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BRIEF REPORT

Reliability and validity of a self-report emotional expressivity measure: The Japanese version of the Berkeley Expressivity Questionnaire

Mingming LIN,[1] Sayaka SOI-KAWASE,[1,2,3] Ryoko NARITA-OHTAKI,[3,4] Mariko ITOH[1] and Yoshiharu KIM[1,4]

[1]*Department of Adult Mental Health,* [4]*National Information Center of Disaster Mental Health, National Institute of Mental Health, National Center of Neurology and Psychiatry,* [2]*Institute of Women's Health, Tokyo Women's Medical University, Tokyo and* [3]*University of Yamanashi, Yamanashi, Japan*

Abstract

Aim: This study developed the Japanese version of the Berkeley Expressivity Questionnaire (BEQ), a self-report measure of three emotional expressivity facets, and provided evidence of its reliability and validity.

Methods: Five hundred and four students answered an online survey. To determine test–retest reliability, 241 of the participants completed the Japanese version of the BEQ again approximately 1 month after initial surveying was completed.

Results: Cronbach's alpha coefficients were 0.83 for the BEQ full scale, and 0.61–0.77 for subscales. Test–retest correlations were 0.61 for the full scale, and 0.57–0.61 for subscales. Construct validity was demonstrated by correlations between BEQ scores and scores on measures of emotional expressivity, self-monitoring, self-esteem, depression, "Big Five" (neuroticism, extraversion, openness, agreeableness, and conscientiousness) personality traits, and emotional control.

Conclusion: The Japanese version of the BEQ has adequate internal consistency, reliability, and construct validity. Test–retest reliability was lower than that of the original scale. This study was the first in Japan to develop a self-rating questionnaire assessing multiple facets of emotional expressivity.

Key words: Berkeley Expressivity Questionnaire, emotional expressivity, health, reliability, validity.

INTRODUCTION

Expressing emotions (e.g. through expressive writing) promotes physical health and well-being (Smyth, 1998). However, interventions using emotional expression are beneficial only when they match the individual's naturally elected coping style (Niles, Haltom, Mulvenna, Lieberman, & Stanton, 2014) and may be unsuitable for less emotionally expressive individuals. Emotional expressivity moderates the relationship between social context and social functioning in healthy student samples (Burgin *et al.*, 2012). Emotional expressivity also moderates the relationship between intrusive thoughts and psychological distress in patients with cancer (Quartana, Laubmeier, & Zakowski, 2006). Therefore, it is important to know an individual's degree of emotional expressivity for effective use of emotional expression-based interventions to promote physical, psychological, and social health.

Gross and John (1995) conceptualized emotional expressivity as a stable trait, and developed a short, self-report questionnaire to assess it: the Berkeley Expressivity Questionnaire (BEQ). Individuals were considered emotionally expressive when manifesting

Correspondence: Mingming Lin, Department of Adult Mental Health, National Institute of Mental Health, National Center of Neurology and Psychiatry, 4-1-1 Ogawa Higashi, Kodaira, Tokyo 187-8502 Japan. Email: mlin@ncnp.go.jp

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emotional impulses behaviorally, although these behaviors were not limited to specific channels of expressions (e.g. gestural, facial, or vocal) or emotions (e.g. anger, amusement, or sadness) (Gross & John, 1997). The BEQ assesses a general expressivity factor that has three facets: impulse strength, negative expressivity, and positive expressivity. Although a few other scales assess emotional expressivity either through multiple facets (e.g. Emotional Expressivity Questionnaire; King & Emmons, 1990) or in general (e.g. Emotional Expressivity Scale; Kring, Smith, & Neale, 1994), the BEQ is the first scale to assess both the strength of emotional response tendencies and the degree to which these are expressed behaviorally. BEQ full scale and subscale scores have shown good internal consistency, test–retest reliability, and validity among US students (Gross & John, 1995). Additionally, BEQ scores strongly correlate with peer-reported and laboratory observations of emotional expressivity and other emotional expressivity scales (Gross & John, 1997, 1998). The BEQ has been translated into many languages, but not into Japanese.

There is a lack of research on emotional expressivity in the Japanese population, as Japanese versions of emotional expressivity scales have not yet been standardized, with the exception of a peer-report Emotional Expressivity Scale for children (Eisenberg *et al*., 2001; Miura, Katsuma, & Yamasaki, 2011). Saito, Klibert, and Langhinrichsen-Rohling (2013) reported that a Japanese translation of the Emotional Expressivity Scale had adequate internal consistency in their cross-cultural study between US and Japanese college students, but did not examine its validity. Thus, there remains a shortage of valid self-report measures, particularly those assessing multiple facets of emotional expressivity.

