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Experience in Close Relationships Scale–Short Version (ECR–S) Validation With Korean College Students

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ABSTRACT
The goal of this study was to validate the Experience in Close Relationships Scale–Short version (ECR–S) in Korean college students. One item of the attachment avoidance subscale was deleted following confirmatory factor analysis. The results suggest that the ECR–S demonstrated acceptable internal consistency and construct validity.

KEYWORDS
ECR–S; Korean college students; reliability; validity

Attachment styles were originally measured as categorical variables. Building on the work of Ainsworth and colleagues (Ainsworth et al., 1978), Hazan and Shaver (1987) identified three romantic attachment styles: secure, anxious-ambivalent, and avoidant. Expanding the research on individual attachment style differences, Bartholomew (1990) suggested that Hazan and Shaver's avoidant style could be divided into two categories: fearful avoidance and dismissing avoidance. Therefore, Bartholomew and Horowitz (1991) developed a four-category attachment style model of secure, preoccupied, fearful, and dismissing.

Mikulincer and Shaver (2003) extended individual attachment differences to include anxiety and avoidance. Individuals with high attachment anxiety demonstrate a strong need for closeness, demanding their partner's attention and exhibiting clinging behavior. These individuals exhibit a hyperactive affect management strategy, requiring their partner's constant attention, safe haven, and security provision (Cassidy & Kobak, 1988; Shaver & Hazan, 1993; Shaver & Mikulincer, 2002). In contrast, attachment avoidance is characterized by a deactivating affect management regime, including regulating affect by distancing oneself from the partner, while suppressing attachment-related cues. Individuals with high attachment avoidance show discomfort with closeness and are intensely self-reliant. The hyperactive anxiety and avoidant-deactivating affect management strategies are considered signs of insecure attachment (Mikulincer & Shaver, 2004). Securely attached individuals seek proximity to their partners as their primary affect-management system, because they believe their partners will be responsive and available in times of need.

Continuous Attachment Measures

The Experience in Close Relationships (ECR) scale (Brennan, Clark, & Shaver, 1998) was developed to measure continuous attachment dimensions and included 36 items (18 anxiety-based and 18 avoidance-based). The ECR has strong psychometric properties (Mikulincer & Shaver, 2003, 2007), showing strong validity and reliability over many studies with wide-ranging samples. Validity was established with principal component factor analysis using an oblique rotation that produced two orthogonal major factors: avoidance and anxiety. The correlation between the two

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subscales was .11, which suggests that attachment anxiety and avoidance are distinct dimensions (Brennan et al., 1998). Reliability of the scores has been at or above coefficient alphas of .91 and .94 for anxiety and avoidance, respectively (Mikulincer & Shaver, 2003, 2007). Test–retest reliability over a 3-week period was .70 (Brennan, Shaver, & Clark, 2000).

The ECR–Short Version (ECR–S; Wei, Russell, Mallinckrodt, & Vogel, 2007) was developed by selecting the best items from the ECR (Brennan et al., 1998; 6 anxiety and 6 avoidance items). Participants rate each item on a 7-point Likert-type scale ranging from 1 (*disagree strongly*) to 7 (*agree strongly*). Some items are reverse scored. Higher anxiety and avoidance scores indicate higher attachment anxiety and avoidance. Wei et al. (2007) used structural equation analysis to compare the short and original ECR versions, and the results indicated that the two are compatible. A positive correlation between the ECR–S and original ECR ($r = .95$) is strong evidence that both measure the same underlying constructs (Wei et al., 2007). In addition, the construct validity of ECR–S was supported by correlations with the total reassurance seeking score (Excessive Reassurance Seeking Scale; Joiner & Metalsky, 2001) and depression measures (Center for Epidemiological Studies–Depression Scale [CES–D; Radloff, 1977]; Zung Self-Rating Depression Scale [SRDS; Zung, 1965]). Specifically, reassurance seeking was significantly positively correlated with attachment anxiety ($r = .45$) but not with attachment avoidance ($r = -.04$). Depression instruments were positively correlated with both attachment anxiety ($r = .42$, both measures) and avoidance ($r = .19$, and $r = .26$ for CES–D and SRDS, respectively). Also, distinct attachment dimensions were shown by low correlation between anxiety and avoidance subscales ($r = .19$; Wei et al., 2007). The internal consistencies for the subscales of the ECR–S were .78 for anxiety and .84 for avoidance. Test–retest reliability over a 3-week interval was .82 and .89, for anxiety and avoidance, respectively (Wei et al., 2007). Overall, ECR–S showed acceptable score validity and reliability.

