

Original research

Relationship between the five viscera symptoms and "depression" or "anger"

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Abstract

[Introduction] Patients express various symptoms that reflect their physical, mental and psychological conditions. Thus, traditional Chinese medicine (TCM) emphasizes the relationship between physical and mental states. In the clinical practice of acupuncture and moxibustion, however, many patients chiefly cite physical complaints, and are often treated without a full discussion of their mental and psychological conditions. In TCM, feelings are divided into five categories: anger, happiness, concern, sadness, and fear. The relationship between these feelings and symptoms of disease of the five viscera is not clearly defined, so we attempted to clarify the correlations. This report presents the results of a survey on the traits and nature of anger and depression in terms of the five viscera.

[Methods] After obtaining informed consent was obtained, 102 students from a vocational school and our university (60 men and 42 women, average age 25 ± 8) participate in this study. Three survey sheets were used: Oriental Medicine Health Questionnaire 57 (OHQ57) to measure the condition of the five viscera; 24 from the 34 items of the State-Trait Anger-expression Inventory (STAXI) for understanding the Trait Anger; and Beck Depression Inventory (BDI) for assessing depression. The survey was conducted from June to July in 2012.

[Results] The average scores in OHQ57 were 5.1 ± 3.1 for liver (kan), 4.6 ± 3.2 for heart (shin), 5.2 ± 3.1 for spleen (hi), 3.8 ± 3.3 for lung (hai), and 3.9 ± 2.7 for kidney (jin). The average scores in STAXI were 23.0 ± 5.1 for trait anger, 18.8 ± 4.1 for anger-expression, 20.8 ± 3.8 for anger-suppression, and 18.9 ± 3.5 for a nger-control. The average score in BDI was 12.4 ± 8.0 . Significant correlations were found between state of anger and liver: anger-expression and liver/heart/lung in STAXI, and between depression and heart/ lung in BDI.

[Conclusion] The Suwen ("Basic Questions," the oldest Chinese medical text) and other TCM literatures report that anger and depression are related to liver, and the results of this study confirmed the relationship between anger and liver. Based on factor analyses, scores of Trait Anger (intensity of anger) revealed that participants suspected of having diseases of liver tended to get angry easily and anger-expression (expression of anger) showed that these participants displayed both aggressive behavior and verbal assertion. On the other hand, latent factors of depression, possibly caused by diseases of liver, were not revealed in factor analyses, although depression was significantly correlated with heart and spleen.

Key words: Five viscera, Oriental Medicine Health Questionnaire 57 (OHQ57), Psychological measure, Anger, Depression

I. Introduction

Human beings have physical expressions and psychological/emotional expressions; in Oriental medicine these are emphasized as mind-body unity. In clinical practice of acupuncture and moxibustion, the practitioners mainly treat physical complaints. Although in the background, the psychological and emotional

conditions of the patients are deeply involved, the relationship between the five viscera symptoms and these conditions has not been clarified. Furthermore, psychological/emotional conditions are difficult to diagnose or assess objectively, so that practical applications have been insufficient.

In recent years, in the field of psychology, studies to clarify the relationship between body movements and

consciousness (moods and feelings) have been made¹⁾. This is similar to Oriental medicine that emphasizes mind-body unity. In order to emphasize both mind and body in medical care, it seems to be necessary to examine the clinical meaning of psychological and emotional conditions in Oriental medicine while employing the viewpoint of psychology. Although, feelings in medical classics are simply classified as "anger, happiness, concern, sadness, and fear" the details of the relationships between these feelings and the five viscera symptoms are not verified.

Thus, we examined the relationship between psychological and emotional conditions and five viscera identified in oriental medicine. Especially, this study focused on "anger" and "depression," which are deeply involved with a stressful society, and investigated the relationship between "anger" or "depression" and the five viscera symptoms.

II. Methods

1. Subjects

The purpose of this study was explained to the candidates, who were the students of K Technical College and Department of Clinical Acupuncture and Moxibustion, Meiji University of Integrative Medicine. Of those, 102 students gave their consent to participate. The participants included 60 males and 42 females, and their average age was 24.5 ± 7.6 . This study was approved by the Meiji University of Integrative Medicine Research Eth-

ics Committee. (Approval #: 24-6)

2. Research methods

Three forms of questionnaires were distributed simultaneously to the participants. The three questionnaire surveys used were the Oriental Medicine Health Questionnaire 57 (OHQ57) to estimate Oriental medical conditions, the State-Trait anger-expression Inventory (STAXI), and Beck Depression Inventory (BDI) to grasp psychological and emotional conditions.

After oral explanation, the surveys were completed within the predetermined time and collected. The survey period was from June to July, 2012.

(1) OHQ57 (Table 1)

OHQ57, which consisted of 57 questions selected from symptoms of major diseases in Oriental medicine, was prepared by Meiji University of Integrative Medicine. From the specific symptomatic of disease pattern in Oriental medicine, OHQ57 estimates or infers clinical symptom pattern and individual physical conditions. As a pre-examination form with 57 questions rated on a Four-Point Scale, and does not diagnose or determine disease patterns. The questionnaire estimates 17 items of symptoms (cold pattern, heat pattern, vital substance deficiency, vital substance congestion, blood deficiency, blood stasis, five viscera, etc.) and two items of health consisted conditions. The questionnaire consisted of five questions per item, which are evaluated as "None, a Little, Moderate, or Strong" on a scale of zero to three.

