



Psychometric properties of the European Portuguese version of the Eysenck Personality Questionnaire – Revised (EPQ-R)



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ABSTRACT

Based on the P-E-N Model, the Eysenck Personality Questionnaire – Revised (EPQ-R; S. Eysenck, H. Eysenck, & Barrett, 1985) is an internationally well-known personality assessment instrument. This questionnaire measures the three fundamental personality dimensions: Psychoticism, Extraversion, and Neuroticism (also includes a Lie/Social Desirability scale).

The aim of the present paper consists in the examination of the factorial structure of the EPQ-R in the Portuguese context and its psychometric properties (validity and reliability). Using a large sample ($N = 1689$, 16–60 years), the construct validity was examined through exploratory factor analysis (EFA) and confirmatory factor analysis (CFA), and the test reliability through internal consistency analysis and test-retest reliability (temporal stability between 4 and 8 weeks).

In general, the EPQ-R (Almiro & Simões, 2013, 2014) showed an adequate reliability and validity indices, replicating on the Portuguese context the factor structure of its original version (English). These results demonstrate that the EPQ-R conveniently measures the Neuroticism, Extraversion, and Psychoticism constructs, defined by H. Eysenck, and the adequacy of the EPQ-R to the Portuguese population as a personality assessment instrument.

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1. Introduction

According to Eysenck (1970, p.2), personality can be defined as “the more or less stable and enduring organization of a person’s character, temperament, intellect, and physique, which determines his unique adjustment to the environment”; character denotes a person’s more or less stable and enduring system of conative behaviour (will); temperament, the system of affective behaviour (emotion); intellect, the system of cognitive behaviour (intelligence); physique, the system of bodily configuration and neuro-endocrine endowment.

The Eysenck Personality Questionnaire – Revised (EPQ-R; Eysenck, Eysenck, & Barrett, 1985; European Portuguese version, Almiro & Simões, 2013, 2014) is an internationally well-known personality assessment instrument, which has been used in several application contexts (e.g., clinical, forensic, health, educational, organizational, military) (see Lynn, 1981; Nyborg, 1997). There are several psychometric studies of this instrument, which were carried out in more than thirty-four countries, including different cultures over the five continents (e.g., Europe: England, Germany, Italy, Spain; America: Brazil, Canada, United States; Asia: India, Japan; Oceania: Australia; Africa:

Egypt, Uganda) (see Barrett, Petrides, Eysenck, & Eysenck, 1998; Eysenck & Barrett, 2013; Furnham, Eysenck, & Saklofske, 2008).

The EPQ-R is a self-report questionnaire constructed to measure the three-dimensional personality taxonomy proposed by H. Eysenck in the P-E-N Model: *Psychoticism* (P), *Extraversion* (E), and *Neuroticism* (N). In the Eysenck’s perspective, these are the three fundamental personality dimensions (*Big Three*) to describe the emotional and behavioural human characteristics (character and temperament) of the most importance and they are assessed through the four scales of EPQ-R: P, E, N scales, and additionally the L scale to measure the Lie/Social Desirability construct, which constitutes a validity scale (Eysenck, 1998; Eysenck & Eysenck, 2008; Furnham et al., 2008).

The N dimension assesses the continuum between two idealized extremes: on one hand, the neurotic or emotional unstable personality, and on the other hand, the emotional stable personality. The typical neurotic subject is anxious, depressed, emotional, tense, shy, moody, worried, is likely to sleep bad, has guilty feelings, has low self-esteem, suffers from various psychosomatic disorders, and reacts too strongly to all sorts of stimuli. The typical stable subject has the opposite traits and he is calm, controlled, steadfast, easygoing, and even-tempered.

The E dimension also measures a continuum between two extremes: the extrovert personality and the introvert personality. The typical extrovert is sociable, lively, active, talkative, assertive, dominant, surging, outgoing, carefree, optimistic, venturesome, sensation-seeker, likes changes,

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has a ready answer, takes chances and acts in the spur of the moment. The typical introvert has the opposite traits and he is unsociable, quiet, introspective, passive, thoughtful, reserved, pessimistic, sober, reliable, and peaceful.

The P dimension, like the others, measures a continuum between two extremes: the Psychoticism (tough-mindedness) and the adjusted personality (impulse control). The subject with high Psychoticism is aggressive, impulsive, cold, impersonal, insensitive, egocentric, solitary, suspicious, antisocial, non-empathic, tough-minded, troublesome, creative, he is hostile even to loved ones, likes to make fools of other people and to upset them, has a liking for odd and unusual things, and has a disregard for danger. These traits are the opposite of a subject who has an adjusted personality, being empathic, socialized, altruistic, tolerant, conventional, conformist, responsible, conscientious, friendly, agreeable, and warm (Eysenck, 1994, 1998; Eysenck & Eysenck, 1985; Eysenck & Eysenck, 1975).

