

General Factor of Personality Questionnaire (GFPQ): Only one Factor to Understand Personality?

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This study proposes a psychometric approach to assess the General Factor of Personality (GFP) to explain the whole personality. This approach defends the existence of one basic factor that represents the overall personality. The General Factor of Personality Questionnaire (GFPQ) is presented to measure the basic, combined trait of the complete personality. The questionnaire includes 20 items and is constituted by two scales with 10 items each one: the Extraversion Scale (ES) and the Introversión Scale (IS). The GFPQ shows adequate internal consistency and construct validity, while the relationships with the personality factors of other models and with psychopathology are as expected. It correlates positively and significantly with Extraversion (E) and Psychoticism (P), and negatively with Neuroticism (N) of Eysenck's EPQ (Eysenck Personality Questionnaire); it correlates positively and significantly with the Sensation Seeking Scaled (SSS) of Zuckerman, and is inside the expected direction with Sensitivity to Reward (SR) and Sensitivity to Punishment (SP) of the Sensitivity to Punishment and Sensitivity to Reward Questionnaire (SPSRQ), which represent the approach and avoidance trends of behavior, respectively. It not only relates negatively with the personality disorders of the anxiety spectrum, but also with the emotional disorders in relation to anxiety and depression, and it relates positively with the antisocial personality disorder.

Keywords: general factor of personality, unique trait, personality traits, assessment, introversion, extraversion.

El presente estudio propone una aproximación psicométrica a la evaluación del Factor General de Personalidad (FGP) para explicar la personalidad completa. Esta aproximación defiende la existencia de un factor básico que representa la personalidad general. El Cuestionario del Factor General de Personalidad (CFGFP) se presenta como herramienta para medir este rasgo básico combinado de la personalidad global. El cuestionario incluye 20 ítems y está constituido por dos escalas con 10 ítems cada una: la Escala de Extraversión (EE) y la Escala de Introversión (EI). El CFGFP muestra una consistencia interna adecuada y validez de constructo, mientras que sus relaciones con los factores de personalidad de otros modelos y con la psicopatología son las que se esperan. Correlaciona positiva y significativamente con Extraversión (E) y con Psicoticismo (P) y negativamente con Neuroticismo (N) del Cuestionario de Personalidad de Eysenck (CPE); correlaciona positiva y significativamente con la Escala de Búsqueda de Sensaciones (EBS) de Zuckerman y se encuentra en la dirección esperada en su relación con Sensibilización al Refuerzo (SR) y Sensibilización al Castigo (SC) del Cuestionario de Sensibilización al Castigo y Sensibilización al Refuerzo (CSCSR), los cuales representan respectivamente las tendencias conductuales de aproximación y evitación. No solo se relaciona negativamente con los trastornos de personalidad del espectro de ansiedad sino también con los trastornos emocionales que tienen relación con la ansiedad y la depresión y, se relaciona positivamente con el trastorno antisocial de la personalidad.

Palabras clave: Factor general de personalidad, rasgo único, rasgos de personalidad, evaluación, introversión, extraversión.

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Throughout the 20th century, a series of factorial-biological theories on personality have been proposed, but no consensus has been reached with respect to the type and number of both the traits that make up the complete structure of personality and their biological substratum. Models with 16, 7, 5, 3 and 2 personality traits have been proposed, among others (for a review, see Larsen & Buss, 2005; Liebert & Liebert, 1999).

In the studies of Zuckerman, Khulman & Camac (1988) and Zuckerman, Khulman, Thornquist & Kiers (1991), different factorial solutions were obtained from a large amount of personality scales. The solutions with 5 and 3 personality factors were considered equally satisfactory.

In this sense, it is worth highlighting the combination of Agreeableness and Conscientiousness of the Big Five model (Costa & McCrae, 1992) which contributes to the negative pole of Eysenck's Psychoticism factor (Eysenck, 1991; 1992, a, b; Markon, Krueger & Watson, 2005). Eysenck does not consider O (Openness to experience) in his model.

Therefore, we can consider the Eysencks' model with 3 basic personality factors to be acceptable as a starting point.

Nonetheless, can we consider 3 personality traits to be the minimum number needed to describe the basic personality?

Many theories about personality maintain that the Big Five and the Big Three Models are not comprehensive, and that two higher-order factors exist (the Big Two). Some examples of such are:

