions

There were three risk factors of low FA. The first is a single household, second is currently smoking in a non-single household, and the third is low ISI.

Worse mental status is found to be associated with low FA among the subjects not only in non-single households, but also in single households.

List of Keywords

Family APGAR, Quality of life, Social interaction, Single household, Smoking

Introduction

Our study hypothesis is that personal characteristics or lifestyles may affect individual degrees of family function according to the type of household. Family has been defined as a psychosocial group consisting of the subject and one or more persons in which there is a commitment for members to nurture each other[1], and, therefore, the individual degree of family function is deduced as how much commitment each of the members have for nurturing each other. Research on family function has been performed mostly in the United States since the 1970s, and Family APGAR (abbreviated as FA)[1], Family Adaptability and Cohesion (FACEⅢ)[2], and Family Assessment Device (FAD)[3] have been developed for something typical.

FA is composed of five categories[1], and the acronym of FA has been applied to the functional components of adaptability, partnership, growth, affection, and resolve. The score range is from zero to 10 points. If the score of the subject is less than or equal to six points, he or she is classified to be poor in family function[4]. FA

has been considered for validity and reliability[4]; a questionnaire, which has been translated into Japanese by Wada, is available[5]; and it is mainly applied in psychiatric[6] and pediatric territories[7]. But, there are few studies of family function of the general Japanese population.

Family satisfaction was shown to be related to quality of life (QOL)[8], and family was indicated to be the most important source of social support[9]. Accordingly, QOL and social commitment are thought to be important parts of personal characteristics regarding individual degrees of family function.

Anthony Lehman refers to QOL as outcome assessment frameworks[10]. The main components of such a framework are a person's ability to function, access to resources and opportunities in the community, and sense of well-being. Three types of frameworks exist: 1) general QOL, 2) health-related QOL (HRQOL), and 3) disease-specific QOL. The HRQOL framework focuses on functional status and sense of well-being, and within these dimensions, covers only those aspects directly related to health. It is also reported that a person who has the roles at the home has better QOL than a person who does not have the roles[11].

Our hypothesis is that a person with high family function can be assumed to have a higher QOL. In this study, we estimated the family function by Family APGAR and compared the relation with HRQOL.

The Health Survey Questionnaire Short Form (SF-8) is a representation of HRQOL[12,13]. The linear measure gauges eight health concept, i.e., physical functioning, physical role, bodily pain, general health, vitality, social functioning, emotional role, and mental health, with one item, respectively, and estimates a Physical Component Summary Score (PCS) and Mental Component Summary

(MCS). The SF-8 score range is from zero to 100 points and, when it's more than 50 points, HRQOL is estimated to be high.

With regard to social commitment, the Index of Social Interaction (ISI) was developed by Anme and Shimada[14], and, it is composed of five categories (four items of independence, five items of social curiosity, three items of interaction, two items of feelings of safety, and four items of participation in society). ISI score range is from zero to 18 points, and when ISI score is equal to more than 15 points it is high and social interaction is good[14]. Previous research showed that ISI relates to the life convalescence of elderly women[14], but, to our knowledge, there are few studies related to the field of family structure.

The total number of households in Japan, as a whole, in 2014 was 50,431,000 and the number tends to increase every year[15]. When it is judged from household structure, a household only consisting of a married couple and a child is 28.8%, a single person household is 27.1%, and an only-married couple's household follows with 23.3%. When it is judged from household type, single person households and senior-citizen households are increasing in tendency every year.

It is thought that family function could be measured, even in single households, if a single person thinks that he or she has a family member elsewhere. Therefore, we surveyed and assessed the association of personal factors with FA, not only among subjects in non-single households, but also among the subjects in single households.

Subjects and Methods

This research was performed in Rumoi City between May to June, 2015. Rumoi City is located West Hokkaido and the total population is about 23,000 people. A study containing 1,000 male and female candidates in the age range between 50 and 89 years old were randomly picked by Rumoi City Office from the basic resident register. It was stratified from 50 years old every 10 years up to 89 years old, and 125 men and 125 women were chosen at each age stratum. Because of the limited budget for the study, we decided on a sample size of 1,000 people in total.

