

Reliability and Validity Studies of Turkish Translation of Eysenck Personality Questionnaire Revised-Abbreviated

A. Nuray KARANCI, Gülay DİRİK, Orçun YORULMAZ

Abstract

Objective: The aim of the present study was to examine the reliability and the validity of the Turkish translation of the Eysenck Personality Questionnaire Revised-Abbreviated Form (EPQR-A) (Francis et al., 1992), which consists of 24 items that assess neuroticism, extraversion, psychoticism, and lying.

Method: The questionnaire was first translated into Turkish and then back translated. Subsequently, it was administered to 756 students from 4 different universities. The Fear Survey Inventory-III (FSI-III), Rosenberg Self-Esteem Scale (RSES), and Egna Minnen Beträffande Uppfostran (EMBU-C) were also administered in order to assess the questionnaire's validity. The internal consistency, test-retest reliability, and validity were subsequently evaluated.

Results: Factor analysis, similar to the original scale, yielded 4 factors; the neuroticism, extraversion, psychoticism, and lie scales. Kuder-Richardson alpha coefficients for the extraversion, neuroticism, psychoticism, and lie scales were 0.78, 0.65, 0.42, and 0.64, respectively, and the test-retest reliability of the scales was 0.84, 0.82, 0.69, and 0.69, respectively. The relationships between EPQR-A-48, FSI-III, EMBU-C, and RSES were examined in order to evaluate the construct validity of the scale. Our findings support the construct validity of the questionnaire. To investigate gender differences in scores on the subscales, MANOVA was conducted. The results indicated that there was a gender difference only in the lie scale scores.

Conclusions: Our findings largely supported the reliability and validity of the questionnaire in a Turkish student sample. The psychometric characteristics of the Turkish version of the EPQR-A were discussed in light of the relevant literature.

Key Words: Eysenck Personality Questionnaire, Personality, Reliability, Validity

INTRODUCTION

In its preliminary version, the Eysenck personality theory involved neuroticism-stability and extroversion-introversion dimensions; subsequently, the psychoticism dimension was added to the theory (Lewis et al., 2002). As the extroversion dimension represents sociality and impulsivity, individuals in this dimension were defined as enjoying social interactions, energetic, and preferring social situations to loneliness. It was proposed that the neuroticism dimension indicated emotional instability and reactivity, and that individuals who score high on this dimension tend to be anxious, depressive, overly emotional, shy, and have low self-esteem. The psychoticism dimension highlights more bizarre personality characteristics, such as being distant, cold, insensitive,

absurd, and unable to empathize with others (Eysenck and Eysenck, 1975).

The discriminative personality characteristics defined by Eysenck were reportedly related to specific feelings and behaviors. It was found that neuroticism was related to anxiety, fear, depression, low self-esteem, and a tendency towards emotional and irrational behavior. Extraversion was related to having many friends, impulsivity, uncontrolled emotions, a love of socializing and going to parties, and sometimes unreliable personality traits. Lastly, psychoticism was reportedly related to hostility, distant and antisocial behaviors, and insensitivity towards others (Eysenck and Eysenck, 1975). Eysenck found that these discriminative personality traits reflected different dimensions (Eysenck and Eysenck, 1964, 1968).

After the development of Eysenck personality theory, various measures were developed in order to assess these personality traits. These measures included the following: The early Maudsley Medical Questionnaire (MMQ), containing 40 items (Eysenck, 1952); the Maudsley Personality Inventory (MPI), containing 48 items (Eysenck, 1959), the Eysenck Personality Inventory (EPI), containing 57 items (Eysenck & Eysenck, 1964a), the Eysenck Personality Questionnaire (EPQ), containing 90 items (Eysenck & Eysenck, 1975); the Revised Eysenck Personality Questionnaire (EPQR), containing 100 items (Eysenck et al., 1985).

Although all these questionnaires were reliable and valid, they caused certain clinical application problems due to their length. Therefore, the need for shorter personality scales resulted in shorter versions of the mentioned instruments. One of these shorter personality scales is the Eysenck Personality Questionnaire Revised-Abbreviated Form (EPQR-A 48) (Eysenck et al., 1985). EPQR-A 48 includes 48 items and 4 subscales: Extraversion (12 items), Neuroticism (12 items), Psychoticism (12 items), and Lie (12 items). The lie subscale is a control scale in which the whole scale is tested for social desirability bias. Another version, EPQR-A (short form), includes 24 items.

