



# Relationships among extraversion, openness to experience, and sensation seeking

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## Abstract

This study was designed to examine the relationships among Extraversion, Openness to Experience (and their facets), measured through the NEO-PI-R, and the Sensation Seeking construct and its sub-scales, measured through the Sensation Seeking Scale, form V (SSS-V). The sample comprised 1006 non-psychology undergraduates doing different degrees. In general, relationships among the SSS total scale and the four sub-scales (TAS, ES, Dis, BS) are mainly accounted for by the E5-Excitement Seeking facet of the NEO-PI-R. The other Extraversion facets as well as those of Openness, except O4-Actions, explain little variance. Taking together E5, O4 and O1, 85% of the higher and lower scorers on SSS-V are classified properly.

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## 1. Introduction

Zuckerman defined the Sensation Seeking (SS) personality trait as: “...*the need for varied, novel, and complex sensations and experiences and the willingness to take physical and social risks for the sake of such experience*” (1979; pp. 10). This trait has been related with the proneness to high stimulating activities such as adventure sports, exotic meals, intake of drugs, sex, illegal activities, and so forth. These behaviours can also be attributed to extraverted and impulsive individuals. In fact, Eysenck (1990) included SS as a primary trait inherent to Extraversion. In

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this way, Zuckerman related SS with the optimal level of stimulation and arousal theory (Zuckerman, 1969), the same biological base postulated for Extraversion by Eysenck (1967).

Previous research with samples from different countries and cultures show that SS is related with Extraversion and Psychoticism. Zuckerman, Eysenck, and Eysenck (1978) report correlations of SS with E and P of 0.25, 0.50, and 0.44, 0.40, for American males and females, respectively. Coefficients obtained in English samples were 0.32, 0.30 and 0.23, 0.34, for males and females, respectively. Coefficients found in other countries were similar. Pérez (1983) obtained correlation coefficients of 0.35, 0.38 and 0.21, 0.39. in Spain, whereas Haapasalo (1990) corroborated similar findings with E (0.31, 0.44), and P (0.46, 0.48) in Finland.

The studies mentioned above have focused on Eysenck's three-factor personality structure. Nevertheless, Sensation Seeking and its components have also been positively related with the extraversion scales measured with the Big-Five psychometric instruments (specially, NEO-PI, and NEO-PI-R), and negatively with Agreeableness (NEO-A), and Conscientiousness (NEO-C). These patterns are hardly surprising since: (a) one facet of Extraversion (Excitement-Seeking) is explicitly intended to measure the SS construct (Costa & McCrae, 1992; Costa, McCrae, & Dye, 1991), and correlations between scores on Extraversion computed on, for instance, the EPQ-R and the NEO-PI-R, indicate that the same construct is being measured (Aluja, García, & García, 2002), (b) NEO-A and NEO-C are negatively correlated with Psychoticism (Eysenck, 1992).

The Openness to Experience (NEO-O) dimension includes six facets: Fantasy, Aesthetics, Feelings, Actions, Ideas, and Values. Zuckerman (1994) remarked that five of these facets represent internal types of experience seeking, while Actions represents an external type, although all of them share an interest in diverse experiences for its own sake (McCrae, 1987). Therefore, the high correlations found between SS and NEO-O (see Zuckerman, 1994, for a revision) are unsurprising.

To interpret properly the pattern of correlations among SS, E and Openness to Experience, factor relationships between E and O should be considered. Zuckerman, Kuhlman, Joireman, Teta, and Kraft (1993) analysed NEO-PI-R, EPQ-R and ZKPQ-III-R scales together by extracting 3, 4 and 5 factors, successively. In the 3-factor model, NEO-O loaded slightly on the Extraversion factor (0.35), although in the 4-factor model it was integrated, with a negative loading, into the factor formed by the NEO-A, and the Aggressiveness-Hostility (Agg-Hos) scale of the ZKPQ-III-R. Furthermore, the 30 facets of the NEO-PI-R were used in order to extract five factors. The NEO-E facets were grouped in the Extraversion factor, while the facets of the NEO-O were encapsulated in their own factor (Openness factor). In a replication of this study carried out by Aluja et al. (2002), to which Goldberg's bipolar adjectives (1992) were added, NEO-O was clearly located in the Extraversion factor in the 3 and 4-factor models. When five factors were extracted, the NEO-O facets formed their own factor as well. In this study, secondary loadings showed that E5 and E6 were highly related with Openness. Also, O3 and, O4 facets loaded strongly on the Extraversion factor (see also, García, Aluja, & García, submitted for publication). On the other hand, Costa and McCrae (1992) report that NEO-E and NEO-O correlate 0.40 ( $n = 1000$ ). Taken together, all this set of results seem to point out that the robust relationships found between both, Extraversion and Openness, could be due to these two constructs sharing an important amount of common variance, suggesting that these two dimensions are not independent.

Given that the relationship between NEO-E and NEO-O has been well replicated, and further, that both dimensions seem to share influences over SS and their components, the aim of this

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