1. Two temperaments (Elliot & Thrash, 2002). Approach and avoidance temperaments represent the foundation of several basic dimensions. Through a factor analysis the following finding was obtained: the measures of extraversion, positive emotionality, and behavioral activation system weighted up together on 1 factor (Approach Temperament) and, the measures of neuroticism, negative emotionality, and behavioral inhibition system weighted up on factor 2 (Avoidance Temperament) (Elliot & Thrash, 2002, p. 804). Approach and avoidance temperaments may be seen as extensions of the specific *BAS* (Behavioral Activation System) and *BIS* (Behavioral Inhibition System) constructs posited by Gray (Elliot & Thrash, 2002, p. 806).
2. Approach and Avoidance, based on Gray's model (Carver, Sutton & Scheier, 2000). Following these authors, two broad self-regulatory systems underlying both action and affect exist: one system aimed at approach and the other aimed at avoidance or withdrawal.
3. Mental health and behavior control (Becker, 1999). Mental Health is defined as the ability to cope with external and internal demands. It correlates positively and significantly with Extraversion and negatively and significantly with Neuroticism. Behavior Control is characterized by self-control (norm, work and reason orientation and orderliness) vs. spontaneity (hedonism, excitement seeking and feeling orientation and liveliness). It correlates positively and significantly with Conscientiousness and negatively and significantly with Extraversion and Openness to Experience.
4. Alpha and Beta Factors (Digman, 1997). He performed a meta-analysis of the Big Five-factor correlations from 14 studies and found two higher order factors: Alpha (Agreeableness, Conscientiousness, and Emotional Stability) associated with socialisation processes, and Beta (Extraversion and Openness) associated with personal growth.
5. Impulsivity and Withdrawal (Blackburn, Renwick, Donnelly & Logan, 2004). These authors found good support for the Big-Two model. A confirmatory factor analysis indicated that the Impulsivity and Withdrawal factor scales of the Antisocial Personality Questionnaire (*APQ*) provide reasonable markers of the *NEO* Five Factor Inventory (*NEO-FFI*) latent factors. The Impulsivity and Withdrawal dimensions reflect basic motivational concerns about power, status, and intimacy. Blackburn, Logan and Renwick (2005) also generated Digman's dimensions, viewing them from their negative poles, and labelling them as "anxious-inhibited" or affiliation, and "acting out" or dominance.
6. Extraversion and Neuroticism as the higher factors of *MMPI* (Kassebaum, Couch & Slater, 1959). They found two primary factors very similar to Eysenck's *N* and *E*. But they also found that *P* scale loaded .71 on the *N* factor.
7. Stability and Plasticity (DeYoung, Peterson & Higgins, 2001). These authors replicated Digman's two factor solution of the Big-Five model, and proposed a Big Two model. They obtained two factors: Stability (Agreeableness, Conscientiousness, and Emotional Stability) and Plasticity (Extraversion and Openness). These authors opine, contrary to Digman, that the Big Two represent very basic tendencies, not only socialisation processes and personal growth.
8. Gray (1987) also reformulated his initial theory to indicate that both *E* and *P* constitute the *BAS* (Behavioral Activation System). Torrubia, Ávila, Moltó & Caseras (2001) obtained a moderate correlation between *P* and the *BAS*. Quilty & Oakman (2004) found that global impulsivity

measures were related to *BAS*. *P* negatively correlated with *BIS*, but positively with *BAS* (Jorm, Christensen, Henderson, Jacomb, Korten et al., 1999).

What are the proposed relationships among the Big Two, the Big Three and the Big Five?

Some authors found a positive association between *BIS* (Behavioral Inhibition System) and *N* (Neuroticism) and between *E* (Extraversion) and *BAS* (Behavioral Activation System) from Eysenck's system (Carver & White, 1994; Heubeck, Wilkinson & Cologon, 1988; Jorm et al., 1999; Zelenski & Larsen, 1999).

Also, Smits & Boeck (2006) found that Extraversion was positively related to *BAS* and that it was also negatively related to *BIS*. Similar relationships were obtained by several authors (Heubeck et al., 1998; Jackson & Smillie, 2004; Jorm et al., 1999).

Moreover, Smits & Boeck (2006) found that Neuroticism was positively related to *BIS*. These authors explained that *BIS* reflects emotional instability, a reaction towards events that occurred or are expected, and it depends strongly on external and, therefore, varying circumstances.

Smits & Boeck (2006) found that Agreeableness was positively related to *BIS* and negatively related to *BAS*. Conscientiousness was negatively related to the *BASF* subscale (fun seeking scale), and that the *BASF* is highly related to impulsivity (Zelenski & Larsen (1999).

Is the Big Two model orthogonal?

Agreeableness, Conscientiousness and Emotional Stability can be grouped in Alfa (Digman, 1997), in Stability (DeYoung et al., 2001) or in *BIS* (Smits and Boeck, 2006) factors. Extraversion and Openness can be grouped in Beta, Plasticity or *BAS* factors. One is related to Positive Emotionality while the other relates to Negative Emotionality (Carver et al., 2000). These factors can be named as Approach versus Avoidance (Carver et al., 2000). They affirm that: "Two broad self-regulatory systems underlying both action and affect exist: one system aimed at approach and the other aimed at avoidance or withdrawal" (Carver et al., 2000, p.746). It is also possible to name these factors as Extraversion versus Neuroticism (Kassebaum et al., 1959).

It is held that the two factors are orthogonal, although a factorial analysis may lead to a statistical and, therefore, descriptive model as opposed to a possible causal or dynamic model. There is considerable scientific evidence about the non-orthogonality of the referred two big factors, as it is stated in the following.

Furthermore, the correlation studies on these two dimensions are not conclusive. Some examples are:

1. *BIS* negatively and significantly relates to *E* ($r = -.46, p < .001$), but positively relates to *N* ($r = .56, p < .001$) (Caseras, Ávila & Torrubia, 2003).
2. Withdrawal relates negatively and significantly with *E* ($r = .61, p < .001$), and positively with *N* ($r = .64, p < .001$) (Blackburn, Logan & Renwick, 2005).
3. Moderate but significantly negative correlations were observed between *E* and *N* for both females (-.022) and males (-.35), and a small but significant positive correlation was noted between *E* and *P* (.16) (Buckingham, Charles & Beh, 2001).
4. DeYoung et al. (2001) obtained a significant positive correlation between the Big Two (ranging from .18 to .28 for the respective samples) in spite of the use of varimax rotation in the statistical analysis.
5. When the oblique rotation method is used, higher correlations are obtained between both big factors, ranging from .20 to .48 for different samples and personality measures (Musek, 2006).