Table1: Oriental Medicine Health Questionnaire OHQ57

Oriental Medicine Health Questionnaire		No. _____
name: _____, sex: male • female		Age: _____
		Described Date: _____ Year _____ Month _____ Day _____
※ Regarding your physical condition for the past seven days, please circle one among ① to ④ that best answers the question.		
(A) 1. I feel a cold sensation in my arms, legs, or belly. I feel a burning sensation in my arm, leg, or belly.	①Very much②quite of lot③a little ④not at all	①Very much②quite of lot③a little ④not at all
2. I become ill when I feel cold. I become ill when I feel hot.	①Very much②quite of lot③a little ④not at all	①Very much②quite of lot③a little ④not at all
3. My symptoms improve when I feel warm. My symptoms improve when I feel cool.	①Very much②quite of lot③a little ④not at all	①Very much②quite of lot③a little ④not at all
4. I prefer a warm drink I prefer a cold drink	①Very much②quite of lot③a little ④not at all	①Very much②quite of lot③a little ④not at all
(B) 1. I feel tired easily. 2. I experience mental fatigue. 3. I feel difficult to speak 4. I experience episodes of shortness of breath. 5. I sweat easily, even when I am resting.	①Very much②quite of lot③a little ④not at all	①Very much②quite of lot③a little ④not at all
(C) 1. I feel depressed. 2. I feel heaviness in my throat, chest, or stomach. 3. When I am mentally stressed I become ill. 4. My symptoms have move from one areas of my body. 5. I feel irritated.	①Very much②quite of lot③a little ④not at all	①Very much②quite of lot③a little ④not at all
(D) 1. I have a sleep disorder, such as insomnia. 2. I experience dizziness. 3. I have cramps in my limbs. 4. I feel numbness in my limbs.	①Very much②quite of lot③a little ④not at all	①Very much②quite of lot③a little ④not at all
(E) 1. I feel a tingling sensation in the same region. 2. I have dry (scaly) skin. 3. I feel pain at night. 4. I am prone to experiencing internal bleeding. 5. I have an incurable stiffness in my neck, shoulder, or	①Very much②quite of lot③a little ④not at all	①Very much②quite of lot③a little ④not at all
(F) 1. I feel thirsty and drink a lot of water. 2. My skin is dry. 3. My lips are dry. 4. My stomach stomach/gard which makes it difficult to empty my 5. bowels.	①Very much②quite of lot③a little ④not at all	①Very much②quite of lot③a little ④not at all
(G) 1. I feel sluggish. 2. I have edema in my limbs. 3. I have sputum in my throat.	①Very much②quite of lot③a little ④not at all	①Very much②quite of lot③a little ④not at all
(H) 1. I became angry easily. 2. My eyes are strained or my vision is blurred. 3. I have a stitch in the hypochondrium area or armpit.	①Very much②quite of lot③a little ④not at all	①Very much②quite of lot③a little ④not at all
(I) 1. I frequently experience heart palpitations. 2. I forget things easily. 3. I have a feeling of pain or pressure in my chest. 4. I dream a lot. 5. I suddenly feel anxious.	①Very much②quite of lot③a little ④not at all	①Very much②quite of lot③a little ④not at all
(J) 1. I feel pain or discomfort in my stomach. 2. I have lost my appetite. 3. I have diarrhea or loose stools. 4. I feel a heavy sensation in my limbs. 5. I am prone to worrying about things.	①Very much②quite of lot③a little ④not at all	①Very much②quite of lot③a little ④not at all
(K) 1. I have difficulty breathing. 2. I cough and there is phlegm in my throat. 3. I have a runny or congested nose. 4. I feel sad easily.	①Very much②quite of lot③a little ④not at all	①Very much②quite of lot③a little ④not at all
(L) 1. My hair falls out easily. 2. I feel a heaviness or pain in my lower back or legs. 3. I have difficulty urinating. 4. I find it difficult to hear. 5. I feel fear or surprise easily.	①Very much②quite of lot③a little ④not at all	①Very much②quite of lot③a little ④not at all

Table2: Psychological measures of anger State-Trait Anger Expression Inventory

STAXI No. _____ Table 2
 name: . sex:male+female Age: . Described Date: Year Month Day
 Read the statements below and indicate how you generally react or behave when you feel angry or furious by placing the appropriate number next to each item.

	Almost always	Often	Sometime s	Almost never
1. I control my behavior.	①	②	③	④
2. I express my anger.	①	②	③	④
3. I keep things in	①	②	③	④
4. I am patient with others.	①	②	③	④
5. I pout or sulk.	①	②	③	④
6. I withdraw from people.	①	②	③	④
7. I become sarcastic .	①	②	③	④
8. I keep fit.	①	②	③	④
9. I do something violent such as slamming a door.	①	②	③	④
10 Nothing force me to show anger.	①	②	③	④
11 I control my temper.	①	②	③	④
12 I quarrel with others.	①	②	③	④
13 I tend to harbor grudges.	①	②	③	④
14 I pout or sulk.	①	②	③	④
15 I can stop from losing my temper.	①	②	③	④
16 I am secretly quite critical of others.	①	②	③	④
17 Angrier than I am willing to admit.	①	②	③	④
18 I am irritated a great deal more.	①	②	③	④
19 I say nasty things.	①	②	③	④
20 I have to be tolerant and comprehensive.	①	②	③	④
21 I argue with others.	①	②	③	④
22 I become upset and ill-tempered.	①	②	③	④
23 I conjoy my feeking to the person who annoyed me.	①	②	③	④
24 I control my angry feelings.	①	②	③	④

Read the statements below and indicate how you generally feel about yourself by placing the appropriate number next to each item.

