

Validity and reliability of the Thai version of the Experiences of Close Relationships-Revised questionnaire

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ABSTRACT

Introduction: This study aimed to investigate the psychometric properties of the Thai version of the Experiences of Close Relationships-Revised (Thai ECR-R) questionnaire.

Methods: 400 students from a university in northern Thailand were randomly selected to complete the Thai ECR-R, the extraversion scale for 16 personality factors, the self-esteem scale and the trait anxiety scale. A retest of the Thai ECR-R was conducted at four-week intervals. Exploratory and confirmatory factor analyses were performed to test the validity of the construct.

Results: The Thai ECR-R showed good internal consistency and satisfactory test-retest reliability. The avoidance and anxiety subscales demonstrated a convergent validity with the extraversion, self-esteem and trait anxiety scales. An exploratory analysis yielded a two-factor structure. Confirmatory factor analysis also provided general support for the hypothesised two-factor model, although there was a slight lack-of-fit.

Conclusion: The overall psychometric properties of the Thai ECR-R were acceptable. In order to render it more congruent with Thai culture, a revision of some items was considered. Further research on other age groups should be conducted in future.

Keywords: adult, attachment, Experiences of Close Relationships, Thai

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INTRODUCTION

Attachment theory, which was first postulated by John Bowlby^(1,3) in the 1960s, emphasises the importance of developing an early relationship between a child and

the primary caregivers, as the foundation for all-round personality development in later life. Attachment theory has contributed substantially to predicting the outcomes of psychotherapy as well as therapeutic relationships and treatment compliance.^(4,6)

Bowlby established three essential components for attachment within a relationship: proximity, in terms of maintenance, to the caregiver; the provision of a safe haven for the infant(s) by the caregiver; and the provision of a secure zone within which the infant can explore the environment and engage in activities not associated with attachment.⁽⁷⁾ Ainsworth et al elucidated individual differences as a significant aspect of the theory, formulating three different attachment styles: secure, anxious and avoidant.⁽⁸⁾ Bartholomew and Horowitz⁽⁹⁾ added 'fearful' as the fourth style, in accordance with the two-dimensional model of anxiety and avoidance.

Research on adult attachment has been conducted exponentially over the past 20 years. The earlier self-report measures commonly used, e.g. Relationship Questionnaire (RQ),⁽¹⁰⁾ lacked convergent validity. In 1998, Brennan et al developed the Experiences in Close Relationships (ECR) measure, a 36-item questionnaire based on two dimensions: anxiety and avoidance.⁽¹¹⁾ Later, Fraley et al,⁽¹²⁾ using the item response theory, revised the ECR by re-analysing the original 323-item data set provided by Brennan et al.⁽¹¹⁾ This resulted in a new set of items, the revised ECR questionnaire, which contains 18 items that assess romantic attachment anxiety and 18 items that assess attachment avoidance. Item answers formed a 7-point Likert-type rating scale, ranging from 1 (strongly disagree) to 7 (strongly agree). Sibley et al tested its psychometric properties, i.e. test-retest reliability, convergence and discriminant validity, and found that it revealed an adequate model fit.^(13,14) In non-English speaking samples, Tsagarakis et al first investigated the translated ECR-R for a Greek sample and found the questionnaire to be suitable for measuring romantic relationships.⁽¹⁵⁾

Ehrental et al used the German version (ECR-RD) to evaluate psychometric properties in both large non-clinical (n = 1,006) and clinical (n = 225) samples.

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Good results were obtained for the use of the ECR-RD (Cronbach's alpha = 0.91/0.92), and the study was also found to demonstrate construct validity.⁽¹⁶⁾ However, when Fairchild and Finney investigated the internal structural validity of the ECR-R using confirmatory factor analysis, they found that it supported the hypothesised two-factor model, but also revealed a minor model lack-of-fit and low communalities (R^2), suggesting that some items may represent extraneous constructs.⁽¹⁷⁾ In Asia, Li and Kato developed the Chinese version of the ECR and tested it with 371 college students.⁽¹⁸⁾ Rosenberg self-esteem scale (RSES) and other-view scale were used to test for convergence validity. This Chinese version has been demonstrated to reveal adequate psychometric properties for both validity and reliability.