When experimental manipulation is introduced, a dynamic relationship between these two factors is observed. For example, in a rapid visual information processing task, caffeine administration induced arousal, which increases the likelihood of an emission of an impulsive response in vulnerable individuals (Anx-/Imp+). There is an antagonistic effect of *BAS* on behavioral inhibition (Corr, 2001). This author proposes the joint subsystems hypothesis in contrast to the conventional separable subsystems hypothesis of the independent effects of the *BIS* and *BAS*.

Eysenck & Eysenck (1985) suggest that the negative correlation may be due to an underlying relationship between the two super-factors ("partial independence"). For individuals high on *N*, *E* and *N* are related in such a way that there are likely to be more low-*E* individuals than high-*E* ones. For individuals low on *N*, the two dimensions are independent. Autonomic activation (*N*) can also lead to cortical arousal (*E*). Only "when strong emotions are involved frequently for long periods do activation and arousal tend to become synonymous" (p. 233).

As Becker (1999) said in relation to the Big Five, a significant intercorrelation between personality variables does not suggest the highest level of description, rather the need for some higher-order constructs.

Three decades ago, Rushton conjectured that "one basic dimension -*K*- underlies much of the field of personality" (1985, p. 445). But only recently this proposal has been seriously considered. As Musek claimed: "the single factor position is virtually non-existent in hierarchical structural models of personality" (2007, p. 1214). He talks about "the single general factor hypothesis" (p. 1216) and proposes

a general factor of personality (The Big One) within the five-factor model which occupies the apex or the hierarchy of personality. Also, Saucier and Goldberg (2003), in the context lexical model, proposed the existence of a single common factor underlying the Big Five. The authors interpreted this factor as the Evaluation factor, expressing socially desirable versus undesirable personality.

Several studies tested the hypothesis of the general factor of personality (*GFP*) using structural equation model from personality scales battery (Rushton & Irwing, 2008; Musek, 2007; Rushton, Bons & Hur, 2008). Recently, a *GFP* has been extracted from many personality scales, inventories and questionnaires, such as the Comrey Personality Scales, the Minnesota Multiphasic Personality Inventory-2, the Multicultural Personality Questionnaire (Rushton & Irwing, 2009a), the 16 sets of the Big Five, the Guilford-Zimmerman Temperament Survey, the California Psychological Inventory, the Temperament and Character Inventory (Rushton & Irwing, 2009b), the Multidimensional Personality Questionnaire (Rushton & Irwing, 2009c), the self-, teacher-, and parent ratings on the Big Five Questionnaire and Cloninger's Temperament and Character Inventory from multitrait-multimethod data and cross-national twins (Rushton et al., 2009), the *HEXACO* model (Veselka et al., 2009a). The *GFP* is related with trait emotional intelligence (Veselka et al., 2009a; Veselka, Schermer, Petrides, Cherkas & Vernon, 2009b), mental toughness (Veselka et al., 2009b), general intelligence and social desirability (Schermer & Vernon, 2010) and self-esteem (Erdle, Irwing, Rushton & Park, 2010).

Also has been proposed a psychometric approach to assess the general factor of personality from Life History Theory, obtaining the *K*-Factor (Bogaert and Rushton, 1989; Figueredo et al., 2006). Twenty scales measuring dimensions related to life history strategy were constructed from *MIDUS* survey data (Brim et al., 2000). Three factors were constructed: 1) the *K*-factor, measuring personal, familiar and social functioning; 2) Covitality, measuring physical and mental health, and 3) Personality, constructed from scales for the "Big Five" factors of personality (Figueredo, Vásquez, Brumbach & Schneider, 2007). *K*-factor, covitality and general personality factor correlated significantly with each other. All of the reliable variance among them was explained by a single higher-order factor called the "Super-*K*". The genetic covariance between the three factors belongs to the nonadditive variety, which suggests that the three factors coevolved and are mutually coadapted through directional selection (Figueredo & Rushton, 2009). The Mini-*K* is a 20-item short-form measure of the *K*-Factor (Figueredo et al., 2006). These measures of *GFP* are included in a general measure of life history strategies, and they are constructed from the *MIDUS*'scales. Nevertheless, a questionnaire elaborated and validated to measure specifically the General Factor of Personality has not been created up to

day. The main objective of this study is to introduce such a questionnaire.

Moreover, the instrument proposed here is based on a psychobiological theory of personality. Amigó proposed the existence of a single basic trait in the vertex of a hierarchy of personality traits in his Unique Trait Personality Theory (Amigó, 2005; Amigó et al., 2008, Caselles et al. in press). This theory differs from the theories cited up. The explanatory theories about the general factor of personality identify a single common factor, the *K*-Factor, which underlies a variety of life-history parameters like an assortment of sexual, reproductive, parental, familiar and social behaviors (Rushton, 1990; Figueredo et al., 2006). In a different sense, the principal objective of the Unique Personality Trait Theory is to find the most basic mechanism of organism behavior, the simplest mechanism: the reactivity to external stimuli. In this theory, people are situated around a continuum with respect to the strength and direction of the reactivity to the stimuli, considering the quality of the stimuli. So, people situated in the left extreme pole (extraverted) react rapidly and strongly to the appetitive stimuli, with approximation behavior. People situated in the right extreme pole (introverted) react rapidly and strongly to the aversive stimuli with avoidance behavior. This theory proposes that this basic mechanism of reactivity explains all the behavior complexity, the whole personality and disorders.