A structured questionnaire was sent to them and 493 subjects (255 men and 228 women) filled out and returned the survey to us (the response rate was 49.3%). In this study, we defined family as people who live together, and we explained this sentence in the questionnaire.

We compared the group of high FA scores more than or equal to 7 with the group of low FA scores less than or equal to 6 regarding age in years, gender, type of household, presence of home doctor, habit of alcohol drinking, smoking status, history of heart disease, hypertension, diabetes mellitus, SF-8 (PCS and MCS) and ISI, using Student's t-test and chi-square test. Further, the stratified analysis was conducted according to the type of household, such as single households and non-single households. We performed a multivariable logistic regression analysis to adjust potential confounding factors. Analyses were performed using Dr. SPSS II. The significance level was set as the p-value being less than 0.05.

This study received approval from The Ethics Committee of Sapporo Medical

University. We obtained written informed consent from each study subject.

Results

As shown in Table 1, 155 (32.0%) and 329 (68.0%) subjects were classified in low and high FA groups, respectively. Further, 94 (19.5%) and 389 (80.5%) subjects belonged to the strata of single and non-single households, respectively.

Mean age and its standard deviation in the low FA group (68.9 and 11.1 years old) were not significantly different from those of the high FA group (70.3 and 10.9 years old). The proportion of men in the low FA group (46.5%) was not significantly different from that in the high FA group (55.0%). The proportion of subjects in single households in the low FA group was significantly larger than that in the high FA group (P < 0.001). The proportion of subjects currently smoking cigarettes was significantly larger in the low FA group than in the high FA group (P = 0.008). The proportion of subjects with low scores of PCS was significantly larger in the low FA group than those in the high FA group (P = 0.046). The proportion of subjects with low scores of MCS was significantly larger in the low FA group than that in the high FA group (P < 0.001). The proportion of subjects with low scores of ISI in the low FA group was significantly larger than those in the high FA group (P < 0.001).

In the stratum of single households, 52 (55.3%) and 42 (44.7%) subjects were classified as the low and high FA groups, respectively. In this stratum, the proportion of men in the low FA group was significantly larger than those in the high FA group. The proportion of subjects drinking alcohol daily in the low FA group was significantly larger than those in the high FA group (P = 0.001). The

proportion of subjects with low scores of MCS in the low FA group was significantly larger than those in the high FA group (P = 0.014).

In the stratum of the non-single household, 103 (26.5%) and 286 (73.5%) subjects were classified in the low and high FA groups, respectively. In this stratum, the proportion of subjects with a low score of PCS in the low FA group was significantly larger than those in the high FA group (P = 0.025). The proportion of subjects with low scores of MCS was significantly larger than that in the high FA group (P < 0.001). The proportion of subjects with low scores of ISI was significantly larger than those in the high FA group (P < 0.001).

Table 2 shows the age and gender adjusted odds ratio (OR) and its 95% confidence interval (CI) in the low FA group. Multivariable adjusted ORs and their 95% CIs are also shown in Table 2, as age, gender, type of household, current smoking status, PCS, MCS and ISI are simultaneously involved in the model. Age and gender adjusted OR and multivariable adjusted OR of subjects in single households were 3.44 (95% CI 2.14-5.54) and 3.26 (95% CI 1.94-5.47), respectively. Age and gender adjusted OR and multivariable adjusted OR of subjects currently smoking cigarettes were 2.69 (95% CI 1.57-4.59) and 2.32 (95% CI 1.30-4.15), respectively. Age and gender adjusted OR and multivariable adjusted OR of subjects with low scores of PCS were 1.73 (95% CI 1.13-2.64) and 1.36 (95% CI 0.84-2.19), respectively. Age and gender adjusted OR and multivariable adjusted OR of subjects with low scores of MCS were 2.48 (95% CI 1.66 - 3.70) and 2.15 (95% CI 1.38 - 3.34), respectively. Age and gender adjusted OR and multivariable adjusted OR of the subjects with low scores of ISI were 3.60 (95% CI 2.40-5.39) and 2.80 (95% CI 1.82-4.30), respectively.