In this study, we aimed to evaluate the psychometric properties of the Thai ECR-R by testing it with non-clinical samples, as well as study the romantic attachment styles of Chiang Mai University undergraduates. As the ECR-R was constructed based on the two-factor model theory, we aimed to test the level of fit of the two-factor model using exploratory and confirmatory factor analysis. State-Trait Anxiety Inventory (STAI) scale and RSES were used to examine the convergence validity. We hypothesised that the anxiety sub-scale would be positively correlated with the anxiety scale, and negatively correlated with the self-esteem scales. Although anxiety, as measured by the STAI, and self-esteem should be reflected more through intrapersonal frustration or calm feelings rather than interpersonal behaviours like attachment anxiety, evidence of its correlation was found.⁽¹⁵⁾ For attachment avoidance, we adopted the extraversion scale to test for convergence validity. We expected to find a negative correlation between extraversion and the avoidance subscale, although extraversion measures a more general social expression than an individual relationship.⁽¹⁹⁾ Finally, in order to ascertain the individual attachment style, anxiety and avoidance scores were plotted on a graph with two axes: anxiety and avoidance, thus creating four quadrants: secure (low anxiety, low avoidance), preoccupied (high anxiety, low avoidance), fearful-avoidant (high anxiety, high avoidance) and dismissing (low anxiety, high avoidance).⁽¹¹⁾

METHODS

A total of 400 undergraduate students from seven departments of Chiang Mai University, Thailand, were randomly selected to participate in the study. The sample size calculation was determined using the formula below, where $d = 0.1$ and $N = 22,922$ (2007). The calculated sample size of 328 was expanded to 400 in order to ensure

an appropriate size for factor analysis, as suggested by Comrey and Lee.⁽²⁰⁾

$$n = \frac{Z^2 N \delta^2}{Z^2 \delta^2 + Z^2 N \delta^2}$$

The following questionnaires were used: demographic data, the Thai ECR-R, Thai STAI, Thai RSES and the extraversion scale of Thai 16 Personality Factor (16PF). STAI is a commonly used trait-anxiety scale developed by Spielberger et al,⁽²¹⁾ with a 20-item instrument used to reveal trait-anxiety. Respondents use a 4-point scale ranging from 1 (not at all) to 4 (mostly), with higher scores associated with greater feelings of anxiety. An example of a response is "I feel secure". The Thai version of STAI used in this study showed concurrent validity with the revised Anxiety Sensitivity Index ($r = 0.44$, $p < 0.01$), and good internal consistency (Cronbach's alpha = 0.90).⁽²²⁾ We used this scale to examine the convergent validity for the anxiety dimension of the Thai ECR-R. In this study, the Thai STAI had a satisfactory internal consistency ($\alpha = 0.89$).

The RSES⁽²³⁾ was also used to examine convergent validity. It is a 10-item questionnaire that uses a 4-point Likert scale, with answers ranging from 'strongly agree' to 'strongly disagree'. Higher scores were associated with higher levels of self-esteem. An example is "On the whole, I am satisfied with myself". This measurement has been validated and found to demonstrate acceptable reliability and validity.⁽²⁴⁾ In this study sample, the Thai RSES revealed good internal consistency ($\alpha = 0.87$).

The 16PF questionnaire was developed by Cattell et al⁽²⁵⁾ to discriminate among eight dimensions of personality. Three rating scales indicate the type of personality, where 0 means neutral, and where 1 and 2 are opposite attributes; for example, trusting/paranoid. The 16PF is widely used to measure personality traits. The Thai version was evaluated here for its content validity, which was acceptable, and also tested for its internal consistency ($\alpha = 0.61-0.88$).⁽²⁶⁾ In this study, a second order extraversion containing 46 items was drawn in order to assess concurrent validity of the avoidance subscale of the Thai ECR-R. The Thai version of the ECR-R was translated from the original English version, and is a 36-item, self-reporting instrument for measuring adult romantic attachment. The ECR-R has two dimensions: anxiety and avoidance. 18 items assess the anxiety subscale and another 18 items assess the avoidance subscale. Respondents were measured using a 7-point scale that ranged from 1 ('strongly disagree') to 7 ('strongly agree'), such that higher scores were associated with higher levels of anxiety or avoidance.

