Relationship of the Japanese Translation of the Profile of Mood States Second Edition (POMS 2[®]) to the First Edition (POMS[®])

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The present study aimed to examine the relationship of the Japanese translation of the Profile of Mood States second edition (POMS 2[®]) to the first edition (POMS[®]). A combined POMS and POMS 2 questionnaire was administered to 248 healthy medical students aged 19 to 24 years. Complete responses were obtained from 186 students (75% response rate). In summary, the test results were:

- 1) Correlation coefficients between scores on six POMS subscales (i.e., Tension-Anxiety, Depression-Dejection, Anger-Hostility, Vigor-Activity, Fatigue-Inertia, and Confusion-Bewilderment) and those on the corresponding POMS 2 subscales were high for the full-length version ($r = 0.996$ or above, $p < 0.001$) as well as for the short version ($r = 0.864$ or above, $p < 0.001$). This suggests that POMS 2 and POMS are equivalent on these subscales.
- 2) Scores on the Friendliness subscale, newly established in POMS 2, were most strongly correlated with those on Vigor-Activity subscale of POMS for both the full and short versions ($r = 0.407$ and 0.779 , respectively, $p < 0.001$). Friendliness reflects a positive mood as does Vigor-Activity.

Key words: Profile of Mood States (POMS), POMS 2, Japanese translation, correlation, psychological test

Introduction

Recently, the number of patients in Japan who received a medical service on the grounds of a psychological disorder has increased significantly, amounting to 3.2 million people in 2011¹⁾. An index for objectively evaluating stress is therefore essential to inform treatment. The Profile of Mood States (POMS[®])²⁾⁻⁷⁾ is a mood inventory containing 65 items (adjectives) that describe six different moods: Tension-Anxiety (T-A), Depression-Dejection (D), Anger-Hostility (A-H), Vigor-Activity (V), Fatigue-Inertia (F-I), and Confusion-Bewilderment (C). Subjects are asked to indicate mood states during the previous 1-week period on a 5-point scale that ranges from “not-at-all” (0) to “extremely” (4). The sum of the scores is calculated for each subscale. A Total Mood Disturbance (TMD) score is calculated as (T-A + D + A-H +

F-I + C) - V. A short version of the POMS (Short POMS) was created by extracting 30 items from the full 65 POMS items. POMS has been used for the evaluation of psychological problems, for example, neurosis, personality disorder, abnormality of feeling due to diseases such as alcohol dependence syndrome, Quality of Life (QOL) for cancer patients, and job stress⁷⁾⁸⁾. It has also been used to improve understanding of an individual's own feelings, and may help people to deal with their problems. POMS, originally developed in English, has been translated into many languages including Japanese. The Japanese version has been previously validated⁴⁾⁵⁾⁷⁾⁸⁾.

POMS is not a test of character tendencies, but rather an assessment of temporary mood changes in a fixed period, such as a few recent hours or days²⁾³⁾. This means it is useful for confirming the relationship between a person's mood changes and

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a specific event, such as the mental influence on training for athletes, mental health improvement for a laborer, and evaluation of an experiment measuring relaxation effect. There are similar tests that estimate mood, such as Self-rating Depression Scale (SDS)⁹⁾, Manifest Anxiety Scale (MAS)¹⁰⁾, Minnesota Multiphasic Personality Inventory (MMPI)¹¹⁾. However, only POMS measures all six mood scales through a single questionnaire. This is a significant advantage in using POMS.

The second edition of POMS (POMS 2[®])³⁾ was released in 2012, approximately 40 years after the publication of the first edition²⁾. A new subscale, Friendliness (F), was introduced in addition to the conventional six subscales. This allows mood changes to be evaluated more minutely. Specific versions of POMS 2 have been developed for adults (POMS 2-A: 18 years or above) and for youth (POMS 2-Y: 13-17 years). Validity and reliability of POMS 2 has been well established³⁾.

Recently, the translation of POMS 2 into Japanese was carried out by Kaneko Shobo, Inc.¹²⁾. In the present study, we examine the correlation between POMS 2 (POMS 2-A) and POMS scores to verify the validity of POMS 2, and analyze the relationship between conventional subscale scores and the F subscale in order to define the characteristics of this new subscale.