The ECR has also been translated and validated for different countries. In Korea, the Experience in Close Relationships–Revised (ECR–R: Fraley, Waller, & Brennan, 2000) was translated into Korean and validated by Kim (2004) using confirmatory factor analysis (CFA) to determine whether the two-factor structure could be applied in Korean culture. The result showed a good fit to the data, $\chi^2(593) = 2063.10$, $p < .01$, comparative fit index (CFI) = .95, normed fit index (NFI) = .93, nonnormed fit index (NNFI) = .95, root mean square error of approximation (RMSEA) = .08, 90% CI [.076, .084]. The internal consistencies for the two subscales of ECR–R were reported as .89 for anxiety and .85 for avoidance. Also, Park (2004) used item-response theory (IRT) to examine whether the ECR–R Korean version had similar psychometric characteristics to the ECR–R English version. The results showed construct validity and reliability for the Korean ECR–R version. Lee, Cho, Lee, Lee, and Lee (2014) also reported that reliability and validity for anxiety and avoidance were .91 and .88, respectively. The two subscale scores were negatively correlated with social connectedness and positively correlated with depression symptoms in Korean inmates (Lee et al., 2014). Although ECR–R score reliability and validity have been shown in Korean populations, there has been no study validating ECR–S for Koreans.

In summary, the ECR–R has been widely used for measuring adult attachment in Korea (i.e., Lee & Cho, 2014; Na & Chung, 2016; Park, 2016) and shows strong score reliability and validity. However, the 36 items of the ECR could be difficult for researchers to administer and for participants to maintain attention (Wei et al., 2007). A measure's length has been strongly associated with participant motivation to complete the entire survey and thoroughly answer each question (Wei et al., 2007). Therefore, the ECR–S could be a useful tool for researchers and practitioners, although the Korean ECR–S version has not yet been validated. There has been little empirical support for the universality of attachment constructs, and one of the difficulties in conducting cross-cultural study is not having a validated measurement. Therefore, it is important to have measurement with cross-cultural validity to test whether attachment is a universal construct or not. Thus, we conducted this study to investigate the reliability, validity, and factor structure of the Korean version of the ECR–S.

Method

Participants

The participants ($N = 377$) were 229 (60.7%) men and 148 (39.3%) women, aged 19 to 34 years ($M = 22.92$). Education levels were 84 (22.3%) first-year undergraduates, 127 (33.7%) sophomores, 92 (24.4%) juniors, and 73 (19.3%) seniors. Relational statuses were 156 (41.4%) currently in relationships and 219 (58.1%) single, not dating.

Procedure

The instruments were translated into Korean except the UCLA Loneliness Scale and the brief Patient Health Questionnaire depression module (PHQ–9) scale. The instruments were translated into Korean by a bilingual expert and blindly back-translated by the professional translator. The back-translated version of surveys was compared with the original version and retranslated where error in meaning was found until reaching congruence of meaning between them.

Korean students were recruited with extra credit options in two large universities located in Seoul, South Korea. The Korean version of the survey was given and completed by the participants who agreed to participate in the study.

Instruments

Relationship Satisfaction

The satisfaction subscale of the Dyadic Adjustment Scale (DAS; Spanier, 1976) was used to measure relationship satisfaction in this study. The dyadic satisfaction subscale includes 10 items, 9 of which are rated on a 5-point Likert-type scale, and 1 item that is rated on a 7-point Likert-type scale. Total score was used, with higher scores indicating greater satisfaction. A sample item includes "In general, how often do you think that things between you and your partner are going well?"

The DAS has shown high score validity and reliability across a broad sample range (Graham, Liu, & Jeziorski, 2006; Spanier & Thompson, 1982). In a recent DAS (Graham et al., 2006) meta-analysis of 91 studies, satisfaction scores showed high internal consistency (mean α was .85) across diverse samples, across sexual orientation, sex, marital status, and ethnic differences. In this study, the coefficient alpha was .92.

Loneliness

The UCLA Loneliness Scale (Version 3) was used to quantify loneliness (Russell, 1996). We used the Korean version of the UCLA Loneliness Scale that was translated and validated for a Korean population by Kim (1997). This scale contains 20 items asking how often an individual feels the specific emotions. A sample item includes "I am unhappy doing so many things alone." Scores range from 1 (*never*) to 4 (*always*). A higher total score indicates greater loneliness. Internal consistency has ranged from .89 to .94 for samples drawn from the general adult population, (Russell, 1996). With 203 Korean older adults, Kim (1997) reported an internal consistency .93 for the UCLA Loneliness Scale. In this study, the coefficient alpha was .92. Russell (1996) also provided evidence for convergent validity by showing a positive correlation with scores on the Differential Loneliness Scale and a negative correlation with scores on the Social Provision Scale, which is a measure of social support.