The original ECR-R was translated into Thai via

Table 1. Factor structure of the Thai ECR-R.

Avoidance subscale Cronbach's alpha = 0.91		Factor 1	Factor 2	R ²
34.	I find it easy to depend on romantic partners. ฉันพบว่าเป็นเรื่องที่ค่อนข้างง่ายที่จะใกล้ชิดกับคู่ของฉัน	0.755	0.117	0.480
33.	I feel comfortable depending on romantic partners. ฉันรู้สึกสบายใจในการพึ่งพาคนที่ฉันรัก	0.754	0.098	0.579
30.	I tell my partner just about everything. ฉันบอกคู่ของฉัน แทบทุกเรื่อง	0.735	0.036	0.540
32.	It's not difficult for me to get close to my partner. เป็นเรื่องไม่ยากที่ฉันจะใกล้ชิดกับคู่ของฉัน	0.715	0.049	0.525
31.	I talk things over with my partner. ฉันมักจะปรึกษาปัญหาเกี่ยวกับคู่ของฉัน	0.713	0.033	0.504
15.	I find it easy to depend on romantic partners. ฉันพบว่าเป็นเรื่องง่ายที่จะพึ่งพาคนที่ฉันรัก	0.707	0.103	0.470
4.	I feel comfortable sharing my private thoughts and feelings with my partner. ฉันรู้สึกสบายใจที่จะแบ่งปันความคิด ความรู้สึกส่วนตัวของฉันให้คู่ของฉัน	0.704	0.068	0.461
14.	I usually discuss my problems and concerns with my partner. ฉันมักจะปรึกษาปัญหาและความกังวลเกี่ยวกับคู่ของฉัน	0.703	0.001	0.480
35.	It's easy for me to be affectionate with my partner. เป็นเรื่องง่ายสำหรับฉันที่จะแสดงออกถึงความรักใคร่ เสน่ห์ให้กับคู่ของฉัน	0.697	-0.034	0.480
29.	It helps to turn to my romantic partner in times of need. มันช่วยได้หากฉันจะหันไปพึ่งพาคนที่ฉันรักในยามที่ต้องการความช่วยเหลือ	0.660	0.01	0.421
8.	I find it relatively easy to get close to my partner. ฉันรู้สึกสบายๆเวลาใกล้ชิดกับคนที่ฉันรัก	0.650	0.138	0.404
36.	My partner really understands me and my needs. คู่รักของฉันเข้าใจฉันและเข้าใจความต้องการของฉันจริงๆ	0.634	0.136	0.411
2.	I prefer not to show a partner how I feel deep down. ฉันเลือกที่จะไม่แสดงความรู้สึกใดๆในจิตใจของฉันกับคู่ของฉัน	0.619	-0.016	0.375
11.	I prefer not to be too close to romantic partners. ฉันเลือกที่จะไม่ใกล้ชิดกับคนที่ฉันรักจนเกินไป	0.523	0.157	0.251
24.	I get uncomfortable when a romantic partner wants to be very close. ฉันรู้สึกไม่สบายใจเมื่อคนที่ฉันรักต้องการที่จะใกล้ชิดกับฉัน	0.500	0.272	0.213
13.	I don't feel comfortable opening up to romantic partners. ฉันรู้สึกไม่สบายใจที่จะเปิดเผยตัวตนกับคนที่ฉันรัก	0.510	0.470	0.226
6.	I find it difficult to allow myself to depend on romantic partners. ฉันพบว่ามันเป็นเรื่องยากสำหรับฉันที่จะยอมพึ่งพาคนที่ฉันรัก	0.465	0.321	0.227
17.	I am nervous when partners get too close to me. ฉันรู้สึกวิตกกังวลเวลาที่คู่ของฉันมาใกล้ชิดสนิทสนมมากเกินไป	0.399	0.298	0.135
Anxiety subscale Cronbach's alpha = 0.89		Factor 1	Factor 2	R ²
22.	When I show my feelings for romantic partners, I'm afraid they will not feel the same about me. เวลาที่ฉันแสดงออกถึงความรู้สึกที่มีต่อคนที่ฉันรัก ฉันก็กลัวว่าเขาจะไม่มีความรู้สึกเหมือนกับที่ฉันมี	0.059	0.771	0.584
26.	I worry that romantic partners won't care about me as much as I care about them. ฉันกังวลว่าคู่รักของฉันจะไม่ห่วงใยฉันเท่ากับที่ฉันห่วงใยเขา	0.102	0.760	0.582
19.	I often worry that my partner will not want to stay with me. ฉันมักจะกังวลว่าคู่ของฉันไม่ต้องการที่จะอยู่กับฉัน	0.192	0.735	0.546
