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Summary
Conceptualizing and Measurement of Emotional Expression Styles: An Inventory Development Study

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We experience many emotions during the day. Sometimes we feel happy, sometimes we get angry. These emotions lead us to some behavioural reactions that are called emotional expression. According to Kennedy-Moore and Watson (1999, p. 4), emotional expression is "observable verbal and nonverbal behaviours that communicate and/or symbolize emotional experiences".

Darwin's study called "The Expression of the Emotions in Man and Animals" (1872/2001) is accepted as the pioneer of the research about emotional expression. Today, some of the recent studies about emotional expression are on facial expressions, and its universality (e.g., Matsumoto, Keltner, Shiota, O'Sullivan ve Frank, 2008). In addition, emotional expression is studied with related topics in psychopathology (e.g., Flack, Laird, & Cavallaro, 1999), in health psychology (e.g., Tops, van Peer, & Korf, 2007), and in social psychology (e.g., Schug, Matsumoto, Horita, Yamagishi, & Bonnet, 2010).

Our knowledge about emotional expression is not only limited to this concept but also supported by the terms such as self-monitoring (e.g., Snyder & Gangestad, 1986), display rules (e.g., Matsumoto et al., 2008), emotion regulation (e.g., Gross & Thompson, 2007), and nonverbal behaviour/communication (e.g., DePaulo, 1992).

Several measures exist that assess emotional expressivity. Emotional expression is considered as unidimensional in some self-report measurement tools (e.g., Kring, Smith, & Niele, 1994). On the other hand, in some instruments (e.g., Gross & John, 1995; King & Emmons, 1990) by different subscales, it is classified as positive and negative. This classification does not focus on particular/specific emotions. In the same factorial structure, more than one emotion is assessed together. These scales measure emotional expression generally on the basis of nonverbal expression.

Gross and John (1998) suggested that emotional expressions cannot be evaluated in a single continuum. This is because there is no measurement tool in literature including the complete range of emotions they suggested, so there is a need for sub-scales of specific emotions such as "joy", "amusement", "sadness", and "anger". Trierweiler, Eid and Lischetz (2002) demonstrated strong evidence for multi-dimensional emotional expression that considers each emotion's expression separately. According to these researchers, studying different emotions is superior to both, unidimensional and valence-specific models. Although a strong correlation between the expressions of positive emotions such as "love" and "joy" was found in their study, the result for negative emotions was different. Especially, the expression of "anger" and "shame" was found quite different from the expression of other negative emotions such as "fear" and "sadness". Additionally, Trierweiler et. all indicated that distinct emotions differed in their relations with the dimensions of the Five-Factor Personality model. For example, they found that expressions of the negative emotions fear, shame and sadness share a positive relationship with Agreeableness, whereas the expression of anger does not.

In sum, in current instruments, what seems not included is how a person displays his/her specific feelings such as happiness, sadness or anger. In other words, these scales do not allow to describe a person's emotion expression styles. Yet, most emotions emerge in a social context (Parkinson, 1996) and people differ in their styles to express their emotions. In other words, people who are experiencing similar feelings might express them differently. For example, one might express his/her happiness filled with enthusiasm, and the other might convey it lifelessly. One might express his/her anger in a destructive way, whereas another might be calmer in the same situation. Although there are some measuring tools which are used to measure the expression of "anger" in literature (Spielberger, Reheiser, & Sydeman, 1995), self-report instruments are not available for the emotions

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of "sadness" or "happiness". The emotional expression scales mentioned above could not give any information about the styles of emotional expression on the basis of specific/discrete emotions. However, emotions might be expressed verbally or nonverbally. Also emotions might be hidden, or rearranged.

The primary purpose of this research was to develop a new inventory assessing emotional expressions in an ongoing interaction in everyday life. Initially, we restricted our inventory to the emotions of happiness, sadness and anger which are accepted as basic emotions by many researchers.