Francis et al. (1992) administered the EPQR-A 48 and EPQR-A to university students in England, Canada, America, and Australia, and reported sufficient internal consistency for all the subscales. According to this study, the extraversion scale in the short form achieved alpha coefficients of 0.78, 0.83, 0.85, and 0.87 in the 4 samples, respectively, while the abbreviated form extraversion scale achieved alpha coefficients of 0.74, 0.81, 0.82, and 0.84. The short form neuroticism scale achieved alpha coefficients of 0.79, 0.80, 0.81, and 0.83 in the 4 samples, respectively, while the abbreviated form neuroticism scale achieved alpha coefficients of 0.70, 0.72, 0.73, and 0.77. For the psychoticism scale, alpha coefficients were very low (0.33-0.52). The concurrent validity of the EPQR-A 48 subscales was assessed by examining their associations to the original subscales. Correlations of the extraversion, neuroticism, and lie scale measures between the 2 forms ranged from 0.84 to 0.90; however, the correlation between the psychoticism scales (0.44-0.52) was considerably low.

There are few studies on the factor structure and construct validity of EPQR-A 48 that evaluate the cultural differences among personality traits (Katz and Francis, 2000; Forrest et al., 2000). Studies have shown that the

personality dimensions of Eysenck differ in terms of gender (Maltby and Talley, 1998; Forrest et al., 2000). Gender differences were also found in the sub dimensions of EPQR-A (Forrest et al., 2000; Shevlin et al., 2002). Findings have also shown that women tend to score higher on the neuroticism and lie scales, while men tend to score higher on the psychoticism scale. Some studies have shown higher scores for men on the extraversion scale, although this is inconsistent across studies (Eysenck and Haapsalo, 1989; Francis, 1993; Hanin et al., 1991; McKenzie, 1988).

Personality traits are also related to parental rearing attitudes and self-esteem. For example, Arrindell et al. (2005) examined the relationship between parental attitudes, and Eysenck personality traits, gender roles, and self-esteem in a sample of 1950 university students from Australia, Venezuela, and Spain. The perceived emotional warmth of parents was negatively related to neuroticism and positively related to extroversion. Rejective parental attitudes were positively correlated with neuroticism and negatively correlated with self-esteem.

The aim of the present study was to examine the psychometric properties of the Turkish version of EPQR-A and determine the validity of the scale for the Turkish population. Although the long version of EPQR-A was previously adapted to Turkish, in recent years the shortened form of EPQR-A has become preferred in the international literature due to its reduced number of items, practicality, and because it is also a reliable and a valid measure. Therefore, it is believed that in order to attain parallel findings with the international literature and thus contribute to the related literature, it is important to conduct the reliability and validity study of EPQR-A.

Briefly, this study aimed to evaluate the reliability (internal consistency, test-retest) and validity (factor structure and construct validity) of EPQR-A. For the construct validity, the relationships between Eysenck personality dimensions, and perceived parental attitudes, fears, and self-esteem were evaluated. In addition, gender differences in EPQR-A that were previously mentioned were examined (Forrest et al., 2000; Shevlin et al., 2002).

METHODS

Sample

The sample included university students representing the Turkish population of an international project on the relationship between culture and personality. In

order to reach a relatively representative student sample for this project, we randomly recruited students from the universities that had at least 3 different faculties, from 4 different geographical locations of Turkey. In all, 756 students aged between 17 and 32 years (mean: 21.26; SD: 2.33) (374 men and 382 women) from the the Departments of Science and Literature, Economic and Administrative Sciences, and Medical and Social Sciences of Ege, Hacettepe, Istanbul, and Samsun 19 Mayıs Universities were included. Additionally, the participants from each university were matched in terms of number and gender.

Measures

Eysenck Personality Questionnaire Revised-Abbreviated Form (EPQR-A)

Francis et al. (1992) developed EPQR-A by reviewing the Eysenck Personality Questionnaire (Eysenck & Eysenck, 1975) and the abbreviated form of the same questionnaire (48-items) (Eysenck, Eysenck & Barrett 1985). EPQR-A consists of 3 sub-scales: extraversion, neuroticism, and psychoticism, each containing 6 items. In order to prevent bias during the administration of the questionnaire, the lie scale, which is scored as yes (1)/ no (0) with possible scores ranging from 0 to 6, was used for control purposes.

Rosenberg Self-esteem scale (RSES)

RSES was developed by Rosenberg (1965) to measure global self-esteem. The scale is a 10-item Likert-type scale with items answered on a 4-point scale ranging from strongly agree to strongly disagree. Various studies showed that RSES is a reliable and valid tool (Fleming and Courtney, 1984; Lorr and Wunderlich; 1986). RSES was adapted to Turkish by Çuhadaroglu (1985) and was shown to be reliable and valid (Toker, 2003; Tuğrul, 1994). In the present study we also revised this scale and its internal consistency in this study was 0.86.