	Almost always	Often	Sometime s	Almost never
1. I am quick tempered.	①	②	③	④
2. I have a fiery temper.	①	②	③	④
3. I am a hothead person.	①	②	③	④
4. I get angry when slowed down.	①	②	③	④
5. Annoyed when no recognition.	①	②	③	④
6. I fly off the handle.	①	②	③	④
7. When I get mad, I say nasty things.	①	②	③	④
8. Furious when criticized in the presence of others.	①	②	③	④
9. Frustrated, feel hitting someone.	①	②	③	④
10 Infuriated when poor evaluation.	①	②	③	④

The judgment criteria for each item with respect to a possible 15 points are as follows: 0-4 points (less than 1/3) is "normal," 5-9 points (1/3 or more and less than 2/3) means "a disease pattern is slightly suspected," and 10 points or more means "a disease pattern is suspected²⁾.

(2) STAXI (Table 2)

STAXI is a survey of 34 items rated on a Four-Point Scale. It was created in 1988 by Spielberger³⁾ by combining the State-Trait Anger Scale and Anger-expression Scale. Suzuki and Haruki created the Japanese version in 1994. This study used the Japanese version of STAXI⁴⁾.

The State-Trait Anger Scale is comprised of a scale to measure the strength of anger as an emotion ("State Anger"), and a scale to measure individual variation in ease of getting angry as part of one's personality ("Trait Anger"). In order to measure the ease of getting angry as a personality trait, we used 10 questions from the Trait Anger Scale.

The Anger-expression Scale is made up of "Anger-expression," "Anger-Suppression," and "Anger-Control." The survey is composed of a total of 24 questions. There are nine questions to measure "Anger-expression,"

which is the tendency to direct anger externally (at others or at objects). There are seven questions that measure "Anger-Suppression," which is the tendency to withhold anger (and entertain it in the mind). There are eight questions to measure "Anger-Control," which is the tendency to try to control the ways anger is expressed.

(3) BDI (Table 3)

BDI was developed by Beck et al. and measures the severity of depression during the most recent week. In 1991, Hayashi et al. created the Japanese version. Widely used in the fields of psychology and psychiatry⁵⁾, BDI consists of 21 major depression symptoms, which are rated according to a Four-Point Scale. BDI was applied to all the participants, except for one case that was omitted.

(4) For statistical analysis, Excel statistics (Statcel3, OMS Publishing Inc.) was used. The results of these questionnaires were ordinal variables, and a nonparametric test was employed. Each result was indicated by average value and standard deviation. The figures comparing two groups used the median, minimum, and maximum values. Two-group comparisons such as Mann Whitney test were conducted. For correlation, Spearman rank correlation coefficient was used. Significance level of the two-group comparison (both sides) was 0.05. As for correlation for the number of samples, a significance level (both sides) was set to 0.05 and moderate correlation to 0.400 or more.

Moreover, for factor analysis, SPSS Statistics Ver. 20 (IBM Corp.) was used.

III. Results

1. Survey results

(1) The five viscera scores for OHQ57

The average scores for the five viscera were 5.1 ± 3.1 for liver, 4.6 ± 3 for heart. 25.2 ± 3.1 for spleen, 3.8 ± 3.3 for lung, and 3.9 ± 2.7 for kidney.

(2) Psychological measure

1) STAXI

Average scores were 23.0 ± 5.1 for Trait Anger, 18.8 ± 4.1 for Anger-expression, 20.8 ± 3.8 for Anger-Suppression, and 18.9 ± 3.5 for Anger-Control.

2) BDI

Average score was 12.4 ± 8.0.

(3) Relationship between OHQ57 and psychological measure (Table 4)

Correlation of the five viscera from OHQ57 with STAXI or BDI

We considered correlation values of 0.400 or more that indicate a moderate correlation as well as correlation of the five viscera from OHQ57 with STAXI and the five viscera from OHQ57 with BDI.

Table3: Psychological measures of depression Beck Depression Inventory

Beck Depression Inventory

Table 3

name: _____ sex: male* female Age: _____ No. _____ Described Date: Year _____ Month _____ Day _____

※This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the one statement in each group that best describes the way you have been feeling during the past two weeks, including today. Circle the number beside the statement you have picked. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure that you do not choose more than one statement for any group.