Pilot Scale Development

Students from the Department of Psychology at Mersin University were asked to write as many as possible verbal and nonverbal reactions to people who they are in interaction with, whenever those people do something that makes them "happy", "sad" and "angry". The most expressed reactions were grouped independently from each other for each emotion by using content analysis. Out of hundreds of sentences a total of 88 items were developed, 19 items were for happiness, 39 items for anger and 30 items for sadness. All these items were rated on a four-point Likert type scale (Never = 1, Always = 4).

Study I: Trial Administration

Method

Participants and Procedure

The sample consisted of 302 individuals (104 males and 198 females) from different parts of Turkey. The age range was between 14 and 66; the average age was 29.11 (*SD* = 11.19).

Participants were administered the Emotional Expression Styles Inventory (EESI). They were asked to answer according to the following instructions: "The statements below are prepared to assess your possible reactions in that moment in response to the people who make you feel different emotions (happiness, sadness, anger). If someone does something which makes you happy (sad, angry), how frequently do you display each of the following statements? ". In this trial administration, participants answered all items for three emotions, and responded the inventory twice: first, considering a close target audience, and second, considering a target audience, who is not close. Moreover, each item was evaluated according to three different contexts; (i) when just the participant and target audience were together, (ii) when they were in the presence of someone who is familiar (when they were with familiar people), and (iii) when they were in the presence of someone who is a stranger (when they were with strangers).

Results

On the basis of Principal Components Factor Analyses, we identified two factors for happiness, five factors for sadness, and six factors for anger. Results showed that people, who were interacted with, close or not, did not make any difference in the factorial structure. Besides, there was also no change in factorial structure whether in presence of others or not.

Study II: Item Assessment and Measure Validation

Method

After the first trial administration, fifty-six items were chosen and EESI was reconstructed. Because the factorial structure did not change in different conditions, in a new version of the EESI each item was presented to be evaluated just once. Only one instruction was configured for each emotion. For example, the EESI was presented, for happiness, with this instruction: "When someone does something that makes you happy, how frequently do you display each of the following statements?". The scale anchored with the stem "When someone does something which makes me happy".

This study examined (i) the test-retest reliability and the validity of the scales, as well as, (ii) whether an instruction change affected the factor structure of the scales.

Participants and Procedure

The study was held with 378 students from different undergraduate and graduate programs at Mersin University (204 female, 171 male). The mean age was 23.04 (*SD* = 4.14). The EESI and other instruments were distributed in the classes with the permission of the lecturers. The order effect was balanced. Participants were volunteers and received no credit for their participation.

Measures

"EESI", "Five-Factor Personality Inventory" (Somer, Korkmaz, & Tatar, 2004) and "Guilt-Shame Scale" (Şahin & Şahin, 1992) were utilized to gather data.

Results

Item Analysis

Analysis for Happiness Expression Scale. The factor analysis of all items for happiness yielded in two factors with eigenvalues greater than 1. The two-factor

structure explained 60.06% of the total variance. The first factor (*Self-focused Expression*) referred to verbal and nonverbal displays of happiness on the individual's own body and behaviours. The second factor (*Other-focused Expression*) included reciprocity behaviour to someone who makes them happy. The factor analysis for the emotion of happiness was started with 8 items, and by using varimax rotation, all the items yielded in factors similar to those in the previous/trial study.

Analysis for Sadness Expression Scale. For **sadness**, the factor analysis was made with 19 items which revealed five factors, without deleting any item, similar to those in the previous study. These five factors explained 59.09 % of the total variance. The first factor (*Facial Expression*) involved displaying emotions on the face. The second factor (*Aggressive Expression*) referred to verbal and physical violence. The third factor (*Verbal Expression*) was concerned about giving feedback on emotions to someone who made participant sad. The forth factor (*Inhibition*) referred to giving the appearance of no emotions at all, although feeling sadness. The fifth factor (*Delay*) involved transferring the reaction to another period of time.