3.	I often worry that my partner doesn't really love me. ฉันมักจะกังวลว่าคู่ของฉันไม่รักฉันจริงๆ	0.116	0.689	0.485
7.	When my partner is out of sight, I worry that he or she might become interested in someone else. เมื่อฉันไม่เห็นคู่ของฉัน ฉันก็กังวลใจว่าเขาอาจจะไปสนใจคนอื่น	0.020	0.688	0.461
27.	I worry that I won't measure up to other people. ฉันกังวลว่าฉันจะไม่เทียบเท่าคนอื่น	0.106	0.677	0.434
20.	I find that my partner(s) don't want to get as close as I would like. ฉันพบว่าคู่ของฉันไม่ต้องการใกล้ชิดกับฉันอย่างที่ต้องการ	0.307	0.643	0.424
10.	My romantic partner makes me doubt myself. คนรักของฉันทำให้ฉันสงสัยในตัวเอง	0.250	0.609	0.347
21.	I worry a lot about my relationships. ฉันกังวลใจมากในเรื่องความสัมพันธ์กับคนอื่น	0.212	0.605	0.344
1.	I'm afraid that I will lose my partner's love. ฉันกลัวว่าฉันจะสูญเสียความรักจากคู่ของฉัน	-0.201	0.597	0.335
25.	Sometimes romantic partners change their feelings about me for no apparent reason. บางครั้งคู่รักของฉันก็เปลี่ยนแปลงความรู้สึกของเขามที่มีต่อฉันโดยไม่มีเหตุผลเด่นชัด	0.185	0.586	0.335
28.	My desire to be very close sometimes scares people away. ความปรารถนาที่จะใกล้ชิดกับบุคคลอื่นของฉัน บางครั้งก็สับสนทำให้บุคคลนั้นกลัว	0.160	0.579	0.297
12.	I'm afraid that once a romantic partner gets to know me, he or she won't like who I really am. ฉันกลัวว่าเมื่อคนที่ฉันรักรู้จักตัวตนที่แท้จริงของฉันแล้ว เขาจะไม่ชอบฉัน	0.415	0.562	0.311
16.	It makes me mad that I don't get the affection and support I need from my partner. มันจะทำให้ฉันโกรธ ถ้าฉันไม่ได้ความรักและกำลังใจจากคู่รักเวลาที่ฉันต้องการ	-0.199	0.531	0.224
18.	My partner only seems to notice me when I'm angry. คู่ของฉันเหมือนจะสังเกตเห็นฉัน ก็เมื่อตอนที่ฉันโกรธเท่านั้น	0.307	0.453	0.208
5.	I often wish that my partner's feelings for me were as strong as my feelings for him or her. ฉันมักจะปรารถนาให้คู่รักของฉันมีความรู้สึกต่อฉันเท่ากับที่ฉันรู้สึกต่อเขา	-0.323	0.384	0.144
9.	I do not often worry about being abandoned. ส่วนใหญ่แล้ว ฉันไม่กังวลกับการถูกทอดทิ้ง	-0.028	0.354	0.154
23.	I rarely worry about my partner leaving me. ฉันไม่ค่อยกังวลเรื่องคู่ของฉันจะทิ้งฉันไป	-0.050	0.322	0.123

the following steps: (a) The first author translated the original English version of the ECR-R into Thai, followed by an item-by-item comparison; (b) A bilingual person (an English-Thai school teacher), who had not been exposed to the original ECR-R, did the back-translation into English. Cultural adaptations and comparisons of reading difficulty were checked; (c) The original and the new English versions were compared and reviewed by consensus (comprising a bilingual psychologist and the authors). A few disagreements were found, so the process outlined above was repeated with these items. All 36 translated items were accepted by consensus in the second revision. A field trial was then carried out with 30 students; and (d) Anomalies in the results were flagged, and a final revision was made to make minor changes or correct printing errors.