Table 3 showed age and gender adjusted OR and its 95% CIs in the low FA group in the stratum of single households. Multivariable adjusted ORs with their 95% CIs were also shown in Table 3, as age, gender, alcohol drinking, MCS and ISI are simultaneously involved in the model. In this stratum, age and gender adjusted OR and multivariable adjusted OR of subjects with low scores of MCS were 2.49 (95% CI 1.54-4.02) and 2.89 (95% CI 1.13-7.37), respectively.

Table 4 showed age and gender adjusted OR with their 95% CIs in the low FA group in the stratum of non-single households. Multivariable adjusted ORs with their 95% CIs are also shown in Table 4, as age, gender, currently smoking cigarette, PCS, MCS and ISI are involved in the model. In this stratum, age and gender adjusted OR and multivariable adjusted OR of the subjects currently smoking cigarettes were 2.58 (95% CI 1.39 - 4.79) and 2.50 (95% CI 1.30 - 4.80), respectively. Age and gender adjusted OR and multivariable adjusted OR of the subjects with low scores of PCS were 1.95 (95% CI 1.17 - 3.25) and 1.49 (95% CI 0.87-2.60), respectively. Age and gender adjusted OR and multivariable adjusted OR of subjects with low scores of MCS were 2.49 (95% CI 1.54-4.02) and 2.04 (95% CI 1.23-3.43), respectively. Age and gender adjusted OR and multivariable adjusted OR of subjects with low scores of ISI were 4.01 (95% CI 2.48-6.50) and 3.51 (95% CI 2.14-5.78), respectively.

Discussion

The study subjects in single households were shown to have an increased risk of low FA compared to those in non-single households. Single-household subjects have no family, so their FA score is low. However, in elderly persons, social support networks and neighborly companionship improves their subjective sense of health[16]. Social support networks will become increasingly important. Male, one-person households have been reported to have high rates of mortality[17], and the incidence of diabetes mellitus type two is higher in males than females[18]. However, in this study, there was no relationship between heart disease, hypertension, or diabetes.

We conducted the stratified analysis according to type of household, such as single and non-single households. Both in the stratum of single households and non-single household , the tendency of low FA is appear as a low score of MCS in SF-8. There are studies where low QOL related to low family satisfaction[5] and mental health related family function[19]. Since family is the smallest unit of the social closeness, single households influence MCS. Social support networks and neighborly companionship are important.

A low score of ISI was shown to increase the risk of low FA in non-single households, but not in single households. Low ISI decreasing the five-year survival rate in elderly people was reported[14]. A former study indicated that healthy obstructions occur with a decline of social support[20]. It is important to charge elderly people with a role in family and society.

Current smoking habit was a risk factor of low family function instead of an adjusted multivariable. It is not clear whether smoking decreases QOL or

whether low QOL leads to smoking. The relation is judged by smoking and low FA, and smoking is a strong factor for risk of low FA; but it can't be concluded because there may be a reverse cause and effect. So we cannot suggest smoking cessation to the smoker only at this point.

There are some questionnaires for evaluating family function, but most of them consist of many items; for example, FACEⅢ has 30 items and FAD has 53 items. In this study, we used an FA questionnaire that consisted of only five items, but in daily medical examinations, FA is suitable for screening.

For example, we may be able to expect a similar result in a small city of about 20,000 people in population. We expect that the low MCS group has a low response ratio, but low MCS also relates to low FA. In this study, the relation between FA and MCS may have been underestimated. It may have something to do with finding the actual values of FA by MCS.

In this study, we obtained a result that low FA related to low MCS. It's important to grasp family structure as a family physician. We should grasp the family structure of patients, and if low family function is suspected, it is desirable to do a screening by FA. It may be possible to take low MCS up by FA, and we may be able to help them.

Moreover, since family function changes with time, we need to estimate family function when people have life events.

There are several limitations of this study. First, this study is a cross-sectional design study. Since the FA score changes over time, we need to complete more

research about what factors influence the test. Secondly, participants of this study were selected by Rumoi City Office at random, but those who returned the questionnaire might be aware that they are healthy. Third, this study was investigated in Rumoi City, Hokkaido. Therefore, these results may not apply to other areas. Lastly, the FA score questionnaire contains family elements, so it is difficult for single households to answer. Development of a questionnaire without the word "family" is suggested.

Conclusion

In this study, there were the three following risk factors of low FA. The first is single households, second is currently smoking in non-single households, and the third is low ISI.