Analysis for Anger Expression Scale. The factor analysis on 29 items for **anger** constructed a seven-factor structure. The seventh factor with 2 items had a quite low Cronbach Alpha coefficient (α = .43), therefore those 2 items and further four other items, which were leaning on more than one factor, were dropped out. Finally, the factor analysis on 23 items revealed a six-factor structure, where all the items yielded in factors similar to those in the previous/trial study. These six factors explained 57.49 % of the total variance.

The first factor (*Aggressive Expression*) referred to verbal and physical violence. The second factor (*Facial Expression*) involved displaying anger on the face. The third factor (*Retaliation*) included the attempts taking revenge. The forth expression (*Cool Expression*) contained displaying calmness generally in that situation. The fifth factor (*Verbal Expression*) was concerned about giving feedback on emotions to someone who made him/her angry. The sixth factor (*Delay)* involved transferring the reaction to another period of time.

In sum, only six items were dropped out after the analysis was made for **anger**. At last, the inventory was formed with 50 items in total for three emotions.

Reliability Studies

Internal Consistency Reliability. Considering the number of the items, results showed that the subscales have acceptable levels of internal consistency/reliability (see Table 4).

Test-retest Reliability. In order to determine the consistency of EESI over time, a subgroup of the sample, 96 participants, completed the inventory three weeks later. Results indicated that significant coefficients, all being acceptable, were obtained (Test-retest coefficients of the EESI subscales were ranging between .45 and .78). For this reason, it might be said that the psychological structures measured in subscales are stable.

Validity Studies

Criterion-Related Validity and Construct Validity Evidence. As can be seen in Table 5, the correlations between subscales of EESI and some subscales of the Five Factor Personality Inventory, as well as the correlations between EESI and the Guilt-Shame Scale provided support for criterion-related validity.

The intercorrelations among subscales of three different emotions (see Table 6) supported evidence for the construct validity of the scales. Although it might be predicted that the subscales of anger and sadness were in negative relationship with the subscale of happiness, it is an interesting result that there was a positive correlation between **happiness** subscales and *Verbal Expression* subscales of both **sadness** and **anger**. This result might indicate that emotional expression can be connected to personality structure (e.g., extravertedness) as a stable trait of an individual.

Study III

Study III was conducted to test the convergence between the data obtained in the second study for each three emotions.

Method

Participants and Measures

The sample of 352 (183 females and 169 males) with the mean age of 29.89 (*SD* = 2.01) served as participants. Only the EESI was utilized to gather data.

Results

To confirm the multi-factorial structure of EESI, confirmatory factor analyses were performed using LISREL 8.51 (Jöreskog & Sörbom, 1999). For the emotion of happiness, a measurement model including 8 observed and 2 latent variables was constructed. When four item couple's errors were covaried, support for the model was obtained (χ^2_{15} = 50.65, p < .01, CFI = .94, AGFI = .92, RMSEA = .08).

For the emotion of sadness, a measurement model including 19 observed and 5 latent variables was constructed. When four item couple's errors were covaried, support for the model was obtained (χ^2_{138} = .399.80, p < .01, CFI = .86, AGFI = .85, RMSEA = .07).

For the emotion of anger, a measurement model including 23 observed and 6 latent variables was constructed. By examining the t-values, item 5, 10, and 17 (Delay factor) were dropped. The t-values of these parameters were not significant at .05. Besides, these parameters' standardised coefficients were over than 1. After eliminating delay factor, values of selected fit indices were found to be $\chi^2_{142} = 446.31$, $p < .01$, CFI = .84, AGFI = .84, RMSEA = .08.

Discussion and Conclusion

Both the reliability and the validity studies of the EESI included information and cues which could provide strong implications. In order to determine the expression styles of three basic emotions, the results of explanatory factor analysis showed that some expression styles, which were predicted by a priori, differed and some of them got clustered. The values for subscales related to the expression styles of each emotion and the findings related to internal consistency, test-retest reliability, criterion referenced validity, and the confirmatory factor analyses results indicated that emotional expression styles (except the Delay factor for anger emotion) are vital and significant.

In short, the results showed that the EESI has sufficient validity and reliability values and it can be used to measure emotional expression styles in different research areas of psychology.