Reassurance Seeking Scale

The Excessive Reassurance Seeking Scale (Joiner & Metalsky, 2001) has been used to quantify reassurance seeking. This scale consists of four items assessing excessive reassurance seeking

behavior using a 3-point scale (0–2). A sample item is, "Do you frequently seek reassurance from the people you feel close to as to whether they *really* care about you?" Previous research showed strong validity, including concurrent and discriminant validity (Joiner, Metalsky, Gencoz, & Gencoz, 2001). Internal consistency was reported as $\alpha = .76$, and Cronbach's alpha was .75.

Support Seeking

We used five items from the Berlin Social Support Scale (BSSS) developed by Schwarzer and Schulz (2000). This scale was originally designed to measure both cognitive and behavioral aspects of social support with six subscales: perceived, actually provided support, actually received support, need for support, support seeking, and protective buffering. Several studies (cf. Schulz & Schwarzer, 2003, 2004) have demonstrated the validity of this scale (cf. Schulz & Schwarzer, 2003, 2004). A sample item is, "Whenever I am down, I look for someone to cheer me up again." This instrument's Cronbach's alpha was .81 (Schwarzer & Schulz, 2000). Internal consistency for the support seeking subscale was .77.

Depression

The PHQ–9 (Kroenke, Spitzer, & Williams, 2001) was used to measure depression symptoms. The brief PHQ includes scales for mood (PHQ–9) and panic disorders. We only used the PHQ–9 in this study. The PHQ–9 is widely used as a brief diagnostic and severity measure for depression. It includes items that query nine depression symptoms corresponding to *Diagnostic and Statistical Manual of Mental Disorders* (4th ed. [*DSM–IV*]; American Psychiatric Association, 1994) criteria. Participants were asked to indicate to what extent they experienced each depression symptom during the previous 2 weeks using a number from 0 (*not at all*) to 3 (*nearly every day*). A sample item is, "Feeling down, depressed, or hopeless." Depression symptom severity was expressed by summing all item scores. Total scores ranged from 0 to 27.

PHQ–9 depression severity score has been strongly associated with health-related quality of life (Kroenke et al., 2001). Kroenke et al. (2001) showed that PHQ–9 scores less than or equal to 10 had 88% sensitivity and specificity. Martin, Rief, Klaiberg, and Braehler (2006) investigated PHQ–9 validity in the general population. With Korean out- and inpatients, An, Seo, Lim, Shin, and Kim (2013) tested the reliability and validity of PHQ–9 scores. They reported that internal consistency and test–retest reliability were .95 and .91, respectively, and the optimal cutoff point for major depression was 9 with 88.5% sensitivity and 94.7% specificity. The results suggested that the PHQ–9 yields reliable and valid scores useful for quantifying major depression and subthreshold depressive disorders in samples drawn from the general population. In this study, coefficient alpha was .84.

Results

Confirmatory Factor Analysis

As in the original study, we evaluated systematic errors caused by item wording direction. The ECR–S authors employed Russell's (1996) method for removing this potential systematic error by specifying two orthogonal factors that corresponded to item wording direction (either negative or positive), with the negative items loading on one factor and the positive items loading on another factor. We followed that procedure for testing construct validity in this Korean version of the ECR–S. In Model 1, we specified a two-factor oblique model for the 12-item ECR–S, with 6 items loading on the anxiety factor and 6 items loading on the avoidance factor. In Model 2, we added two orthogonal response factors (i.e., a positively worded factor and a negatively worded factor)

for the 12-item ECR–S (e.g., 12 additional paths would be freely estimated from two orthogonal response factors; see Figure 1).

To evaluate model fit to the data, we conducted CFA using AMOS (see Table 1). The results indicated that Model 1 did not fit the data well, which replicates the original study, with CFI = .59, NFI = .57, RMSEA = .17. However, the fit was greatly improved in Model 2, with CFI = .91, NFI = .89, RMSEA = .09. The chi-square value was 175.54 with 41 *df*. Item 11 was not significant and so was deleted in Model 3. Without Item 11, CFI = .93, NFI = .91, RMSEA = .08, and the chi-square value was 124.5 with 32 *df* (see Figure 1). These results suggest that the two-factor oblique structure (anxiety and avoidance) provided an adequate fit to the data after removing systematic error due to response sets. Furthermore, the model appeared to provide a comparably good fit to the data.