1. () ① I do not feel sad
() ② I feel blue or sad
() ③ I am blue or sad all the time and I can't snap out of it
() ④ I am so sad or unhappy that I can't stand it
2. () ① I am not particularly pessimistic or discouraged about the future
() ② I feel discouraged about the future
() ③ I feel I have nothing to look forward to
() ④ I feel that the future is hopeless and that things cannot improve
3. () ① I do not feel like a failure
() ② I feel I have failed more than the average person
() ③ I feel I have accomplished very little that is worthwhile or that means anything
() ④ I feel I am a complete failure as a person
4. () ① I am not particularly dissatisfied
() ② I feel bored most of the time
() ③ I don't get satisfaction out of anything any more
() ④ I am dissatisfied with everything
5. () ① I don't feel particularly guilty
() ② I feel bad or unworthy a good part of the time
() ③ I feel quite guilty
() ④ I feel as though I am very bad or worthless
6. () ① I don't feel I am being punished
() ② I have a feeling that something bad may happen to me
() ③ I feel I am being punished or will be punished
() ④ I feel I deserve to be punished
7. () ① I don't feel disappointed in myself
() ② I am disappointed in myself
() ③ I am disgusted with myself
() ④ I hate myself
8. () ① I don't feel I am any worse than anybody else
() ② I am very critical of myself for my weaknesses or mistakes
() ③ I blame myself for everything that goes wrong
() ④ I blame myself for everything bad that happens
9. () ① I don't have any thoughts of harming myself
() ② I have thoughts of harming myself but I would not carry them out
() ③ I feel I would be better off dead
() ④ I would kill myself if I could
10. () ① I don't cry any more than usual
() ② I cry more now than I used to
() ③ I cry I'll be the time now. I can't stop it
() ④ I used to be able to cry but now I can't cry at all even though I want to
11. () ① I am no more irritated now than I ever am
() ② I get annoyed or irritated more easily than I used to
() ③ I feel irritated all the time
() ④ I don't get irritated at all at the things that used to irritate me
12. () ① I don't feel I look any worse than I used to
() ② I am worried that I am looking old or unattractive
() ③ I feel that there are permanent changes in my appearance and they make me look unattractive
() ④ I feel that I am ugly or repulsive looking
13. () ① I make decisions about as well as ever
() ② I am less sure of myself now and try to put off making decisions
() ③ I can't make decisions any more without help
() ④ I can't make any decisions at all any more
14. () ① I don't feel I look any worse than I used to
() ② I am worried that I am looking old or unattractive
() ③ I feel that there are permanent changes in my appearance and they make me look unattractive
() ④ I feel that I am ugly or repulsive looking
15. () ① I can work about as well as before
() ② It takes extra effort to get started at doing something
() ③ I have to push myself very hard to do anything
() ④ I call't (I'm) jolly well at all
16. () ① I can sleep as well as usual
() ② I wake up more tired in the morning than I used to
() ③ I wake up 1-2 hours earlier than usual and find it hard to get back to sleep
() ④ I wake up early every day and can't get more than 5 hours sleep
17. () ① I don't get any more tired than usual
() ② I get tired more easily than I used to
() ③ I get tired from doing anything
() ④ I get too tired to do anything
18. () ① My appetite is no worse than usual
() ② My appetite is not as good as it used to be
() ③ My appetite is much worse now
() ④ I have no appetite at all any more
19. () ① I haven't lost much weight, if any, lately
() ② I have lost more than 5 pounds
() ③ I have lost more than 10 pounds
() ④ I have lost more than 15 pounds
20. () ① I am no more concerned about my health than usual
() ② I am concerned about aches and pains or upset stomach or constipation or other unpleasant feelings in my body
() ③ I am so concerned with how I feel or what I feel that it's hard to think of much else
() ④ I am completely absorbed in what I feel
21. () ① I have not noticed any recent change in my interest in sex
() ② I am less interested in sex than I used to be
() ③ I am much less interested in sex now
() ④ I have lost interest in sex completely

Table4: Correlation between OHQ57 of five viscera and psychological measures

Moderate correlations were found between Trait Anger and liver, and Anger-Out and liver/heart/lungs in STAXI, and between depression and heart/pancreas BDI.

		OHQ57 Score of five viscera				
		Liver	Heart	Spleen	Lung	kidney
Trait Anger	correlation coefficient (r)	<u>0.466</u>	0.310	0.104	0.203	0.165
	Significant (p)	<0.0001	0.002	0.327	0.050	0.115
Anger Expression	correlation coefficient (r)	<u>0.478</u>	<u>0.401</u>	0.300	0.428	0.181
	Significant (p)	<0.0001	<0.0001	0.003	<0.0001	0.084
Anger-In	correlation coefficient (r)	-0.082	-0.109	-0.118	0.110	0.072
	Significant (p)	0.348	0.226	0.194	0.327	0.539
Anger Control	correlation coefficient (r)	0.225	0.224	0.188	0.229	0.307
	Significant (p)	0.029	0.030	0.069	0.028	0.003
BDI	correlation coefficient (r)	0.355	<u>0.482</u>	<u>0.454</u>	0.222	0.339
	Significant (p)	0.002	<0.0001	<0.0001	0.097	0.003

Underlined in bold: (r)>0.400

For "Trait Anger" and the five viscera from OHQ57, liver showed a high correlation value 0.466. Next, for "Anger-expression," liver was 0.481, heart was 0.401, and lung was 0.428. For "Anger-Suppression and Anger-Control" values exceeding 0.400 could not be found in the five viscera from OHQ57. In correlation between BDI and OHQ57, heart was 0.482, and lung was 0.454.

From the above results, was considered to be explained mainly cases with moderate correlation.

(4) Comparison of the normal group with the group in which a disease pattern was suspected.

Analysis of the disease pattern in the five viscera from OHQ57 and the anger scale.

The normal group was the group that was not suspected of a disease pattern of liver from OHQ57 with scores of 4 or less. Scores of 5 or more indicate a disease pattern of liver.

1) Relationship between Trait Anger and a disease pattern of liver from OHQ57 (Fig. 1-1)

For liver from OHQ57, there was a significant difference in Trait Anger between the normal group and the group that was suspected of a disease pattern.

2) Relationship between anger-expression and disease patterns of liver, heart, and lung from OHQ57 in anger-expression (Fig. 1-2).