Nonetheless, it is necessary to have a specific instrument available to assess the unique personality trait, and the study of its functional relationships with the other traits proposed in the different personality models cited herein. Indeed, this is the essential objective of this study. This super-factor has received different names: single general factor, Big One, general common factor, unique trait, extraversion, or general factor of personality. This last name is the most accepted one at present. So, it is appropriate to name this instrument as General Factor of Personality Questionnaire.

Materials and Methods

Subjects

A total of 251 participants (90 males and 161 females) were included. These participants were selected from the students and staff at Universities of Valencia (50.6%) and valencian professionals of several types (49.4%). The mean age was 32.13 ($SD = 13.98$) of ages ranging from 17 to 74 years.

Instruments

1. *EPQ-RS* (Eysenck & Eysenck, 1985). The *EPQ-RS* is a 48 yes-no response item questionnaire containing four subscales, each one consists of

- 12 items including: Extraversion, Neuroticism, Psychoticism and Lie.
2. International Personality Disorders Examination (*IPDE*) (Loranger et al., 1994). It is a 77 yes-no response item questionnaire containing 10 subscales, each one consists of 10 items, referred to personality disorders: Paranoid, Schizoid, Schizotypal, Antisocial, Borderline, Histrionic, Narcissistic, Avoidant, Dependent and Obsessive-compulsive.
 3. The Sensitivity to Punishment and Sensitivity to Reward Questionnaire (*SPSRQ*) (Torrubia et al., 2001). The *SPSRQ-RS* is a 48 yes-no responses item questionnaire containing two subscales: Sensitivity to Punishment (*SP*, with 24 items) and Sensitivity to Reward (*SR*, with 24 items).
 4. Sensation Seeking V Form Scale (*SSS*; Zuckerman, Eysenck & Eysenck, 1978). The *SSS* is a 48 yes-no response item questionnaire containing four subscales, each one consists of 10 items: Thrill and Adventure Seeking (*TAS*), Experience Seeking (*ES*), Disinhibition (*DIS*) and Boredom Susceptibility (*BS*).
 5. The Berkeley Personality Profile (*BPP*; Harary & Donahue, 1994). The *BPP* is a 35 Likert response item questionnaire containing five subscales each one consists of 7 items. These scales measure five personality styles: Expressive, Interpersonal, Work, Emotional and Intellectual. These personality styles are related with five dimensions of personality that have come up repeatedly in the Big Five studies.
 6. Scales of Anxiety, Depression and Hostility of the *SCL-90-R* (Derogatis, 1994). The *SCL-90-R* is a 90 Likert response item (5-points rating scale) containing 9 symptom scales and 3 global indices that evaluate a broad range of psychological problems and symptoms of psychopathology. Three symptom scales are selected: Anxiety, Depression and Hostility.
 7. General Factor of Personality Questionnaire (*GFPQ*). This is the questionnaire presented in this study. The corresponding description is presented in the following.

With questionnaires 1, 2 and 4, versions that had been specially adapted in Spain were used (Ortet, Ibáñez, Moro, & Silva, 1997; López-Ibor, Pérez, & Rubio, 1996; Pérez & Torrubia, 1986, respectively).

Questionnaire 7 initially comprised 40 items, which had been provisionally selected by experts who had attempted to measure the unique personality trait. After calculating the item-scale correlations, 20 items with high correlations were selected. These 20 items make up the *GFPQ* (General Factor of Personality Questionnaire) which will be analyzed in the sections that follow.

Procedure

The questionnaire battery was delivered either on hands or sent by e-mail to persons belonging to different cultural and professional fields of the city of Valencia (Spain). The battery was preceded by a set of written instructions about how to fill it out. Participants were not paid for their collaboration but a latter conference about some personal reports was offered to those interested in it. All participants were identified with a pseudonym in order to assure confidentiality.

Results

The tool *SPSS 16.0* (*SPSS* Inc, 2007) was used for the statistical analyses. Bivariate and multivariate analyses were performed with the studied variables. The corresponding results are presented in the following.

The reliability and construct viability of the GFPQ

The *GFPQ* is a 20 Likert response item questionnaire (the items are described in Table 1), containing two scales with 10 items each: 1) the Extraversion Scale (*ES*) and the Introversion Scale (*IS*). This questionnaire attempts to measure the unique personality trait.

The format of a five-level likert item is:

1. Strongly disagree.
2. Disagree.
3. Neither agree nor disagree.
4. Agree.
5. Strongly agree.

In order to compute the total scoring, it is necessary to reverse the scores of the items of the Introversion Scale (items from 11 to 20).

The internal consistency of the *GFPQ* is acceptable ($\alpha = .74$). For the two separate scales, the internal consistency index is higher ($\alpha = .78$ for both the *ES* and the *IS*).