All instruments were completed by randomly selected student participants who gave their written consent. Six weeks later, the Thai ECR-R was administered and completed by 136 participants. We investigated the factor structure by exploratory factor analysis and principal component with oblique rotation. During the six-week retest period, to assess the model fit, we adopted confirmatory factor analysis with the retest group using the criteria recommended by Hu and Bentler.⁽²⁷⁾

RESULTS

The mean age of the samples was 20.36 ± 2.0 (range 18–34) years. The male:female ratio was 143 (36%): 257 (64%). 33% of participants were in a relationship at the time of the study, with the period of relationship ranging from 1–133 (mean 28.38 ± 25.09 , mode 24.50) months. The mean anxiety subscale for the Thai ECR-R was 3.46 ± 0.99 , and avoidance was 2.89 ± 0.95 . There was no significant gender difference in the avoidance or anxiety scores, no correlation between age and the Thai ECR-R score and no gender difference in the distribution of the attachment style. The distribution of the romantic attachment style of the Chiang Mai University sample was as follows: secure 57.6%, preoccupied 14.4%, fearful 4.3% and dismissing 23.7%. The fearful style was more prevalent in male participants, while a preoccupied style was more prevalent in female participants.

The mean and standard deviation of each item ranged from 2.27 ± 1.25 to 5.34 ± 1.55 . To ensure univariate normality, Kline⁽²⁸⁾ suggested cut-off points of the absolute values of 3.0 and 8.0 for skew and kurtosis, respectively. The skew of the Thai ECR-R for the 36 items ranged from -0.839 to 0.757 , while the values for kurtosis ranged from -0.051 to 0.513 , indicating that the responses followed a normal distribution. Factor analysis,

using unrotated principal component analysis, extracted six components that explained 57.25% of the variance (Eigenvalues > 1), while 41% was accounted for by two components. Oblique rotation ($\delta = 0$) was applied, and each factor explained the same cumulative percentage of variances. Although six factors with Eigenvalues > 1 were extracted, there was a steeply decreasing trend after the second factor. This suggested a tendency to favour a two-factor model. Items 12 and 18 in the anxiety subscale were found to be outliers.

The second principal component analysis, forcing two factors with oblique rotation ($\delta = 0$) and Kaiser normalisation, was performed. This resulted in all items being loaded on the designated scales. However, items 13 and 6 of the avoidance subscale, as well as items 20, 12, 18 and 5 of the anxiety subscale, had loadings greater than 0.30 above other factors. The loading was 0.31–0.77 for the anxiety subscale and 0.38–0.77 for the avoidance subscale. (Table I). Table I shows the original version and the Thai version of the ECR-R. All items had higher loading on their intended factor; however, item 17 on the avoidance factor, and items 12, 18 and 5 on the anxiety factor had a high loading of other factors as well. Some items were assumed to be loaded on the third factor, i.e. items 10, 12, 18, 20, 21, 25 and 28. Interestingly, all seven of these items seemed to address extraneous content such as anger, closeness and self-doubt.

During the six-week retest period, 136 participants completed the questionnaire. The mean age of the participants was 19.69 ± 0.72 (range 18–25) years. The male:female ratio was equal, at 68 each. The mean anxiety subscale of the retest group was 3.29 ± 1.02 and the avoidance was 2.89 ± 0.80 . There were no significant gender differences in terms of the avoidance or anxiety scores. To explore the model fit of the structural equation by confirmatory factor analysis, data collected during this period was analysed. The raw data was used to create a covariance matrix, and maximum likelihood estimation was employed to estimate the parameters of the model and fit indices. Maximum likelihood was used because it produces more accurate fit indices and less biased parameters than the generalised least squares estimation.⁽²⁹⁾ The standardised path coefficients in the two-factor solution was 0.14–0.82 for items assessing avoidance, and 0.27–0.83 for those assessing anxiety. These two latent factors correlated at 0.27, and R^2 was 0.07–0.70 (see Table II).