For liver, heart, and lung from OHQ57, there was a significant difference between the normal group and the suspect group in anger-expression.

3) Relationship between BDI and disease patterns of heart and spleen from OHQ57 (Fig. 1-3).

For heart and spleen, there was a significant difference in BDI scores between the normal group and the suspect group.

(5) Factor analysis

Since there was a moderate correlation in OHQ57 between liver and "anger-expression," factor analysis was conducted in an attempt to extract potential factors developed based on this correlation.

1) Factor analysis of Trait Anger (Table 5)

① Factor analysis of "Trait Anger" for the normal group and for the suspect group

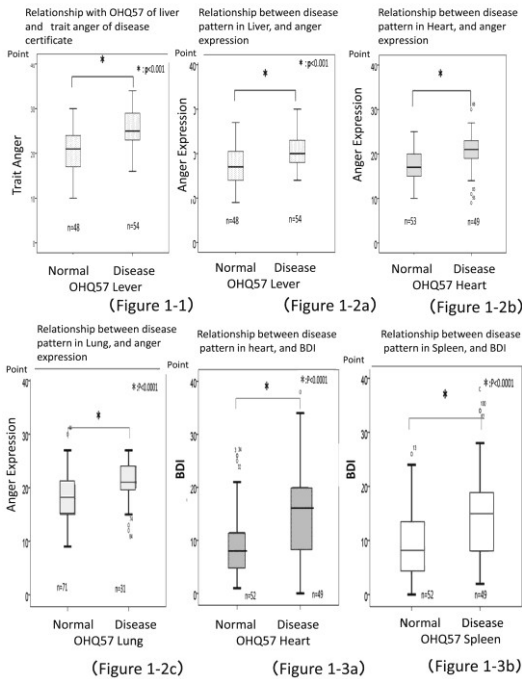


Figure 1-1: Relationship between liver disease pattern certificate and trait anger

In liver, significant difference was showed between the scores of the normal group and the suspected disease pattern group.

Figures 1-2: Relationship between disease pattern in liver, heart and lungs, and anger expression

In liver, heart and lungs, significant difference was showed in scores of anger-out between the normal group and the suspected disease pattern group.

Figures 1-3: Relationship between disease pattern in heart and spleen, and BDI

Significant difference in BDI scores in heart and spleen between the normal group and the suspected disease pattern group.

Answer comparison to question items about trait anger and anger expression between the normal group and the liver disease certificate suspected group in OHQ57

For the group suspected of a disease pattern of liver from OHQ57, there was a three-factor structure indicated by the changes (2.99, 2.36, 1.27, 0.71) in eigenvalue (value that determines the number of factors) and by the possibility of interpretation of the factors. Although we conducted factor analysis by a principal factor method and promax rotation (oblique rotation) with three factors, the correlation between two factors was 0.026 and intersection at nearly right angles, so we repeated again factor analysis with a principal factor analysis method and varimax rotation (orthogonal rotation). Cumulative contribution ratio, which indicates how much volume of information is contained in the data and is explained by the ratio of total eigenvalue, was 52.4%.

For the first factor, items showing traits of ease of getting angry, such as "short-tempered," "easy to anger," and "hasty" indicated high factor loading, so that this factor was named "Easy to anger personality."

For the second factor, items showing traits of anger against someone's lack of appreciation, such as "I get irritated when someone does not praise me despite the fact that I do something good" or "I get angry when someone does not praise me despite doing something good" indicated high factor loading, so that this factor was named "Others' praise."

For the third factor, items showing traits of taking action due to anger such as "I hit someone when I cannot do something I want to do" indicated high factor loading, so that this factor was named "Action."

The group, which had normal scores for liver from OHQ57 (normal group), indicated a three-factor structure. We conducted factor analysis by a principal factor method and promax rotation. The ratio of total variance for seven items and three factors before rotation was 78.8%.

The first factor was named "Others' praise," because of items such as "I am irritated, if someone does not praise me despite doing something good" and "I get angry when someone does not praise me despite doing something good."

For the second factor, from items showing traits such as "to be short-tempered" and "to be easy to anger" was named "Easy to anger personality."

For the third factor, items showing traits of impatience, such as "to get mad quickly," or "to be hasty" indicated high factor loading, so that this factor was named "Short-tempered."

2) Factor analysis of anger-expression (Table 6)

① Factor analysis of "anger-expression" for the normal group and for the suspect group

For the group that was suspected of a disease pattern of liver, a two-factor structure can be found from changes in eigenvalues and we conducted factor analysis with the primary factor method and promax rotation. The ratio of total variance for six items and two factors before rotation was 31.2%.

For the first factor, items showing traits of expressing with offensive attitude such as "to get angry," "to be peevish or sulky," or "to slam the door on purpose and be rampageous" indicated high factor loading, so that this factor was named "offensive assertion."

For the second factor, items showing traits of verbal expression such as "If irritated by someone, I convey that feeling to him or her," or "I scream obnoxiously" indicated high factor loading, so that this factor was named "linguistic assertion."

For the group that was normal in liver from OHQ57, a two-factor structure could be found from changes in eigenvalues and we conducted factor analysis by a primary factor method and promax rotation. The ratio of

total variance for seven items and two factors before rotation was 62.6%.

For the first factor, the items showing attitude to be assertive such as "to be peevish or sulky" or "to become upset and ill-humored" indicated high factor loading, so that this factor was named "assertion by attitude."