A factor analysis was proposed. The initial results indicate that the conditions to do the factorial analysis are adequate, with a Kaiser-Meyer-Olkin Measure of Sampling of .801, and a significantly Bartlett's Test of Sphericity ($p < .001$).

A factor analysis was performed with:

- An extraction method: Principal Component Analysis.
- A rotation method: Oblimin with Kaiser Normalization ($\delta = .8$).

A sub-extraction was performed, looking for two principal factors: Extraversion and Introversion. Both these components explained a similar percentage of variance (18.81% the first and the 17.62% the second). The total variance explained by both components is 36.43%.

The Structure Matrix (with the items from the two scales) is presented in Table 1.

TABLE 1

Structure Matrix of the GFPQ's items (ES: items from 1 to 10; IS: items from 11 to 20)

	Component	
	1	2
1. I like speed	-.26	.57
2. I like listening to music with the volume full up	.01	.46
3. I like trying drugs and feeling "high"	-.04	.51
4. I like activities involving risks, even if they are dangerous	-.36	.70
5. I like discovering new places, different settings, changes of place	-.27	.51
6. I enjoy myself and I find it easy to "pull" and to sexually seduce	-.15	.48
7. I very much enjoy going on adventures without planning anything	-.27	.56
8. I like getting out of control and being a brute	-.05	.58
9. I like places that are bustling, with a lot of atmosphere	-.12	.61
10. I am always on the look out for new, exciting experiences	-.09	.65
11. I worry about everything easily	.65	-.23
12. I frequently seek others' protection	.61	-.01
13. I often feel startled and afraid	.65	-.07
14. I am a sickly person with frequent body symptoms (headaches, rapid heartbeat, etc.)	.45	-.05
15. I am shy	.37	-.28
16. Normally, worries disturb my sleep	.54	-.15
17. I am afraid of making a fool of myself	.65	-.27
18. I take a long time to get over the "hard times" in life	.56	-.14
19. I'm a apprehensive person with all kinds of fears	.62	-.11
20. I don't like changes in my life as they make me feel insecure	.45	-.25

TABLE 2

Main descriptive statistics and age and sex comparisons (Student t-tests)

	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>Sig.</i>
Sex					
Males	90	63.34	9.54	3.60	.000
Females	161	58.63	10.08		
Age					
> 30	114	57.95	9.02	-3.27	.001
< 30	137	62.19	10.07		

The correlation of the components (-.53) shows an overlap of the items of both scales, and a negative correlation between them is noted.

The criterion to choose a method using oblique rotation was theoretical. After a revision of the literature and given the dimensional proposition of the unique trait, it was considered that the two poles of the continuum would correspond with two factors being non-orthogonal and interrelated. Consequently a high delta (.8) was used. The correlation matrix of the two factors reveals a negative relation (-.53) as indicated upwards.

GFPQ, sex and age

Significant differences are seen in the *GFPQ* scores according to age and sex. To calculate the statistical differences in the relationship in connection with age, two age groups have been considered with a cut-off point at 30 years of age. The results are shown in Table 2.

GFPQ and basic personality traits

Firstly, we are interested in founding the relationship between the unique trait and the traits of the Big Five model. A regression analysis was performed with *GFPQ* as a dependent variable and the five factors as independent variables. The principal results are shown in the Table 3.

All the big five factors enter significantly in the regression equation. All these factors predict the unique trait.

It is possible that a second-order factor underlying the big five exists. A factor analysis is performed. The extraction method is Principal Component Analysis and a Varimax rotation.

One single component is extracted, as shown in Table 4. This component explains a percentage of variance of 34.78%. All saturations are the same or up to .50. The saturation of Neuroticism is negative. We elaborate a integrate score of the five factors. This variable correlate positive and significantly with *GFPQ* ($r = .44; p < .001$).

Table 5 shows an intercorrelations matrix between the *GFPQ* and the personality traits of the *EPQ*, the *SPSRQ* and the Sensation Seeking Scale. The *SPSRQ* is composed of two scales: *SP* (Sensitivity to Punishment) and *SR* (Sensitivity to Reward).

These results prove interesting. First of all, we observe that the only significant relationship is that between the *EPQ* traits obtained for *E* and *N* ($r = -.15; p < .05$), and that it presents a low correlation. With regard to the relationships between the *EPQ* and the *SPSRQ* factors, we observe that *N* positively and significantly correlates with *SR* and *SP*. For *E*, the relationship with *SR* is positive ($r = .24; p < .01$), but it is negative with *SP* ($r = -.36; p < .01$).

The relationships of the *SSS* with both the *EPQ* and *SPSRQ* were as expected. Sensation seeking relates positively and significantly with *E* and *P*, while it does not correlate with *N*. On the other hand, sensation seeking correlates positively and significantly with *SR*, but does not correlate with *SP*.

In relation to the *UPTQ*, the relationships with the rest of the personality dimensions were as expected. So in relation with the *EPQ*, it positively and significantly correlates with *E* and *P* ($r = .35$ and $r = .19$, respectively, with $p < .01$), but correlates negatively with *N* ($r = -.42; p < .01$). However, the *GFPQ* correlates positively and significantly with *SR* ($r = .23; < .01$), but negatively with *SP* ($r = -.58; p < .01$). Finally, the relationship with sensation seeking is positive and significant ($r = .58; p < .01$).