Worse mental status is found to be associated with poor family function among subjects not only in non-single households, but also in single households.

Conflicts of Interest

The authors have no conflict of interest with regard to this study.

References

1 Smilkstein G: The Family APGAR: A Proposal for a family function test and its use by physicians. J Fam Pract. 1978; 6: 1231-1239

2 Olson DH, Russell CS, Sprenkle DH: Circumplex model of marital and family systems: Ⅳ. Theoretical update. Fam Process. 1983; 22: 69-83

3 Epstein NB, Baldwin LM, Bishop DS: The McMaster family assessment device. J Marital Fam Ther. 1983; 9: 171-180

4 Smilkstein G, Ashworth C, Montano D: Validity and Reliability of the Family APGAR as a test of Family Function. J Fam Pract. 1982; 15: 303-311.

5 Wada N: A Study of the relationship between the problems of 3-year-old children and the family function. Syoni Hoken Kenkyu. 2000;59: 25-34. (Japanese text with English abstract)

6 Hanzawa S, Tanaka G, Goto M, et al: Factors related to the burden for mothers of patients with schizophrenia-The impact of professional and social support network and family functioning on the burden. JPN Bull Soc Psychiat. 2008; 16: 263-274.

7 Katayama R, Naitou N: Family Functions of Mothers and Fathers raising Babies and support of their child care. J Jp Soc Psychosom Obstet Gynecol. 2011; 15: 294-304.

8 Campos ACV, Ferreira EF, Vargas AMD, et al: Aging, Gender and Quality of Life study: factors associated with good quality of life in older Brazilian community-dwelling adults. Health Qual Life. 2014; 12: 166

9 McDaniel SH, Campbell TL, Seaburn DB: How families affect illness: research on family's impact on health. Family-Oriented Primary Care. New York.

Spring-Verlag New York Inc. 1990; 16-32

10 Lehman AF: Measuring quality of life in a reformed health system. Health
    Affairs. 1995; 14: 90-101

11 Sato M, Saito K, Haga H: Relationship between domestic roles and quality of
    life in the elderly living in the community. Nihon Hoken Fukushi Gakkaishi.
    2011; 17: 11-19. (Japanese text with English abstract)

12   Ware JE, Sherbourne CD: The MOS 36-Item Short-Form Health Survey.
    MedCar. 1992; 6: 473-483

13   Turner-Bowker DM, Bayliss MS, Ware JE, et al: Usefulness of the SF-8
    health survey for comparing the impact of migraine and other conditions.
    Qual Life Res. 2003; 12: 1003-1012

14 Anme T, Shimada C: Social interaction and mortality in a five year
    longitudinal study of the elderly. Nihon Koshu Eisei Zasshi. 2000; 47: 127-133.
    (Japanese text with English abstract)

15 Ministry of Health, Labor and Welfare. Comprehensive Survey of Living
    Conditions. Available at：
    http://www.mhlw.go.jp/toukei/saikin/hw/k-tyosa/k-tyosa14/dl/16.pdf / Accessed
    December 1, 2015

16 Kishi R, Horikawa N: Role of the social support network which influences age
    of death and physical function of elderly people study of trends in and outside
    of Japan and future problems. Nihon Koshu Eisei Zasshi. 2006; 51:79-93
    (Japanese text with English abstract)

17 Kandler U, Meisinger C, Baumert J, et al：Living alone is a risk factor for
    mortality in men but not women from the general population ; a prospective

cohort study. BMC Public Health. 2007; 16(7): 335-412

18 Meisinger C, Kandler U, Ladwig KH: Living alone is associated with an
    increased risk of type 2 diabetes mellitus in men but not women from the
    general population the MONICA/KORA Augsburg Cohort Study. Psychosom
    Med. 2009; 71: 784-788

19 Nan H, Lee PH, Ni MY, et al: Effects of depressive symptoms and family
    satisfaction. PLOS One. 2013; 8: e58436

20 Smith MB, Hobbs N: The Community and the community mental health
    center. Am Psychol. 1996; 31: 329-337

Table 1. Characteristics of the study subjects by the low and high Family APGAR (FA) groups, according to total, and strata of the single household and the non-single household