This study aimed to develop a standardized Japanese measure of emotional expressivity by translating the BEQ into Japanese and examining its reliability and validity. The present authors expected adequate internal consistency, test–retest reliability, and construct validity, as shown by correlations with other scales. To the authors' knowledge, this is the first study to develop a multifaceted, Japanese self-report questionnaire assessing emotional expressivity.

METHODS

Translation

With permission from the author of the original English version (Gross & John, 1995), the present authors translated the BEQ into Japanese. An independent professional translator back-translated this version into English. The authors repeated this translation and back-translation procedure until the original author approved the back-translated version. Finally, some Japanese expressions were altered without changing the items' meaning, resulting in the final version used in the present study.

Participants and procedures

Five hundred and four students, with 63 men and women in each age group (aged 19–22 years; mean age, 20.5 ± 1.1), answered an online survey conducted through an Internet research company (Marketing Applications Inc.). Two hundred and forty-one (120 men, 121 women; mean age, 20.6 ± 1.1) of the respondents of the first survey completed the Japanese version of the BEQ again approximately 1 month later (average, 29.72 ± 0.87 days; range, 24–31).

Respondents received digital points that were exchangeable for cash or electronic money through the Internet research company as an incentive. Studies have reported that data collected by Internet surveys and paper-and-pencil surveys are equivalent (Lewis, Watson, & White, 2009; Weigold, Weigold, & Russell, 2013). This study was reviewed and approved by the ethics committee of the authors' institution in 2013.

Questionnaires

Japanese version of the BEQ

As in the original version (Gross & John, 1995), the Japanese version of the BEQ comprises 16 items and three subscales: impulse strength (six items), negative expressivity (six items), and positive expressivity (four items). Responses are scored using a 7 point scale (1 = strongly disagree; 7 = strongly agree). The mean score of each subscale indicates each facet's salience, and general expressivity (BEQ full scale) is measured by averaging subscale scores.

Emotional Expressivity Scale from the Social Skills Inventory

The Emotional Expressivity scale from the Japanese version of the Social Skills Inventory (Kayano, 1988; Riggio, 1986; Riggio & Carney, 2003) is a 15 item measure of non-verbal communication skills, particularly in sending emotional messages. Items are assessed using a 5 point scale (1 = not at all like me; 5 = exactly like me).

Self-Monitoring Scale

The Japanese version of the Self-Monitoring Scale is a 25 item, 5 point scale (1 = extremely uncharacteristic;

5 = extremely characteristic) assessing self-observation and self-control, as guided by situational cues of social appropriateness (Briggs, Cheek, & Buss, 1980; Iwabuchi, Tanaka, & Nakazato, 1982; Snyder, 1974).

Rosenberg Self-esteem Scale

The Japanese version of the Rosenberg Self-Esteem Scale (Mimura & Griffiths, 2007; Rosenberg, 1965) is a 10 item, 4 point scale measuring personal self-esteem (1 = strongly disagree; 4 = strongly agree).

Center for Epidemiologic Studies Depression Scale

The Japanese version of the Center for Epidemiologic Studies Depression Scale (Radloff, 1977; Shima, 1998) is a 20 item, 4 point scale measuring affective and somatic aspects of depression in the general population (0 = rarely or none of the time; 3 = most or all of the time).

NEO-Five Factor Inventory

The Japanese version of the NEO-Five Factor Inventory (Costa & McCrae, 1992; Shimonaka, Nakazato, Gondo, & Takayama, 2011) is used to measure the "Big Five" personality traits. This measure comprises five 12 item scales measuring neuroticism, extraversion, openness, agreeableness, and conscientiousness. Items are assessed with a 5 point response scale (0 = strongly disagree; 4 = strongly agree).

Courtauld Emotional Control Scale

The 17 item Japanese version of the Courtauld Emotional Control Scale (Iwamitsu, Shimoda, Aiura, & Okawa, 2003; Watson & Greer, 1983) measures participants' tendency to control emotional reactions, rated on three subscales: anger, depression, and anxiety. Items are rated using a 4 point scale (1 = almost never; 4 = almost always).