For the second factor, items showing traits of verbal expression such as "If irritated by someone, I convey that feeling to him or her" or "I scream obnoxiously" indicated high factor loading, so that this factor was named "linguistic assertion."

IV. Discussion

1. OHQ57

That OHQ57 is mainly related to a diagnostic process in interview and does not include findings from inspection listening and smelling examination⁶⁾, or palpation (pulse diagnosis) conducted by an examiner, so that similar results cannot be obtained. Others reported that health evaluation by pulse diagnosis was related to health evaluation by OHQ57⁷⁾. In this study, however, OHQ57 was used in order to investigate how the five viscera symptoms relate to psychological and emotional conditions. Moreover, previous studies indicated a correlation between OHQ57 and SF-8 Health Survey²⁾, and especially a correlation between deficiency pattern and SF-8 PCS was found. Other conditions (heat patterns, qi deficiency, blood deficiency, body fluid

deficiency, body fluid stagnation) were correlated with SF-8 PCS ($R > 0.40$, $P < 0.010$). Furthermore, OHQ57 showed a correlation between heart and SF-8 MCS ($R = 0.63$, $P = 0.001$)²⁾.

2. Concerning Trait Anger and the five viscera

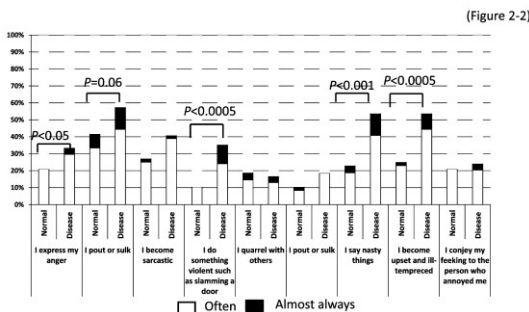
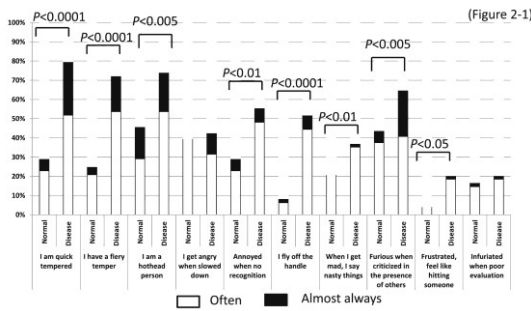
From these research results, Trait Anger correlates only with liver. Up on examination of the potential factors, it was found that the first factor was the Oriental medical traits to be easy to get angry, such as "short-tempered" and "easy to anger," and the second factor was the trait to get angry about someone's criticism. Masuda and Kino reported that "university students get angry easily in interpersonal relationships^{8,9)}. It is inferred that the university students who participated in this study also felt similar anger in interpersonal relationships. When factors for the normal group for liver from OHQ57 and the group that was suspected of disease pattern, were compared of characteristic factor and anger at someone's criticism were common. The latter group also showed factors that indicate behavioral anger. Therefore, when comparing the response rate of the group suspected by OHQ57 of a disease pattern of liver with the normal group, it is suggested that there is significant difference ($P < 0.001$) in answers to the questions regarding "easy to get angry" such as "short-tempered," "easy to anger," "quick to anger" and "easy to get mad," and questions on other's criticism ($P = 0.005$) as "to get angry when blamed" (Fig. 2-1).

Table5: Factor analysis of the trait anger

		I	II	III	Mean	S.D	
Disease	Factor						
	factor 1	0.784	-0.247	0.313	3.06	0.75	
	Short-temperedness	0.748	0.034	-0.174	2.89	0.82	
	($\alpha = 0.77$)						
		0.727	-0.124	0.373	2.89	0.73	
		0.566	0.238	0.137	2.57	0.69	
		0.449	0.423	-0.178	2.42	0.84	
	factor 2	0.092	0.925	0.043	2.57	0.75	
	Evaluation by others	-0.077	0.680	0.259	2.08	0.65	
	($\alpha = 0.75$)	-0.028	0.548	0.144	2.85	0.84	
factor 3	0.047	0.114	0.505	1.87	0.79		
Behavior($\alpha = 0.48$)	0.171	0.364	0.476	2.26	0.68		
Factor Extraction Methods:principal_factor_analysis Rotation Varimax							
Normal	Factor						
	factor 1 Evaluation by others	0.929	0.049	-0.062	1.81	0.76	
	($\alpha = 0.84$)	0.779	-0.098	0.167	2.15	0.83	
	factor 2	-0.023	0.807	0.053	2.04	0.80	
	Short-temperedness	-0.130	0.795	0.116	2.19	0.79	
	($\alpha = 0.75$)	0.290	0.531	-0.202	2.35	0.81	
	factor 3	-0.021	-0.044	0.832	2.44	0.99	
	($\alpha = 0.70$)	0.139	0.126	0.644	1.77	0.66	
	Factor Extraction Methods:principal_factor_analysis Rotation Promax						