The level of fit of the model was examined using several fit indices. A lack-of-fit or poor fit indicates misspecification. Based on our investigation of the sensitivity of various fit indices, the following absolute fit

Table II. The standardised regression weights and the R² of the two-factor model.

Item	Avoidance	R ²
29	0.82	0.67
14	0.71	0.51
33	0.67	0.45
15	0.64	0.41
8	0.64	0.41
30	0.59	0.35
2	0.58	0.34
4	0.57	0.32
31	0.55	0.30
35	0.54	0.29
6	0.50	0.25
32	0.49	0.24
34	0.49	0.24
36	0.48	0.23
17	0.29	0.08
24	0.28	0.08
13	0.23	0.05
11	0.14	0.02

Item	Anxiety	R ²
22	0.83	0.70
23	0.80	0.64
26	0.77	0.59
9	0.73	0.54
19	0.71	0.50
7	0.71	0.50
27	0.69	0.48
21	0.69	0.47
18	0.68	0.46
3	0.65	0.42
28	0.61	0.38
20	0.60	0.36
10	0.57	0.32
1	0.56	0.31
16	0.52	0.27
25	0.35	0.12
12	0.30	0.09
5	0.27	0.07

indices were used to identify the model misspecification: the Comparative Fit Index (CFI), the root mean square error of approximation (RMSEA) and the standardised root mean square residual (SRMR). Chi-square statistics was used to evaluate the difference between the sample covariance matrix and the implied covariance matrix from the hypothesised model.⁽³²⁾ As suggested by Hu and Bentler,^(27,30,31) CFI \geq 0.95, normed fit index (NFI) \geq 0.9, RMSEA \leq 0.6 and the standardised SRMR \leq 0.08 were indicative of the level of fit of the model. Our results demonstrated that the two-factor model of the Thai ECR-R demonstrated a fair level of fit (CFI = 0.95, NFI = 0.81, RMSEA = 0.04 and SRMR = 0.10). The chi-square difference supported the hypothesis that the two-factor solution was significantly better than the one-factor solution ($\Delta\chi^2(1) = 433.6, p < 0.001$)

There were large standardised residuals for items 22

and 13 (4.89), items 13 and 26 (4.12), items 19 and 13 (5.04), and items 24 and 10 (4.5). With a correct model, most standardised residuals should be less than two in terms of absolute value.⁽³³⁾ All pairs were intended to measure the same factor, except for items 20 and 13. Therefore, modification indices were used to investigate a lack-of-fit. The modification indices suggested that there were correlated error terms between items 24 and 17 (decrease in $\chi^2 = 22.8$), both of which addressed the response "Feel uncomfortable when close to a partner", and items 19 and 20 (decrease in $\chi^2 = 34.06$), both of which addressed the response "Feel worried about being rejected". In terms of item cross-loadings, modification indices also suggested that adding a path from the avoidance factor to items 1, 5 and 9 and adding a path from the anxiety factor to items 2, 6, 11, 13, 14, 17 and 24 would decrease the sum of χ^2 by 115.61. This indicated that the items contained variances explained by both the anxiety and avoidance factors. It was also found that items 5, 9 and 23 on the anxiety factor scale and items 36, 11, 13, 17 and 24 on the avoidance factor scale had less than 0.2 on the R² values.