GFPQ and psychopathology

The relationships between the *GFPQ* and personality disorders (measured with the *IPDE*), and with the *SCL-90* negative emotion scales (anxiety, depression and hostility), were also in the expected direction.

Table 3
Regression analysis
Dependent variable: *GFPQ*. Predictors: The Big Five

Variables	Beta	t	Sig.
Constant		11.79	.000
Extraversion	.37	7.19	.000
Neuroticism	-.47	-8.91	.000
Agreeableness	-.15	-2.85	.005
Conscientiousness	-.14	-2.82	.005
Openness	.16	3.09	.002

ANOVA: $F = 32.28 (p < .001)$. Adjusted R Square: .38

Table 4
Factor Analysis of the Big Five factors

	Component
Extraversion	.56
Neuroticism	-.63
Agreeableness	.68
Conscientiousness	.50
Openness	.54

Table 5

Intercorrelations between the General Factor of Personality Questionnaire (GFPQ), the Sensitivity to Punishment and Sensitivity to Reward Questionnaire (SPSRQ), the Eysenck Personality Questionnaire (EPQ) and the Sensation Seeking Scale (SSS)

	GFPQ	SSS	E	N	P	SR
SSS	.58**					
E	.35**	.18*				
N	-.42**	.06	-.15*			
P	.19**	.30**	-.05	.05		
SR	.23**	.44**	.24**	.21**	.09	
SP	-.58**	-.08	-.36**	.53**	-.06	.10

E, Extraversion; N, Neuroticism; P, Psychoticism; SR, Sensitivity to Reward;

SP, Sensitivity to Punishment.

** . Correlation is significant at the .01 level (2-tailed)

* . Correlation is significant at the .05 level (2-tailed)

Table 6

Intercorrelations between the GFPQ, Anxiety, Depression and Hostility. Scales of SCL-90-R

	GFPQ	Anxiety	Depression
Anxiety	-.28**		
Depression	-.34**	.73**	
Hostility	-.10	.56**	.59**

** . Correlation is significant at the .01 level (2-tailed)

* . Correlation is significant at the .05 level (2-tailed)

Table 7

Initial Cluster Centres

	Cluster	
	1	2
E	0	12
N	10	0
P	2	8

Table 8

Final Cluster Centres

	Cluster	
	1	2
E	7	9
N	8	2
P	3	3

Therefore regarding the relationship between the unique personality trait and personality disorders, a positive and significant correlation was obtained between the unique trait and the antisocial personality disorder ($r = .20; p < .01$), while a negative and significant correlation was obtained with the anxiety spectrum disorders: obsessive-compulsive ($r = -.34; p < .01$), dependence ($r = -.34; p < .01$) and avoidance ($r = -.39; p < .01$).

On the other hand, a negative and significant correlation was obtained for four serious personality disorders: schizoid ($r = -.24; p < .01$), schizotypic ($r = -.26; p < .01$), paranoid ($r = -.14; p < .05$) and borderline ($r = -.17; p < .01$).

As for the relationship between the unique trait and emotional disorders, Table 6 presents the intercorrelations matrix.

Positive and significant correlation is noted among the three scales of negative emotions. On the other hand, a relationship is also observed between the unique trait and two scales of negative emotions. The two relationships relate negatively and significantly with anxiety ($r = -.28; p < .01$) and depression ($r = -.34; p < .01$).

Cluster Analysis

A cluster analysis was done based on the EPQ factors. Two clusters were obtained in order to classify the sample subjects. The results are presented in Tables 7 and 8.

The initial clusters correspond to the combination of extreme scores. We can consider these scores as the extreme poles of the unique personality trait, which fluctuate between neurotic introversion with some aspects of psychoticism and stable extraversion with a high level of psychoticism.

All the subjects have been classified around the final cluster centers. We can see that psychoticism is no longer

relevant as a classification criterion, whereas Cluster 1 corresponds to neurotic introversion and Cluster 2 corresponds to stable extraversion.

This classification represents the two poles of the unique personality trait. If we assign each subject a category, we are able to obtain their relationship with the unique personality trait. Therefore, the relationship between the clusters and the unique personality trait is positive and significant ($r = .41$; $p < .01$). We also obtain a significant difference of means from the unique personality trait for the two groups of subjects corresponding to each cluster ($= -8.47$; $p < .001$).

Discussion

The results of this study support the existence of a general factor of personality (*GFP*), and one that is sufficient to describe the complete personality. This trait is represented by a continuum whose poles are introversion and extraversion. The construct Extraversion/Introversion is understood in a wider sense than the commonly accepted one, because it is considered as a bipolar dimension that measures the organism's relationship with its environment. Thus, the left pole corresponds to stimuli-seeking and approach behavior (Extraversion) and the right pole corresponds to stimuli-avoidance and stress behavior (Introversion). Besides, this trait is situated on the top of a hierarchical diagram of the personality structure.

We have constructed the General Factor of Personality Questionnaire (*GFPQ*) with 20 items composed of two scales with 10 items each. The scales are interrelated, just as the correlation indicates ($-.531$), with the two compounds obtained in the factorial analysis and with oblique rotation. The internal consistency index is acceptable for the questionnaire, and this also reinforces the consideration of the general factor of personality as a unit construct.