Materials and methods

A total of 248 undergraduate medical students (in their second and third years of study) at Juntendo University were asked to complete a questionnaire containing items from the Japanese translations of POMS and POMS 2. The questionnaire was administered in a classroom during

August and September 2014, for 2nd- and 3rd-year students, respectively. Four results were sought simultaneously by the questionnaire, covering the full-length and short versions of both the POMS and POMS 2. This was possible because the short versions were extracted from the full-length versions. The full-length versions consisted of 65 items for both the POMS and POMS 2, whereas the short versions contained 30 items for POMS and 35 items for POMS 2. Correlation coefficients between scores on the POMS subscales and on the corresponding POMS 2 subscales were calculated. For POMS 2, the correlation between scores on the F subscale and on the remaining six subscales was also examined. Purpose of the present study was explained by HK and HH to all the participants and the study was conducted with their informed consent.

Results and discussion

Complete answers were obtained from 186 students (75% response rate). The correlation between POMS 2 and POMS was generally high (Tables-1 and -2). However, the short versions showed a relatively lower correlation than the full-length versions, possibly because there are fewer items in the short version. POMS 2 also seemed able to reflect mood changes as validated for POMS. In both the full-length and short versions, the relationship between the V and F subscales was positive and showed the highest correlation (Table-3). In addition, F was negatively correlated with negative mood subscales. This scale is therefore thought to reflect positive mood as does the V subscale as reported by Heuchert JP and McNair DM³⁾. Moreover Vigor-Activity was

Table-1 Scores and correlation coefficients for the full-length POMS 2 and POMS

Subscale	POMS 2	POMS	r
	Mean $\pm$ SD (max/min)	Mean $\pm$ SD (max/min)	
T-A	14.9 $\pm$ 7.4 (37/0)	13.3 $\pm$ 6.7 (33/0)	0.993*
D	13.3 $\pm$ 11.2 (52/0)	15.3 $\pm$ 13.1 (60/0)	0.989*
A-H	10.8 $\pm$ 9.4 (44/0)	12.1 $\pm$ 10.3 (48/0)	0.997*
V	16.0 $\pm$ 7.5 (36/0)	13.7 $\pm$ 6.6 (32/0)	0.966*
F-I	9.8 $\pm$ 5.4 (24/0)	11.7 $\pm$ 6.5 (28/0)	0.977*
C	15.0 $\pm$ 6.6 (36/0)	10.8 $\pm$ 5.3 (28/0)	0.969*
F	12.1 $\pm$ 4.3 (24/0)	—	—
TMD	34.9 $\pm$ 39.6 (189/-51)	49.4 $\pm$ 40.1 (193/-31)	0.991*

*p<0.001

Table-2 Scores and correlation coefficients for the short versions of POMS 2 and POMS

Subscale	POMS 2	POMS	r
	Mean $\pm$ SD (max/min)	Mean $\pm$ SD (max/min)	
T-A	7.3 $\pm$ 4.2 (20/0)	7.5 $\pm$ 4.4 (20/0)	0.971*
D	4.8 $\pm$ 4.6 (20/0)	5.9 $\pm$ 4.6 (20/0)	0.884*
A-H	4.9 $\pm$ 4.6 (20/0)	5.1 $\pm$ 4.4 (20/0)	0.975*
V	9.3 $\pm$ 4.6 (20/0)	9.1 $\pm$ 4.4 (20/0)	0.960*
F-I	8.0 $\pm$ 4.5 (20/0)	8.9 $\pm$ 4.7 (20/0)	0.963*
C	6.7 $\pm$ 4.3 (20/0)	7.0 $\pm$ 3.8 (20/0)	0.869*
F	10.6 $\pm$ 3.8 (20/0)	—	—
TMD	11.9 $\pm$ 22.9 (100/-39)	25.3 $\pm$ 20.6 (96/-19)	0.968*

*p<0.001

Table-3 Correlation coefficients between the conventional six subscales and the Friendliness subscale in POMS 2

	Full-length	Short
T-A	0.035	-0.010
D	-0.163*	-0.187**
A-H	-0.069	-0.212**
V	0.407***	0.779***
F-I	-0.166*	-0.153*
C	-0.163*	-0.141

*p<0.05; **p<0.01; ***p<0.001

defined by adjectives painting a mood of vigorousness, ebullience, and high energy. This factor appeared in all six studies, and was negatively related to the other POMS factors. For this reason, and because several items from the Friendliness factor had high loadings on Vigor-Activity factor seems to represent positive affect to some extent³⁾.

The present survey was conducted on a small number of undergraduate medical students of single university, although effective response rate was relatively high (75%). It seems a further study on large number of subjects from general population will be necessary to confirm the findings of the present study.

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