Construct Validity

Correlation coefficients for the anxiety and avoidance subscales with excessive reassurance seeking and depression are shown in Table 2. As expected, excessive reassurance seeking was significantly positively associated with attachment anxiety ($r = .34$) but not with attachment avoidance ($r = -.01$). Support seeking was significantly positively associated with attachment anxiety ($r = .21$) but significantly negatively associated with attachment avoidance ($r = -.57$). In addition, depression was significantly and positively associated with both attachment anxiety ($r = .39$) and avoidance ($r = .14$), whereas relationship satisfaction was significantly negatively associated with both attachment anxiety and avoidance ($r = -.12$). Taken together, these findings provide considerable support for the concurrent and discriminant validity of the Korean ECR–S scores.

In addition, distinct attachment discrimination was shown by a weak correlation between the anxiety and avoidance subscales ($r = .09$). The internal consistencies for ECR–S subscales were .81 for anxiety and .70 for avoidance. Thus, the Korean ECR–S showed internal consistency similar to that reported by Wei et al. (2007).

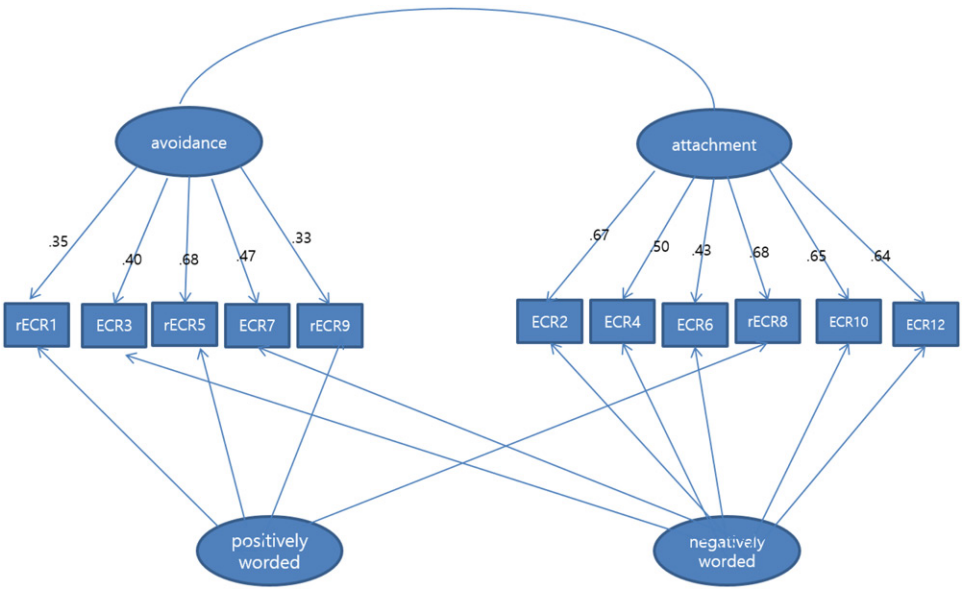

Figure 1. Experience in Close Relationships Scale–Short Form (ECR–S) model.

Table 1. Goodness-of-Fit Indexes for Model Testing.

	χ^2	*Df*	$\Delta\chi^2$	Δdf	CFI	NFI	RMSEA
Model 1	673.37	53			.59	.57	.17
Model 2	167.64	40	505.73	13	.92	.89	.09
Model 3	114.06	31	53.58	9	.94	.92	.08

Note. CFI = comparative fit index; NFI = normed fit index; RMSEA = root mean square error of approximation.

Table 2. Correlations of Attachment Anxiety and Avoidance With Validity Criteria.

	Attachment Anxiety	Attachment Avoidance
Reassurance seeking	.34**	−.01
Support seeking	.21**	−.57**
Depression	.39**	.14**
Relationship satisfaction	−12*	−.12*

*$p < .05$; **$p < .01$.

Discussion

This study aimed to validate the Korean ECR–S in Korean college students. We conducted a CFA to confirm that the Korean ECR–S showed similar psychometric properties to the English ECR–S. We found a stable factor structure for ECR–S, similar to that reported by Wei et al. (2007). However, one item in the avoidance subscale was deleted because it was not statistically significant. Thus, the Korean ECR–S is a useful and sound instrument like the original English ECR–R but with a small modification.

Specifically, internal consistency for the 11-item ECR–S was adequate in Korean. Attachment anxiety and avoidance coefficient alphas were .81 and .70, respectively. Wei et al. (2007) reported that the coefficient alphas of the 12 items of ECR–S across six studies ranged from .77 to .86 for anxiety and from .78 to .88 for avoidance. These results suggest that adult attachment anxiety and avoidance as measured by ECR–S in Korean college students are consistent with previous findings in their U.S. counterparts (Lee & Pistole, 2012; Wei et al., 2007).