Items	Contents	Total					Single household					Non-single household				
		Low FA Group N=155	（%）	High FA Group N=329	（%）	P value	Low FA Group N=52	（%）	High FA Group N=42	（%）	P value	Low FA Group N=103	（%）	High FA Group N=286	（%）	P value
Age in years※	Mean (SD)	68.9 (11.1)	–	70.3 (10.9)	–	0.625	70.5 (11.2)	–	72.3 (11.8)	–	0.599	68.1 (11.0)	–	69.9 (10.7)	–	0.638
Gender	Men	72	(46.5)	181	(55.0)	0.080	23	(44.2)	10	(23.8)	0.032	49	(47.6)	171	(59.8)	0.021
	Women	83	(53.5)	148	(45.0)	–	29	(55.8)	32	(76.2)	–	54	(52.4)	115	(40.2)	–
Type of household	Non-single household	103	(66.5)	286	(87.2)	<0.001	–	–	–	–	–	–	–	–	–	–
	Single household	52	(33.5)	42	(12.8)	–	–	–	–	–	–	–	–	–	–	–
Home doctor	Yes	55	(35.5)	101	(30.7)	0.299	21	(40.4)	11	(26.2)	0.110	34	(33.0)	90	(31.5)	0.432
	No	100	(64.5)	228	(69.3)	–	31	(59.6)	31	(73.8)	–	69	(67.0)	196	(68.5)	–
Alcohol drinking	Never	77	(49.7)	160	(48.6)	0.411	16	(32.7)	28	(71.8)	0.001	41	(39.8)	146	(51.2)	0.103
	Often	53	(34.2)	100	(30.4)	–	23	(46.9)	6	(15.4)	–	40	(38.8)	82	(28.8)	–
	Daily drinking	25	(16.1)	69	(21.0)	–	10	(20.4)	5	(12.8)	–	22	(21.4)	57	(20.0)	–
Smoking status	Never	94	(60.6)	241	(73.3)	0.008	30	(61.2)	27	(69.2)	0.730	65	(63.1)	208	(73.0)	0.056
	Ex-smoker	27	(17.4)	44	(13.4)	–	9	(18.4)	6	(15.4)	–	14	(13.6)	39	(13.7)	–
	Currently smoking	37	(23.9)	44	(13.4)	–	10	(20.4)	6	(15.4)	–	24	(23.3)	38	(13.3)	–
Heart disease	Yes	24	(15.5)	60	(18.2)	0.521	7	(13.5)	5	(11.9)	0.537	17	(16.5)	54	(18.9)	0.354
	No	131	(84.5)	269	(81.8)	–	45	(86.5)	37	(88.1)	–	86	(83.5)	232	(81.1)	–
Hypertension	Yes	73.0	(47.1)	149	(45.3)	0.769	22	(42.3)	20	(47.6)	0.380	51	(49.5)	129	(45.1)	0.256
	No	82.0	(52.9)	180	(54.7)	–	30	(57.7)	22	(52.4)	–	52	(50.5)	157	(54.9)	–
Diabetes mellitus	Yes	25.0	(16.2)	59	(17.9)	0.700	7	(13.5)	4	(9.5)	0.398	18	(17.5)	55	(19.2)	0.425
	No	129.0	(83.8)	270	(82.1)	–	45	(86.5)	38	(90.5)	–	84	(82.5)	231	(80.8)	–
Physical component summary (PCS)	≧50	50.0	(32.3)	138	(41.9)	0.046	19	(36.5)	19	(45.2)	0.260	31	(30.1)	119	(41.6)	0.025
	<50	105.0	(67.3)	191	(58.1)	–	33	(63.5)	23	(54.8)	–	72	(69.9)	167	(58.4)	–
Mental component summary (MCS)	≧50	52.0	(33.5)	185	(56.2)	<0.001	18	(34.6)	25	(59.5)	0.014	34	(33.0)	160	(55.9)	<0.001
	<50	103.0	(66.5)	144	(43.8)	–	34	(65.4)	17	(40.5)	–	69	(67.0)	126	(44.1)	–
Index of Social Interaction (ISI)	≧15	53	(34.2)	213	(64.9)	<0.001	18	(34.6)	22	(52.4)	0.064	35	(34.0)	191	(66.8)	<0.001
	≦14	102	(65.8)	115	(35.1)	–	34	(65.4)	20	(47.6)	–	68	(66.0)	95	(33.2)	–

SD: Standard deviation

※Age was compared by the student's t test, and other items were compared by the chi-square test.