Table6:Factor analysis of anger expression

		Factor	Item	I	II	Mean	S.D
Disease	factor 1		I express my anger.	0.752	-0.249	2.31	0.64
	Aggressive Expression ($\alpha = 0.61$)		I pout or sulk.	0.566	0.301	2.59	0.86
			I do something violent such as slamming a door.	0.491	0.062	2.22	0.95
	factor 2		I convey my feeling to the person who annoyed me.	-0.053	0.556	2.09	0.73
	Lingual Expression ($\alpha = 0.48$)		I say nasty things.	0.083	0.483	2.54	0.88
		I become sarcastic.	-0.007	0.441	2.31	0.70	
Factor Extraction Methods:principal_factor_analysis Rotation Promax							
		Factor	Item	I	II	Mean	S.D
Normal	factor 1		I pout or sulk.	0.837	-0.298	2.25	0.93
	Aggressive Expression ($\alpha = 0.76$)		I become upset and ill-tempered	0.692	0.090	1.98	0.79
			I become sarcastic	0.624	0.211	1.96	0.82
			I quarrel with others	0.427	0.368	1.90	0.81
	factor 2		I convey my feeling to the person who annoyed me	-0.148	0.778	1.88	0.73
Lingual Expression ($\alpha = 0.68$)		I express my anger	0.027	0.652	1.98	0.67	
		I become sarcastic	0.109	0.526	1.96	0.82	
Factor Extraction Methods:principal_factor_analysis Rotation Promax							



Figures 2-1: Response rate to question items about trait anger compared between the normal group and the liver disease certificate suspected group in OHQ57
In the liver disease pattern group, significant difference was suggested in question items asking about how ready one is get angry, and how he/she is seen from the other people.

Figure 2-2: Response rate to question items about anger expression compared between the normal group and the liver disease certificate suspected group in OHQ57
In the liver disease pattern group, significant difference was suggested in question items percentage of appearance both in claims and linguistic was significantly high.

For the questions of Trait Anger and liver from OHQ57, there was a common item "to be easy to anger." Even removing liver there was moderate correlation between "Easy to anger" and Trait Anger."

3. Concerning anger-expression and the five viscera

Next, anger-expression showed a correlation to liver, heart, and lung from OHQ57. anger-expression has a general tendency to be suppressed in interpersonal relationships. This suppression is said to be caused by the expectation of negative results from anger-expression in interpersonal relationships¹⁰. Moreover, compared with Westerners, Japanese people tend to suppress anger-expression. When Japanese people express anger, it is euphemistic and ambiguous⁹. It is said that the cause of this is interpersonal behavior unique to Japanese people, or unique to Japanese culture. In relation to health, it is pointed out that strong tendency to express anger can lead to coronary-heart disease¹¹. Moreover, Kuroki reported that action to express anger is one of the phenomena that appear due to the condition of the body and deviation of feeling, and heart is also involved¹². From the result of this study, although correlation was observed for liver, heart, and lung from OHQ57, when the normal group was compared with the group suspected of a disease pattern, potential factors could not be extracted for heart for either group. Potential factors for lung could only be extracted for the normal group, however for liver potential factors could be extracted for both groups. For the group suspected of a disease pattern of liver, the potential factors included not only euphemistic and ambiguous expressions unique to Japanese people but also an offensive attitude such as "to express outrage" or "to slam the door on purpose and be rampageous." Also, when the response rate of questions for anger-expression, the group suspected of a disease pattern of liver had a

significantly higher rate of expressing anger verbally or by attitude such as "to slam the door on purpose and be rampageous," and "to become upset and ill-humored" ($P < 0.001$) "to scream obnoxiously" ($P = 0.001$). From the above, it can be inferred that when someone takes an offensive attitude, it becomes an indicator to suspect a disease pattern of liver (Fig. 2-2).

4. Concerning depression and the five viscera

Depression is one of the symptoms of liver qi stagnation, which is a disease pattern of liver. In this study, however, there was also a correlation with heart and spleen from OHQ57 as well as correlation between the liver and depression. As to the reason for this, "depression" is a cardinal symptom of clinical depression. "Depression" means depressed mood or loss of interest or joy. In addition, it includes fatigue, self-reproach, difficulty in concentration, and changes in appetite or weight¹³. Tabuchi et al. described that "depression" means depression syndrome, a condition which produces various obstacles to everyday life due to feelings of being severely depressed, becoming uninterested in everything, and feeling strong mental anguish¹⁴. Moreover, Hiro et al, reported that BDI, which was used in this study, correlated highly with anxiety¹⁵.

From the above, it can be seen that what are known as deficiency pattern and excess pattern in Oriental medicine are mixed in "depression." Also in the contents of the questions in the BDI in this study, although there were some items on symptoms of excess, there were many items on symptoms of deficiency. In the future we would like to consider including question items which divide the symptoms of deficiency and excess.

Furthermore, in Oriental medicine, anxiety, disappearance of joy or sleeplessness are related with heart, and easy fatigability and changes in appetite and weight are related with spleen. This may be why the correlation could be found. For all participants, not all potential factors of depression could be found. In comparison of the normal group and the group suspected of a disease pattern for heart and spleen, the latter showed significantly higher scores. Thus, we also tried to extract the possible factors for heart and spleen from OHQ57, but we could not extract factors for the latter groups. For "Trait Anger" the group suspected of a disease pattern had the traits of getting angry easily and tending to feel angry about others' criticism. For "anger-expression," there was a tendency for both "attitudinal expression" and "linguistic expression" of anger, and a violent attitude could be found in the group suspected of a disease pattern. Although "anger" is a part of one's character, it is often directed at someone or against society in response to a threat of physical or psychological injury; therefore, anger is considered to be a psychological or physical state of defense. A similar definition is given in "Psychology of anger"¹⁶. The relationship between anger and liver of the five viscera is the same as the results

of other investigations^{17,18}. A deep relationship to liver was also suggested in this study. The relationship between the five viscera and psychological and emotional conditions is explained in classic Oriental medicine, however it has hardly been examined. This study could only partially examine the relationship between psychological and emotional conditions and the five viscera by investigating the relationship between the anger and five viscera.