We consider that the general factor of personality is the genuine basic trait of personality which combines the other traits. This is verified by observing the structure of the relationships obtained by checking the general factor against the models with 5 traits (Costa & McCrae, 1992; Harary & Donahue, 1994), with 3 traits (the *EPQ*; Eysenck & Eysenck, 1985) and with 2 (the *SPSRQ*; Torrubia et al., 2001).

So the *GFP* is related significantly with all the big five factors: positively with Extraversion and Openness, and negatively with Neuroticism, Agreeableness and Conscientiousness. This result is different of the one obtained in other studies that propose a general factor of personality in the five-factor model (Figueredo et al., 2006; Musek, 2007; Rushton, Bons and Hur, 2008). This discrepancy will be discussed below. Also, the *GFP* correlates positively and significantly with the "Approach" dimensions, such as *E* (Extraversion) and *P*

(Psychoticism) of the *EPQ*, and *SR* (Sensitivity to Reward) of the *SPSRQ*. Conversely, the *GFP* correlates negatively and significantly with the "Avoidance" or "Inhibition" dimensions, such as *N* (Neuroticism) of the *EPQ* and *SP* (Sensitivity to Punishment) of the *SPSRQ*. Besides, the *GFP* also correlates positively and significantly with the sensation seeking of the *SSS*, as expected, which is considered an "Approach" dimension.

On the other hand, the *GFP* is a predictor of psychopathology. In principle, it is stressed that it correlates negatively and significantly with the personality disorders of the anxiety spectrum, such as the obsessive-compulsive disorder, the dependent disorder and the avoidance disorder. It also correlates negatively and significantly with emotional disorders in relation to anxiety and depression.

Furthermore, it is negatively and significantly related with serious personality disorders such as schizoid and schizotypal disorders. Therefore, a high score in the *GFP* represents an element of "protection" in relation to psychopathology, although it is positively related with the antisocial personality disorder, which is an extreme aspect of the "Approach" dimension. This correlation is not obtained in other studies (Rushton & Irwing, 2009d).

Rushton et al. (2008, 2009) consider as well defined the positive and negative poles of the *GFP*. Individuals high on the *GFP* possess more cooperative and pro-social personalities, and they have been characterized as altruistic, intellectually open, conscientious, outgoing, agreeable, extraverted, emotionally stable, intelligent and leaders, with high levels of well-being, satisfaction with life, self-esteem and emotional intelligence. So, the *GFP* would result from natural selection for socially desirable behavior. They left more progeny than those at the negative pole, since people prefer as mates, fellow workers and leaders those who are agreeable and emotionally stable (Figueredo & Rushton, 2009). Figueredo et al. (2006) obtained significant negative correlations between Mini-*K* and measures of social deviance as delinquency, risk taking and impulsivity. Also, Mini-*K* correlated with altruism and intelligence (Rushton, Vernon & Bons, 2007). Rushton et al. (2008) predict that those with high scores on the *GFP* may have higher levels of emotional intelligence whereas those with low scores may more likely suffer from a personality disorder. Rushton and Irwing (2009a) found the emergence of a general factor of mental disorder based on the *MMPI-2*, that is negatively related with *GFP*. Also, Rushton & Irwing (2009d) extracted a General Factor of Personality from Millon Clinical Multiaxial Inventory-III, the Dimensional Assessment of Personality Pathology and the Personality Assessment Inventory. A *GFP* occupies the apex of the multifactorial hierarchy of personality disorders in the same way it has been found to do in the organization of non-clinic traits. The *GFP* accounted for high levels of variance in the three personality disorders

scales. The authors claimed that the second-order factors could be interpreted as Internalization and Externalization.

The Unique Trait Personality Theory (Amigó, 2005) does not predict that all of traits of the General Factor of Personality are “desirable”. This theory predicts that *GFP* is related with social deviance traits. In one study (Amigó et al., 2008) a proposal was made, indicating that Sensation Seeking is a good psychometric approach to one *GFP*. In this sense, it is interesting to highlight the relationships found among the *SSS*, and the Big Three and the Big Two.

The *SSS* total score strongly and positively correlated with the *BAS* in both sexes and displayed moderate negative correlations with the *BIS* (Torrubia et al., 2001). Zuckerman (1979) hypothesized that sensation seeking was related to Gray’s reward sensibility but not to punishment sensibility. It is consistent with Zuckerman’s prediction about the relationship between the *EPQ* and *SSS* scales. The *SSS* correlates positively with both *E* and *P*, but not with *N* (Zuckerman et al., 1978).

Some authors have related risk-taking behavior to underactive *BIS* (Fowles, 1987; Lykken, 1982), and have suggested a negative correlation between punishment expectancy and the *SSS* (Ball & Zuckerman, 1990). MacAndrew & Steele (1991) defined the *BIS* as a tendency towards anxiety, dread, avoidance of uncertainty and fear, and constructed a *BIS* scale which discriminated between psychiatric patients with medical histories of anxiety and panic attacks, and convict prostitutes who presented high-risk behavioral patterns in relation to sex and drugs. The *BIS* correlated positively with the Neuroticism scale and negatively with the Extraversion Scale of the *EPQ*.

These relations between “approach” traits, social deviance traits, and the *GFP* have been obtained in this study as have been described upwards.