Shortened Perceived Parental Rearing Styles-Child form (SPPRS-C)

SPPRS-C is the 23-item shortened form (Arrindell et al., 1999) of PPRS-C (or originally, EMBU-C [Perris et al., 1980]), which evaluates adult perceptions of parental rearing attitudes. The questionnaire consists of 3 scales: rejection, emotional warmth, and over protection. The SPPRS-C requires a two-fold assessment, for the mother and father.

The psychometric characteristics of SPPRS-C were

measured in different countries, such as Italy, Greece, and Sweden (Arrindell et al., 1999; Arrindell et al., 2001), and it was also found to be a reliable and a valid tool in Turkey (Dirik et al., 2004). The internal consistency of the father emotional warmth, rejection, and over protection dimensions was 0.79, 0.82, and 0.79, respectively, and mother emotional warmth, rejection, and over protection dimensions was 0.76, 0.80, 0.76, respectively.

Fear Survey Schedule (FSI-III)

FSI-III measures the degree of fear and annoyance elicited by 52 situations or stimuli on a 5-point Likert-type scale. In addition to total score, fear is evaluated on 5 subscales: agoraphobicfears, injury-illness-death, socialfears, sexual and hostilityfears, and harmless animalfears s (Arrindell 1980). Studies showed the reliability and validity of this inventory in different cultures (Arrindell et al., 2003). The Turkish adaptation of FSI-III was also found to be reliable and valid (Dirik et al., 2004). The internal consistency of the inventory in this study was 0.94.

Procedure

The first step in the Turkish adaptation study of EPQR-A was obtaining permission from the authors (Francis et al., 1992). The translation-back translation method was used (Brislin et al., 1973). The present authors examined the questionnaire that was translated into Turkish by 3 researchers and following the required revisions the Turkish version was back translated by a bilingual individual into English. The back translation was compared with the original form in terms of content and style by the present authors. Later, in order to determine the test-retest reliability of the scale it was administered to 21 university students twice within a 2.5-week interval.

Interviewers were psychology students who were trained in the administration of the questionnaire package. After receiving the necessary permission from the universities, interviewers administered the scales in classrooms and cafeterias. All participants were given written directions and provided informed consentwere obtained; interviewers provided explanations when necessary. Data was collected between July 2005 and March 2006.

Statistical Analyses

Statistical analyses were conducted with the SPSS

v.10.0 package program (Green et al., 1997). The internal validity of all scales was determined by Cronbach's and Kuder-Richardson alpha coefficients. For the test-retest reliability of EPQR-A, the relationship between the other scales was determined by two-way Pearson's correlations analyses, and the factor structure of the scale was determined by exploratory factor analysis, principal components analysis, and varimax rotation. The cut-off point for factor loads was 0.40, only one item with a factor load of 0.39 was included in the related factor due to its relevance to that factor, and as it was also loaded on to the same factor in the original study. Gender differences among EPQR-A dimensions were analyzed with ANOVA.

FINDINGS

Factor Structure

Factor analysis was used to determine the factor structure of EPQR-A. In the results of the exploratory factor analysis, principal components, and varimax rotation, 7 factors with Eigen values > 1, which accounted for 53% of the total variance, were found. As the original scale consists of 4 factors and the scree graph supports four-factor analysis, four-factor analysis was preferred. It was reported that the four-factor analysis accounts for 38% of the total variance and is congruent with the original form (Francis et al., 1992). These factors are extroversion, introversion, psychoticism, and lie, as in the original scale. The factors and factor loads are presented in Table I, and correlations between the factors are shown in Table II.

When forming the factors, the issues we considered were coding of the original study (Francis et al., 1992), factor loads in the present study, and the criterion that high scores in one dimension show a tendency towards that dimension. Items 5, 7, 10, 17, and 19 in the lie dimension, items 15 and 20 in the extroversion dimension, and items 3, 16, and 22 in psychoticism dimension were reverse coded. The sum of item scores in the related dimension yielded the total score of that dimension.

Reliability

Internal Consistency

As EPQR-A items were evaluated with a binary answering system and were not continuous variables, the Kuder-Richardson 20 method was used to determine the internal consistency. Kuder-Richardson alpha

coefficients of the scales for extraversion, neuroticism, psychoticism, and lie were 0.78, 0.65, 0.42, and 0.64, respectively.