Table 2. Age and gender adjusted odds ratios (ORs), and multivariable adjusted ORs with their 95% confidence intervals (CIs) of being in the low Family APGAR (FA) group.

Item	Content	Age and gender adjusted				Multivariable-adjusted			
		OR	95% CI		P value	OR	95% CI		P value
Type of household	Single household	3.44	2.14	5.54	<0.001	3.26	1.94	5.47	<0.001
	Non-single household	1.00	–	–	–	1.00	–	–	
Smoking status	Never	1.00	–	–	–	1.00	–	–	–
	Ex-smoker	1.72	0.95	3.10	0.074	1.59	0.83	3.01	0.158
	Currently smoking	2.69	1.57	4.59	<0.001	2.32	1.30	4.15	0.005
Physical component summary (PCS)	≧50	1.00	–	–	–	1.00	–	–	–
	<50	1.73	1.13	2.64	0.012	1.36	0.84	2.19	0.210
Mental component summary (MCS)	≧50	1.00	–	–	–	1.00	–	–	–
	<50	2.48	1.66	3.70	<0.001	2.15	1.38	3.34	<0.001
Index of Social Interaction (ISI)	≧15	1.00	–	–	–	1.00	–	–	–
	≦14	3.60	2.40	5.39	<0.001	2.80	1.82	4.30	<0.001

#: Age, gender, type of household, smoking status, PCS, MCS, and ISI were involved in the logistic regression model.

Table 3. Age and gender adjusted odds ratios (ORs), and multivariable adjusted ORs with their 95% confidence intervals (CIs) of being in the low Family APGAR (FA) group in the stratum of the single household.

| Item | Content | Age and gender adjusted | | | | Multivariable-adjusted | | | |
		OR	95% CI		P value	OR	95% CI		P value
Gender	Men	1.00	–	–	–	1.00	–	–	–
	Women	0.40	0.15	1.03	0.560	0.52	0.17	1.62	0.259
Alcohol drinking	Never	1.00	–	–	–	1.00	–	–	–
	Often	0.60	0.14	2.55	0.491	0.51	0.11	2.32	0.438
	Daily	1.40	0.47	4.15	0.540	1.57	0.50	4.87	0.382
Mental component summary (MCS)	≧50	1.00	–	–	–	–	–	–	–
	＜50	2.49	1.54	4.02	＜0.001	2.89	1.13	7.37	0.026
Index of Social Interaction (ISI)	≧15	1.00	–	–	–	–	–	–	–
	≦14	2.15	0.92	5.06	0.790	1.70	0.68	4.23	0.255

#: Age, gender, alcohol drinking, MCS, and ISI were involved in the logistic regression model.

Table 4. Age and gender adjusted odds ratios (ORs), and multivariable adjusted ORs with their 95% confidence intervals (CIs) of being in the low Family APGAR (FA) group in the stratum of the non-single household.

Item	Content	Age and gender adjusted				Multivariable-adjusted			
		OR	95% CI		P value	OR	95% CI		P value
Smoking status	Never	1.00	−	−	−	1.00	−	−	−
	Ex-smoker	1.41	0.69	2.89	0.347	1.31	0.61	2.83	0.487
	Currently smoking	2.58	1.39	4.79	0.003	2.50	1.30	4.80	0.006
Physical component summary (PCS)	≧50	1.00	−	−	−	1.00	−	−	−
	<50	1.95	1.17	3.25	0.010	1.49	0.87	2.60	0.158
Mental component summary (MCS)	≧50	1.00	−	−	−	1.00	−	−	−
	<50	2.49	1.54	4.02	<0.001	2.05	1.23	3.43	0.006
Index of Social Interaction (ISI)	≧15	1.00	−	−	−	1.00	−	−	−
	≦14	4.01	2.48	6.50	<0.001	3.51	2.14	5.78	<0.001

#: Age, gender, smoking status, PCS, MCS, and ISI were involved in the logistic regression model.