RESULTS

Descriptive statistics and reliability

Table 1 shows descriptive statistics for the BEQ full scale and subscale scores. Cronbach's alphas at times 1 and 2 were sufficient for the BEQ full scale, positive expressivity, and impulse strength, and only slightly lower for negative expressivity. Moderate 1 month test–retest correlations were found for the BEQ full scale and each subscale. All subscales were positively correlated with each other (impulse strength and negative expressivity, 0.41 and 0.45; impulse strength and positive expressivity, 0.56 and 0.56; and negative expressivity and positive expressivity, 0.45 and 0.33, respectively).

Construct validity

Table 2 shows correlations between the BEQ and other measures. The Emotional Expressivity scale from the Social Skills Inventory significantly and positively correlated with the BEQ full scale and the two expressivity subscales, and marginally positively correlated with impulse strength. The BEQ full scale and the two expressivity subscales significantly negatively correlated with Courtauld Emotional Control Scale total and most subscales, except positive expressivity and the Courtauld Emotional Control Scale depression subscale. Impulse strength significantly negatively correlated with only the Courtauld Emotional Control Scale anxiety subscale.

Neither the BEQ full scale nor its subscales correlated strongly with the Rosenberg Self-Esteem Scale or

Table 1 Descriptive statistics and reliability coefficients for the BEQ

		BEQ subscales		
	BEQ full scale	Impulse strength	Negative expressivity	Positive expressivity
Time 1 ($n = 504$)				
Mean	4.14	4.31	3.81	4.29
SD	0.77	1.01	0.82	1.04
Cronbach's alpha	0.83	0.75	0.61	0.71
Time 2 ($n = 241$)				
Mean	4.08	4.16	3.79	4.29
SD	0.70	0.93	0.78	0.94
Cronbach's alpha	0.83	0.77	0.64	0.68
Test–retest reliability	0.61**	0.57**	0.59**	0.61**

**$P < 0.01$. All P-values are two-tailed. BEQ, Berkeley Expressivity Questionnaire; SD, standard deviation.

Table 2 Correlations between the BEQ and other measures

	BEQ full scale	BEQ subscales		
		Impulse strength	Negative expressivity	Positive expressivity
Emotional Expressivity from Social Skills Inventory	0.51**	0.26**	0.49**	0.50**
Self-Monitoring Scale	0.13**	0.12**	–0.06	0.23**
Rosenberg Self-Esteem Scale	–0.01	–0.13**	–0.04	0.13**
Center for Epidemiologic Studies Depression Scale	0.01	0.13**	0.02	–0.12**
NEO-Five Factor Inventory				
Neuroticism	0.24**	0.40**	0.13**	0.05
Extraversion	0.20**	0.02	0.13**	0.31**
Openness	0.17**	0.27**	–0.01	0.12**
Agreeableness	0.04	0.09	–0.16**	0.14**
Conscientiousness	–0.06	–0.04	–0.16**	0.03
Courtauld Emotional Control Scale				
Total	–0.25**	–0.07	–0.35**	–0.21**
Anger	–0.22**	–0.05	–0.35**	–0.16**
Depression	–0.12**	0.01	–0.26**	–0.06
Anxiety	–0.27**	–0.12**	–0.27**	–0.28**

**$P < 0.01$ (two-tailed). BEQ, Berkeley Expressivity Questionnaire.

Self-Monitoring Scale. The Rosenberg Self-Esteem Scale marginally positively and negatively correlated with positive expressivity and impulse strength, respectively. The Self-Monitoring Scale and all BEQ scores except for negative expressivity were marginally positively correlated. The Center for Epidemiologic Studies Depression Scale marginally positively and negatively correlated with impulse strength and positive expressivity, respectively.

Regarding the NEO-Five Factor Inventory, BEQ full scale positively correlated with neuroticism, extraversion, and openness. Impulse strength positively correlated with neuroticism and openness. Negative expressivity marginally negatively correlated with agreeableness and conscientiousness and marginally positively correlated with neuroticism and extraversion. Positive expressivity positively correlated with extraversion, openness, and agreeableness.

No other significant correlations were observed. These correlations indicate the construct validity of the Japanese version of the BEQ.