The EPQ-R was preceded by the development of successive personality questionnaires for over the past fifty years of investigation: Maudsley Medical Questionnaire (MMQ), Maudsley Personality Inventory (MPI), Eysenck Personality Inventory (EPI), Eysenck Personality Questionnaire (EPQ), and EPQ-R (Dazzi, 2011; Eysenck & Barrett, 2013; Furnham et al., 2008). The EPQ-R is the revised version of the EPQ, which was developed to improve the psychometric limitations of P scale (low reliability and low range of scoring). Its factor structure was tested through the exploratory factor analysis (principal component analysis; varimax, promax and direct oblimin). In its original version (English), the EPQ-R has 100 items distributed in four factors: P (32 items); E (23 items); N (24 items); and L (21 items). The internal consistency is: .78 for P, .90 for E, .88 for N, and .82 for L in the male sample; .76 for P, .85 for E, .85 for N, and .79 for L in the female sample (Eysenck et al., 1985). The EPQ had 90 items (four factors): P (25 items); E (21 items); N (23 items); and L (21 items). The internal consistency was: .74 for P, .85 for E, .84 for N, and .81 for L in the male sample; .68 for P, .84 for E, .85 for N, and .79 for L in the female sample (Eysenck & Eysenck, 1975). In the European Portuguese version of the EPQ (73 items), studied in 1991, the results were quite similar (except for P scale): .75 for P, .84 for E, .81 for N, and .83 for L in the male sample; .59 for P, .84 for E, .85 for N, and .81 for L in the female sample (Fonseca, Eysenck, & Simões, 1991).

The aim of the present study is to examine the factorial structure of the EPQ-R in the Portuguese context and its psychometric properties in terms of reliability and construct validity.

2. Method

2.1. Participants

Participants are 1689 volunteers, 783 males (46.36%) and 906 females (53.64%), aged between 16 and 60 years old (age groups: 16–20, 21–30, 31–40, 41–50, 51–60), belonging to different professional categories and Portuguese regions. The mean age is 32.58 (SD = 11.66) for males and 32.13 (SD = 10.81) for females. The sample is wide and representative of the Portuguese population. It was considered the population distribution in proportion (Portugal: North, 35.76%, $n = 604$; Center, 22.02%, $n = 372$; Lisbon, 25.40%, $n = 429$; Alentejo, 8.00%, $n = 135$; Algarve, 3.97%, $n = 67$; Azores, 2.78%, $n = 47$; Madeira, 2.07%, $n = 35$) and the geographic localization (coast, 80.70%, $n = 1363$; inland, 19.30%, $n = 326$) variables, based on the data from Instituto Nacional de Estatística (2012). Participants were recruited from various community contexts (e.g., schools, companies, associations, among others), using the nonprobability sampling method (convenience sampling and in some cases using a snowball sampling strategy). Participants were asked for voluntary participation and the objectives and relevance of the present study were explained to them (no incentives were offered in exchange for participation). Then, the informed consent information was gathered. Participants were asked to answer the questionnaire

individually or in group, informing that their responses would remain anonymous and confidential.

2.2. Instrument

The European Portuguese version of the Eysenck Personality Questionnaire – Revised (EPQ-R; Almiro & Simões, 2013, 2014) is a 70 items self-report questionnaire used to assess three dimensions of personality: N (23 items); E (20 items); P (9 items); and L scale (18 items). The response to each item is “yes” or “no” (dichotomic) and the quotation for some items is inverted. The items of the EPQ-R were translated from its English (Eysenck et al., 1985), Spanish (Eysenck & Eysenck, 2008), and German (Ruch, 1999) versions to Portuguese language and then back-translated. Some items from the Portuguese version of the EPQ (Fonseca et al., 1991) were also used in the construction of the EPQ-R (Almiro & Simões, 2013, 2014).

2.3. Statistical analyses

To examine the construct validity of the European Portuguese version of the EPQ-R (Almiro & Simões, 2013, 2014), an exploratory factor analysis (EFA) followed by a confirmatory factor analysis (CFA) were performed using the SPSS (version 17.0) and the EQS (version 6.1; Bentler, 2006), respectively. The correlations between factors, the item-factor correlations, and the corrected item-factor correlations (discrimination index) were also performed (Pearson's r). The reliability of the EPQ-R was examined through the internal consistency (Cronbach's alpha) and the test–retest reliability methods for each scale (N, E, P, L) using the SPSS.

3. Results

3.1. Descriptive statistics and mean differences

Table 1 presents the mean and standard deviations obtained for each dimension of the EPQ-R for the whole sample ($N = 1689$), males ($n = 783$) and females ($n = 906$). The mean differences between males and females were examined using the independent-samples t -test.

These results showed that the means were significantly different ($p < .001$) between males and females for N [$t(1669.476) = -7.630$; $d = -0.37$], P [$t(1687) = 7.183$; $d = 0.35$], and L [$t(1635.192) = -4.782$; $d = -0.24$] scales. For E scale there were no significant differences. The corresponding Cohen's d indices showed a medium effect size for these t -values (cf. Cohen, 1988). Therefore, females tend to obtain higher scores in the N and L scales than males, and males tend to obtain higher scores in the P scale. These gender differences can be found in the original English version of the EPQ-R (Eysenck et al., 1985), and in the European Portuguese version of the EPQ (Fonseca et al., 1991).

Table 1
Means, standard deviations, and differences in dimensions of the EPQ-R.

		N	E	P	L
Total	M	10.44	12.61	1.01	9.68
	SD	5.53	4.43	1.31	3.72
Males	M	9.35	12.66	1.26	9.22
	SD	5.31	4.64	1.46	3.76
Females	M	11.37	12.57	0.81	10.08
	SD	5.55	4.24	1.12	3.64
t -Test	t	-7.630 ^a	0.429	7.183 ^a	-4.782 ^a
	sig.	.000	NS	.000	.000

Note. N = Neuroticism, E = Extraversion, P = Psychoticism, L = Lie/Social Desirability, M = mean, and SD = standard deviation. NS (t -test value is not significant).

^a t -Test value is significant.

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