Test-retest reliability

To determine the test-retest reliability of EPQR-A, the scale was re-administered to 21 university students 2.5 weeks after the first administration. Pearson's correlation coefficient was calculated and found to be significant. The test-retest reliability of the extraversion, neuroticism, psychoticism and lie scales was 0.84, 0.82, 0.69, and 0.69, respectively.

Validity

The relationship between the subscales of EPQR-A, and FSI-III, SPPRS-C subscales (mother overprotection, mother rejection, mother emotional warmth, father over protection, father rejection, and father emotional warmth), and RSES were examined in order to evaluate the construct validity of the scale, and the results are provided in Table II, including correlations between the sub-dimensions. The correlations between the 3 subscales of EPQR-A, and SPPRS-C, FSI-III, and RSES were found to be in the expected direction.

Father and mother over protection, and father and mother rejection dimensions showed a positive relationship to neuroticism, whereas father emotional warmth showed a negative relationship. Psychoticism was positively related to father and mother rejection, and was negatively related to father and mother emotional warmth. In addition, there was a positive relationship between father and mother emotional warmth, and extroversion, and a negative relationship between mother over protection and mother rejection, and extroversion.

Self-esteem was positively related to extraversion and negatively related to neuroticism. General fears were negatively related to extraversion and psychoticism, and positively related to neuroticism. These findings strongly supported the construct validity of EPQR-A in a sample of university students.

Comparisons between groups

Men and women were compared according to their EPQR-A subscale total scores with multivariate analysis of variance (MANOVA). In terms of gender, as the whole model was significant (Wilks Lambda: 0.967, $F(4, 744) = 6.282$, $P < 0.001$), there were no significant differences in extroversion, neuroticism, and psychoticism.

Table I. EPQR-A factor structure and factor loads.*

1. Extraversion (alpha = 0.78)	F1	F2	F3	F4
23. Do other people think of you as being very lively?	0.74	0.03	-0.05	0.16
2. Are you a talkative person?	0.73	0.06	-0.04	-0.00
4. Are you rather lively?	0.67	-0.08	-0.09	0.14
15. Do you tend to keep in the background on social occasions?	-0.65	0.01	0.12	0.07
20. Are you mostly quiet when you are with other people?	-0.65	-0.05	0.14	0.10
13. Can you easily get some life into a rather dull party?	0.56	-0.00	0.04	-0.12
2. Lie (alpha = 0.64)				
19. Have you ever taken advantage of someone?	0.05	0.69	-0.01	0.01
5. Were you ever greedy by helping yourself to more than your share of anything?	-0.04	0.64	-0.01	-0.10
17. Have you ever cheated at a game?	0.16	0.61	-0.05	0.04
10. Have you ever taken anything (even a pin or button) that belonged to someone else?	-0.02	0.59	-0.07	0.07
7. Have you every blamed someone for doing something you knew was really your fault?	-0.01	0.57	0.15	-0.01
24. Do you always practice what you preach?	0.06	-0.43	-0.09	0.08
3. Neuroticism (alpha = 0.65)				
18. Do you suffer from 'nerves'?	0.12	-0.01	0.65	-0.01
11. Would you call yourself a nervous person?	0.11	0.01	0.62	-0.12
9. Do you often feel 'fed-up'?	-0.23	0.08	0.57	-0.03
21. Do you often feel lonely?	-0.29	0.06	0.54	-0.09
Table I continued				
1. Does your mood often go up and down?	-0.16	0.04	0.53	0.01
14. Are you a worrier?	-0.20	-0.04	0.51	0.35
4. Psychoticism (alpha = 0.42)				
8. Do you prefer to go your own way rather than act by the rules?	0.09	0.22	0.22	-0.57
22. Is it better to follow society's rules than go your own way?	-0.03	0.01	-0.09	0.54
12. Do you think marriage is old-fashioned and should be done away with?	0.04	-0.02	0.05	-0.50
3. Would being in debt worry you?	0.04	-0.04	0.28	0.45
6. Would you take drugs, which may have strange or dangerous effects?	-0.22	0.12	0.10	-0.43
16. Does it worry you if you know there are mistakes in your work?	-0.02	0.15	0.14	0.39

* Coding Key for EPQR-A

For items 3, 5, 7, 10, 15, 16, 17, 19, 20, and 22, Yes = 0, No = 1 points.

For items 1, 2, 4, 6, 8, 9, 11, 12, 13, 14, 18, 21, 23, and 24, Yes = 1, No = 0 points

cism subscales. On the lie scale, however, women scored higher than men ($F(1, 749) = 21.45, P < 0.001$).