The *GFP* may be understood to be a dimension between two extreme poles: extraversion and introversion. We can classify the subjects, with a cluster analysis, into two groups which correspond to extraversion and introversion. The two groups differ significantly with regard to the unique trait scores obtained ($t = -8.49$; $p < .001$).

However, what is the nature of the unique personality trait? The *GFPQ* is made up of two scales: the Extraversion scale (*ES*) and the Introversion scale (*IS*). The first refers to seeking stimuli, to the approach behavior. It is reflected in the items which make up the scale. Thus some items exist which refer to the intensity of the stimulus (“I like speed”, “I like listening to music with the volume full up”); some refer to the pleasure found in the variety of stimuli (“I like to discover new places, difference settings, changes of places”); to novelty seeking (“I very much enjoy going on adventures, without planning anything”, “I am always on the lookout for new, exciting experiences”); or they refer to behaviors that involve risks or excess (“I like activities involving risks, even if they are dangerous”, “I like getting out of control and being a brute”).

In relation to the Introversion Scale, it has items referring to avoidance (“I frequently seek others’ protection”); to fears (“I am shy”, “I’m a apprehensive person with all kinds of fears”); to feeling startled (“I often feel startled and afraid”); to novelty producing discomfort (“I don’t like changes in my life as they make me feel insecure”); or to a high level of stress (“I worry about everything easily”, “I am a sickly person”).

Just as we have been explaining, the *GFP* or unique personality trait therefore constitutes a dimension related to the organism’s interaction with environmental stimuli, one that ranges from the seeking behavior and the approach behavior in relation to stimuli (similar to approach dimension of Zuckerman, 1979 and Gray, 1987), to the extreme behavior of avoidance and having negative emotional reactions as a result of the environment. This is the basic dimension upon which the complete personality is built: the fundamental relationship between the organism and the environment.

As we cited above, also a psychometric approach to assess the general factor of personality has been proposed from Life History Theory, obtaining the *K-Factor* (Bogaert & Rushton, 1989; Figueredo et al. 2006). But, there are important differences between this instruments and the one presented here. This instrument has been constructed to measure the *K-Factor*. The *GFP* is assessed from scales for the “Big Five” factors of personality from *MIDUS* scales. They were not constructed as a genuine and specific instrument to measure the *GFP*. However, the underlying theory is different. These psychometric instruments are, in general, constituted by aggregated variables including a variety of life-history parameters like an assortment of sexual, reproductive, parental, familiar and social behaviors. Figueredo et al. (2006) also developed a 20-item Mini-*K* in which people respond to items as “I am often in social contact with my blood relatives”, “I am often in social contact of my friends” or “I have a close and warm relationship with my own children”. The *GFPQ*, as we have seen, uses items about its foundational theory: the basic mechanism of response to external stimuli. However, this theory can be interpreted from an integrative model of evolutionary psychology. It is possible and desirable an approach between these theories that postulated a general factor of personality.

A provisional conclusion could be that the two poles of the general factor of personality correspond to Extraversion and Neuroticism. That is because Carver et al. (2000) propose a theoretical re-conceptualization and integration to understand their two basic factors (Approach and Avoidance) in terms of Extraversion and Introversion. Nevertheless, such solution does not seem to be a good solution because starting from a three-factor theory such as that of Eysenck, Psychoticism cannot be included neither inside Extraversion nor inside

Introversion. Extraversion is related, primarily, with the positive reactivity to social stimuli (Sociability), while Psychoticism is related, primarily, with impulsivity and aggressiveness. Furthermore, Extraversion and Neuroticism are basic factors (non pathological) so in Eysenck's theory as in the theory of Costa & McCrae. The *GFP* is a bipolar dimension which the left pole is named Extraversion and the right pole is named Introversion but, in this case, Extraversion includes Sociability as well as Psychoticism and also includes pathological tendencies such as the antisocial personality disorder. That is because the sense here done to Extraversion is wider than the one given by other personality models. Besides, Introversion here includes Neuroticism as well as Anxiety, Sensitivity to Punishment and pathological tendencies such as personality disorders of fearful type.

Therefore, naming Extraversion to the *GFP*, it is possible to say that it presents two poles that could be identified with the Approach and Avoidance temperaments (Carver et al., 2000) and that integrate the different systems of action and emotion of the human being. In other words, the mentioned opposed temperaments would be, from the *GFP* perspective, two related behavior tendencies, two poles of the same dimension.

However, it is necessary to also bear in mind that this study has its considerations and limitations. Although one of the advantages of the study is to use a heterogeneous sample, which differs considerably in terms of age and profession (students and professionals), this study has been totally confined to a Spanish sample. It would be useful to extend the sample to other populations living in different geographical areas.

Besides, a unique personality trait score cannot substitute a broader description of personality. This broader description must consider the personality traits of the models with 3 or 5 factors. However, the score obtained in the *UPTQ*, along with the management of other questionnaires, will contribute to a more coherent and overall description of personality.

By way of conclusion, this study has proved encouraging in the sense that it counts on a general factor of personality which provides us with an overall vision of personality. In this sense, this study is one of the firsts of its kind (the first in Spain), to date (others are, for instance, Musek, 2007; Rushton et al., 2008; Rushton & Irwing, 2008), and one of the main results is the *GFPQ*, an instrument which constitutes a first psychometric approach to the idea of using a reliable and valid measurement of the General Factor of Personality.

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