Although this investigation focused on "anger" and "depression," it suggests that relationships to other feelings can be discovered. In future investigations by studying the relationship between the five viscera and psychological and emotional conditions, we hope to clarify the information on psychological and emotional factors. For understanding pathophysiology and disease states in acupuncture and moxibustion.

V. Conclusions

In order to examine relationships between psychological and emotional conditions, we investigated the relationship between "anger" or "depression" and Oriental medicine's "five viscera symptoms." The following results were obtained:

1. For the relationship between "anger" and the "five viscera," depending on the psychological measure of anger, anger had a strong relationship with liver of the five viscera.
2. A moderate correlation was found for Trait Anger to liver of the five viscera. Those suspected of a disease pattern of liver showed the traits of "to be easy to anger" or "to get angry about others' criticism."
3. "Anger-expression" was also related with liver, heart, and lung of the five viscera.
4. In their ways of expressing anger for those suspected of a disease pattern of liver, both expressing anger with offensive assertion and linguistic assertion was found.
5. Although depression is considered to be a disease pattern of liver in Oriental medicine, in this study correlation was also be found with heart and spleen, and a relationship is suspected. In the future, it may necessary to use additional psychological measures in our investigation.

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Conflict of interest

The authors indicate no potential conflict of interest.

References

- 1) Haruki, Y. Somatic Psychology. Tokyo: Kawashima Shoten Co., Ltd.. 2004; pp. 3-45. (in Japanese)
- 2) Watsuji, T., Seki, M., Shinohara, S. and Arita, S. Possibility of a health support system using Oriental medicine health questionnaire. Journal of Biomedical Fussy Systems Association. 2008; 10 (1), pp. 79-86.
- 3) Spielberger C. D. Manual for the Atate-Trait anger-expression Inventory (ATAXI). Odessa, FL: Psychological Assessment Resources. 1988.
- 4) Suzuki, T. and Haruki Y. Japanese Version of STAI, Hori, H. (Supervisor). Collection of Psychometric Scale II. Tokyo: SAIENSU-SHA Co., Ltd.. 2010; pp. 208-13.
- 5) Beck. A. T., Ward. C. H., Mendelson, M., Mock. E. and Erbaugh J. Liver inventory for measuring depression. Archives of General Psychiatry. 1961; 4:561-71.
- 6) Watsuji, T., Seki, M., Shinohara, S., Yano, T. and Mineo, T. Usefulness for the health evaluation in the health questionnaire of Oriental medicine. Journal of Biomedical Fussy Systems Association. 2012; 25, 80-3.
- 7) Watsuji, T., Seki, M., Shinohara, S., Yano, T. and Mineo, T. Study on the health evaluation in the health questionnaire of Oriental medicine. Journal of Biomedical Fussy Systems Association. 2013; 15 (2), pp. 51-53.
- 8) Masuda, T., Liveretsuki, M., Sekiguchi, Y. and Netate. K. Development of the anger self-statements questionnaire (ASSQ) and investigation of its reliability and validity. The Japanese Journal of Behavior Therapy. 2005; (31): pp. 31-44.
- 9) Kino, K. Japanese anger-expression styles and their interpersonal influence. Heartrigakukenkyu (The Japanese Journal of Psychology). 2000; 70: pp. 494-502.
- 10) Kino, K. Expression of anger and its interpersonal and intrapersonal outcomes. 2003; 50: pp. 185-94.
- 11) Ishihara, S., Sato, S., Hida, A. and Makita, S. Study of anger-expression inventory in patients with cardiac disease. The Japanese Journal of Rehabilitation Medicine, Cardiac Rehabilitation. 2008;13 (1): pp. 57-62.
- 12) Kuroki, K. <Qi> in Oriental medicine. Proceedings of Osaka University of Economics. 2006; 57(1): pp. 9-23.
- 13) Takagaki, K., Okajima, I. and Salivero, Y. The Relationship between Cognitive-behavioral Styles and Depression in Undergraduate Students. The Japanese Journal of Personality. 2012; 21(1): pp. 63-73.
- 14) Tabuchi, H. and Kato, G. Depressive symptoms represent not only a depressive mood but also loss of motivation, fatigue, sleep disorder, etc. where people are often not aware of being in a depressive mood. The Journal of Therapy. Special Issue, 2005; 87: pp.1339-41.
- 15) Hiro, H., Shima, S. Self-rating questionnaire for depression. Journal of Japanese Society for Psychiatric Diagnosis. 1992; 3(4): pp. 429-36.
- 16) Yukawa. S. Psychology of Anger. Tokyo: Yubikaku. 2008; 3-17: pp. 39-56. (in Japanese)
- 17) Takashi, M. and Watsuji, T. Clinical significance of five viscera and feeling and spirit. Program and abstracts of the 69th Annual General Meeting of the Japan Society for Oriental Medicine Liverto-Koheartetsu Branch. 2012; 43.
- 18) Watsuji, T. and Takashi, M. and Heartohara, S. Relationship between five viscera and emotion. Journal of the Japanese Society for Integrative Medicine. 2012; (3): 146.