Regarding convergent validity, we investigated the correlation between the Thai ECR-R and external measurements. We analysed the relationship between the anxiety subscale of the Thai ECR-R and the trait anxiety and self-esteem scores, as well as between the avoidance subscale and the extraversion score of the 16 PF. The results were as expected. The anxiety subscale correlated positively with trait anxiety ($r = 0.42, p < 0.01$) and negatively with the self-esteem score ($r = -0.23, p < 0.01$). Similarly, the avoidance subscale correlated negatively with the extraversion score ($r = -0.16, p < 0.01$) In the reliability study, we found that the Thai ECR-R had good internal consistency ($\alpha = 0.90$). The avoidance subscale yielded $\alpha = 0.91$, whereas the anxiety subscale yielded $\alpha = 0.89$ (Table I). Test-retest reliability was assessed by the intra-class correlation coefficient (ICC) during the six-week retest period. The means of the summed scores during the first and second period were 2.97 ± 0.82 and 3.09 ± 0.75 ($r = 0.80, p < 0.001$), respectively. The mean difference was -0.11 ± 0.51 (95% confidence interval [CI] -0.2 to -0.03). The ICC of the total score was 0.80 (95% CI 0.73–0.85). In terms of test-retest correlation of the subscales, the correlation coefficient was 0.72 (95% CI 0.62–0.79) for the anxiety scale and 0.77 (95% CI 0.69–0.83) for the avoidance scale.

DISCUSSION

Regarding the attachment style distribution, our study found that a secure attachment style was predominant,

similar to that previously reported by Ciechanowski et al.⁽³³⁾ The Thai ECR-R showed acceptable internal consistency, test-retest reliability, construct and convergent validity. The factors extracted in our study coincided with the study of Tsagarakis et al,⁽¹⁵⁾ where seven factors initially accounted for 60% of the variance. Their study was the first investigation in a non-Anglo-Saxon language and cultural context, and it was found to be suitable in terms of psychometric properties. Our study yielded similar results, confirming that the translated ECR-R still possesses acceptable reliability and validity within a different culture. The mean figures for the Thai ECR-R were avoidance 2.89 ± 0.95 and anxiety 3.46 ± 0.99 , while in the original study by Tsagarakis et al, the avoidance score was 3.02 ± 0.93 and the mean score G-ECR-R for anxiety was 3.60 ± 1.04 .⁽¹⁵⁾

With regard to the model's fit, we found both good and poor indices. Besides a relatively small sample size, a model's lack-of-fit may be attributed to some items that addressed extraneous content, which do not effectively represent the latent construct for which they were written. However, the two-factor model was significantly more appropriate than the single-factor model, while there was no difference between models with two factors and those with more than two factors. Thus, it could be concluded that the two-factor model was the most relevant to the hypothesised model. Although the model fit did not yield a satisfactory result, and thus requires further investigation, we discuss some hypotheses for the lack-of-fit here.

The inappropriate values of SRMR and NFI indicated both simple and complex model misfits, and these may be explained by large, standardised residuals, which led to item sharing (i.e. items 12 and 3) or low R^2 values (e.g. items 5, 9, and 23 for the anxiety factor and items 11, 13, 17 and 24 for the avoidance factor). These items were poorly associated with the underlying dimension and failed to contribute to the scale. In addition, some multi-dimensional items also had an impact on the level of fit.

Interestingly, our results support the recent study carried out by Lo et al,⁽³⁴⁾ in which they found that the items that caused the model's lack-of-fit were similar. In Lo et al's study, a higher-order factor analysis of a modified ECR was used. They found that the 'discomfort with closeness' factor, which should represent an avoidance orientation, had a double-loading. This factor comprised the items corresponding to our problematic items, i.e. items 2, 3, 11, 17 and 24. In addition, the item addressed as extraneous content in Fairchild and Finney's study⁽¹⁷⁾ was found to play the same role in our study, i.e. item 12 ("I'm afraid that once a romantic partner gets to know me, he or she won't like who I really am"). Finally,

a new set of 28-item questionnaire, as recommended by modification indices, was re-analysed. Some items were removed from the new set to ease administration. These were items 24, 17, 13 and 11 on the avoidance factor and items 23, 12, 9 and 5 on the anxiety factor. The results turned out an adequate model fit, as follows: CFI = 0.99, NFI = 0.86, RMSEA = 0.021, SRMR = 0.07.

In summary, the Thai ECR-R demonstrates good internal consistency and fair-to-good test-retest reliability. The lack of fitness of the model suggests that some items on the scale were inappropriate in the representation of the constructs of anxiety and avoidance. Deleting some items provided a better construct validity. A stand-alone examination of the 28-item ECR-R (or less items) should be conducted, particularly with a more general sample of the population.

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