In addition, the Korean modified ECR–S in this study also seems to have a similar factor structure to the original ECR. The ECR–S consists of both positive and negative items that force participants to read each question carefully to provide meaningful responses (Dillman, Smyth, & Christian, 2009). However, this study also examined the possible contribution of item wording direction on systemic errors or response sets. Thus, as suggested by Russell (1996) and used by Wei et al. (2007), we specified two orthogonal factors that corresponded to item wording direction. Our results showed that the model fit was improved by adding two oblique method factors with two orthogonal positively and negatively worded factors in a second model (Model 2; see Table 1) compared to a model (Model 1) without method factors. We found that Item 11's factor loading was too low (.14). Therefore, we tested a new model (Model 3) that did not include Item 11. This model provided a relatively good fit to the data and resulted in a modified ECR short version (11 items). This suggested that the study participants responded to the ECR–S questions consistently, reflecting valid mixed positive and negative item directions.

This finding differs from Wei et al. (2007) in that we had to delete one item from the original ECR–S for use in Korean populations. The item deleted from the attachment avoidance scale was, "I am nervous when people get too close to me." It seems that a different cultural connotation for the word *closeness* influenced the way Korean students answered the question. In the ECR–R validation study with Korean college students (Kim, 2004), Item 11's factor loading was one of the lowest ($b = .31$). The lowest factor loading for this survey was the item "I get uncomfortable when a romantic partner wants to be very close" ($b = .29$). The second lowest factor loading was for the item "I am nervous when people get too close to me" ($b = .31$). Thus, it seems

that those items that included the closeness concept did not reflect characteristic attachment avoidance in Korean culture.

Although the function of attachment has validated cross-culturally, the ideal image of attachment security (Wang & Mallinckrodt, 2006) can be difference across cultures. Especially, the meaning for closeness might differ across cultures. Closeness generally refers to high social contact or high interdependence, implying a sense of connection between people (Berscheid, Snyder, & Omoto, 1989). In a collectivistic culture, people tend to be more interdependent on each other compared to an individualistic society; these interdependencies are sometimes perceived as intrusive from the Western perspective, whereas interdependence is more acceptable and even desired in collectivistic cultures (Kitayama, Park, Sevincer, Karasawa, & Uskul, 2009; Markus & Kitayama, 1991).

Furthermore, the construct validity of the ECR–S was supported by significant positive correlations for both attachment anxiety and avoidance with depression and a significant negative association with relationship satisfaction. Support seeking was significantly positively correlated with attachment anxiety but significantly negatively correlated with attachment avoidance. Reassurance seeking was significantly correlated with attachment anxiety but not with attachment avoidance. The weak correlation between anxiety and avoidance subscales showed successful discrimination between attachment dimensions. These results were consistent with previous findings (Fuendeling, 1998; Wei et al., 2007).

This study is meaningful because it demonstrated the score validity and reliability of the ECR–S in Korean. The validated scale would help scholars to examine universality or culture specific application of the attachment construct.

Limitations

Several study limitations should be noted. Although, the Korean ECR–S seems to be a sound instrument with adequate reliability, factor structure, and construct validity, its attachment avoidance reliability was relatively lower than that of the ECR–R or the English ECR–S. Deleting one item from the attachment avoidance subscale could be the cause of this relatively lower internal consistency because only five items represent the attachment concept. Also, this result could imply that closeness to others might not represent attachment avoidance within the Korean culture. It is also possible that the result might be different if we instruct participants to specifically answer about their romantic relationships or a specific relationships, rather than answering based on general close relationships they have. Thus, further research on cultural differences in the psychometric construct for attachment avoidance is necessary.

Second, these results cannot be compared to the Korean ECR–R. We focused on validating the ECR–S with Korean college students, so we did not collect ECR–R data. However, it would be beneficial to examine if the Korean ECR–S is comparable to the Korean ECR–R, as is the English ECR–R to the English ECR–S, as reported by Wei and his colleagues (2007).

Third, the study results might not generalize to other Korean populations because we collected data from two universities in Seoul. Considering within-group differences based on region and age, the results will need to be tested with different Korean samples. Despite these limitations, the findings suggest acceptable internal consistency and construct validity for the 11 items in this ECR–S validated in Korean college students.

Declaration of Conflicting Interests

No potential conflict of interest was reported by the authors.

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Notes on Contributors

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