DISCUSSION

In the present study, in order to develop a Japanese scale that assesses multiple facets of emotional expressivity, the present authors translated the BEQ into Japanese and evaluated its reliability and validity. The scale had adequate internal consistency, according to the range of the original study (Cronbach's alpha 0.82–0.85 for total scale, 0.65–0.78 for subscales) (Gross & John, 1995). While the alpha coefficient for the negative expressivity subscale in this study was slightly lower compared with the other subscales, some well-known scales (e.g. Emotional Expressivity Questionnaire; King & Emmons, 1990) have also shown slightly lower alphas (0.53–0.69 for subscales) in previous research (Gross & John, 1998). This suggests that the internal consistency of the Japanese version of the BEQ remains within acceptable levels. As there could be individual differences in both of the activation of emotion–response tendencies and accompanying modulation (Gross & John, 1995), both the strength of emotion–response tendencies (impulse strength) and the degree to which they are behaviorally expressed (expressivity) must be assessed. Despite the low internal consistency of the negative expressivity subscale, other subscales, especially impulse strength, have sufficient internal consistency to measure the strength of emotion–response tendencies and assess individual differences.

The observed correlations between the Japanese version of the BEQ and other measures indicate that it has sufficient construct validity. Although the three subscales of the BEQ were correlated with each other, their differing correlations with the other scales indicate their discriminant validity. The full scale score of the BEQ had strong positive correlations with emotional expressivity but strong negative correlations with emotional control. These findings support the theory of emotional expressivity. For the self-monitoring, self-esteem,

and Big Five (neuroticism, extraversion, openness, agreeableness, and conscientiousness) personality trait scales, correlations were mostly consistent with those found in the original studies (Gross & John, 1995, 1997, 1998); however, the present authors did note some correlations not present in previous studies by the original authors (e.g. a marginal negative correlation between negative expressivity and agreeableness). Furthermore, the present authors did not find other correlations previously reported (e.g. non-significant correlation between impulse strength and the total score of emotional control). This could be due to the measurement questionnaires used, which differed from those in the original studies, or perhaps even differences between Japanese and US cultures. The present authors' findings of slightly weaker correlations between the Japanese version of the BEQ and those other personality scales may be explained by the lower general expressivity observed in Japanese individuals compared with US (Saito *et al.*, 2013).

The present authors also demonstrated that the BEQ has moderate replicability, as indicated by its moderate test–retest reliability at a 1 month interval. Because the value was somewhat lower than that of the original study (0.57–0.61 vs 0.71–0.86, respectively) (Gross & John, 1995), it is difficult to say whether emotional expressivity in the Japanese sample is a stable trait. The marginal correlation found between state depression and the BEQ subscales in the current study may further reflect state change. This necessitates further cross-cultural investigations between Japanese and US samples.

This study has several limitations. First, while the present authors used the same items and subscales as the original studies to enable comparisons, the structure of emotional expressivity may differ culturally. Therefore, additional research on the factor structure of the Japanese version of the BEQ is needed, as it may assess uniquely Japanese characteristics of emotional expressivity. Second, the authors used an online survey. Although the equivalence between data obtained from online surveys and paper-and-pencil surveys has been demonstrated (Lewis *et al.*, 2009; Weigold *et al.*, 2013), the sample structure of the present study may differ from those of previous studies that polled students in a university classroom setting. Third, the present authors used a student sample to approximate the samples used in the original studies. Applying the Japanese version of the BEQ to groups other than students would require its standardization in samples of various ages and occupations. Online surveying has the merit of being able to collect a more demographically diverse sample than student polling (Lewis *et al.*, 2009). A study focusing on the general population may help to improve this measure further.

In the current study, the Japanese version of the BEQ demonstrated adequate internal consistency, test–retest reliability, and construct validity, as shown by correlations with other scales. Test–retest reliability was found to be lower than that of the original scale. To the present authors' knowledge, this is the first study to develop a Japanese self-report measure assessing multiple facets of emotional expressivity. This measure will enable further investigation of the characteristics of expressivity within Japanese culture and facilitate cross-cultural comparisons. Furthermore, the BEQ will be able to capture individual differences in emotional expressivity, which will facilitate design of interventions for improving physical, psychological, and social health.

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DISCLOSURE

There are no conflicts of interest to declare.

AUTHOR CONTRIBUTIONS

Y. K. contributed to the conception and design of this study, and supervised the whole study process; M. L. performed the survey and statistical analysis, and drafted the manuscript; S. S.-K., R. N.-O. and M. I. made contributions to translate the questionnaire and to make the survey. All authors read and approved the final manuscript.

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