DISCUSSION

In this study, which aimed to evaluate the reliability and validity of the Turkish EPQR-A, the factor structure of the Turkish form was found to be similar to the factor

structures found in other cultures. Similar to other studies in the literature, the subscales of EPQR-A showed high internal consistency, except for the psychoticism subscale. When evaluated in general, it can be proposed that due to high internal consistency scores and acceptable test-retest reliability, the Turkish version of the questionnaire is reliable. Various studies conducted in other countries also found low internal consistency coefficients

Table II. Correlations between FSI-III, SPPRS-C, RSES, and EPQR-A.

	Extraversion	Neuroticism	Psychoticism	Lie
General fears	-0.08*	0.21*	-0.15**	0.05
Father over protection	-0.07	0.19**	0.02	-0.08*
Father emotional warmth	0.14**	-0.09*	-0.22**	0.10**
Father rejection	-0.07	0.14**	0.20**	-0.15**
Mother over protection	-0.11**	0.23**	0.09	-0.09*
Mother emotional warmth	0.15**	-0.07	-0.19**	0.04
Mother rejection	-0.11**	0.12**	0.22**	-0.14**
Self-esteem	0.32**	-0.33**	0.01	0.09*
Extraversion		-0.25**	0.00	-0.01
Neuroticism			0.02	-0.04
Psychoticism				-0.09*

* P < 0.05, **P < 0.001

for the psychoticism subscale (Francis et al., 1992; Katz and Francis, 2000; Lewis et al., 2002). It was therefore concluded that the low alpha score of this scale was not related to the Turkish translation, that this subscale can be problematic, and the expressions for determining psychoticism are not sufficient and do not reflect this dimension.

Based on the literature, the relationships between parental attitudes, self-esteem, and the severity of fears were examined in order to evaluate the construct validity of EPQR-A. The correlations we found between the extroversion, neuroticism, and psychoticism subscales, and parental attitudes were similar to Arrindell et al.'s (2005) findings. However, some correlations, although positive, were low (i.e. between neuroticism and father emotional warmth, and between general fear level and extraversion) due to various reasons, such as small sample size; therefore, further studies are needed to evaluate this aspect. The results indicated that the only gender difference was in the lie scale scores.

Although in other cultures it was found that women had higher scores on neuroticism and men had higher scores on psychoticism, there were no gender differences in extroversion, neuroticism, and psychoticism subscales in the present study. Absence of gender differences in the subscales supports Shevlin et al.'s (2002) findings in a Turkish population. Shevlin et al. (2002) found that gender differences in the subscales of EPGR-A are not related to biological sex, but to learned gender roles. It can be proposed that our sample of university students reflected a change in traditional gender roles and (Özkan and Lajunen, 2005) the cultural changes that took

place in recent years. Absence of gender differences in the sub dimensions, except the lie dimension, might have been the result of changes in traditional male and female roles within Turkish society. In other words, this absence might be the result of learned gender roles. Moreover, as the fact that the sample of the study was composed of young university students supports the idea that this result is related with this particular sample. It would be beneficial to determine if this difference is due to learned gender roles or to biology.

In addition, the lie scale detects the degree of honesty in answering the items in the scale. The expressions in this subscale question certain behaviors that are accepted to be wrong by the society, but can be executed by everyone from time to time and, therefore, reflect and trigger sensitivity towards social desirability. Therefore, higher scores of women in this dimension also mirror their desires to present themselves more positively. Further studies with adult samples that could reflect traditional values would be useful in explaining this finding.

Table III. Means and standard deviations of EPQR-A scores according to gender (in parenthesis).

	Women	Men
Neuroticism	3.33 (1.77) _a	3.14 (1.72) ^a
Psychoticism	1.56 (1.19) _a	1.60 (1.25) _a
Extraversion	3.60 (2.01) _a	3.55 (1.88) _a
Lie	3.27 (1.76) _a	2.67 (1.70) _b *

P < 0.001. Different letters in the same row indicate that group differences are statistically significant.

In addition to supporting the understanding that personality characteristics display similarities among cultures, this study showed that EPGF-A is a reliable and valid tool that can be used in studies on personality traits and in clinical applications.

The fact that the sample of the study included a large

number of participants from universities in 4 different districts of Turkey supports the reliability, validity, and psychometric properties of EPQR-A. It would be beneficial to repeat the study with adult samples and examine its discriminative value with different clinical populations, and to investigate its test-retest reliability in larger samples.

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