

Women and Vulnerability to Depression: Some Personality and Clinical Factors

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The purpose of this study is to explore the role of sex differences and personality in vulnerability to depression. Sex differences in personality and some clinical variables are described. We also assess the value of the variables that revealed significant sex differences as predictors of vulnerability to depression. In a group of adult participants ($N = 112$), 50% males and 50% females (mean age = 41.30; $SD = 15.09$; range 17- 67), we studied sex differences in the three-factor personality model, using the Eysenck Personality Questionnaire, Form A (EPQ-A; Eysenck & Eysenck, 1975), and in the Five-Factor Personality Model, with the NEO Personality Inventory (NEO-PI; Costa & McCrae, 1985). The following clinical scales were used: the Beck Depression Inventory (BDI; Beck, Rush, Shaw, & Emery, 1979), the Schizotypy Questionnaire (STQ; Claridge & Broks, 1984; Spanish version, Carrillo & Rojo, 1999), the THARL Scales (Dua, 1989, 1990; Spanish version, Dua & Carrillo, 1994) and the Adjustment Inventory (Bell, 1937; Spanish version, Cerdá, 1980). Subsequently, simple linear regression analysis, with BDI scores as criterion, were performed to estimate the value of the variables as predictors of vulnerability to depression. The results indicate that a series of personality variables cause women to be more vulnerable to depression than men and that these variables could be explained by a negative emotion main factor. Results are discussed within the framework of the psychological behaviorism theory of depression.

Keywords: depression in women, personality, vulnerability, sex differences, behaviorism theory of depression

En este trabajo se examinó el papel de las diferencias del sexo y de la personalidad en la vulnerabilidad a la depresión. Se describen las diferencias entre sexos en personalidad y en algunas variables clínicas para, posteriormente, analizar el papel de las variables que muestran diferencias estadísticamente significativas entre los sexos, como predictoras de la vulnerabilidad a la depresión. Para cumplir con este objetivo, se exploraron extensamente esas diferencias en dos grandes modelos de la personalidad y en algunas escalas clínicas. Nuestros datos se obtuvieron de un grupo de adultos ($N = 112$), 50% hombres y 50% mujeres (media de edad = 41.30; $SD = 15.09$; rango 17- 67). Se estudiaron las diferencias entre mujeres y hombres respecto al modelo de 3 factores, utilizando el *Eysenck Personality Questionnaire, Form A* (EPQ; Eysenck & Eysenck, 1975; versión española de TEA, 1986), y el modelo de 5 factores (*NEO Personality Inventory - NEO-PI*; Costa & McCrae, 1985). Se aplicaron también algunas escalas clínicas: *Depression Inventory* (BDI; Beck et al., 1979), *Schizotypy Questionnaire* (STQ; Claridge & Broks, 1984; versión española de Carrillo y Rojo, 1999), *THARL scales* (Dua, 1989, 1990; versión española de Dua y Carrillo, 1994), y *The Adjustment Inventory* (Bell, 1937; versión española: *Cuestionario de adaptación para adultos*, Cerdá, 1980). Tras estudiar las diferencias según el sexo respecto a estos factores, se estimó su valor de vulnerabilidad a la depresión mediante análisis de regresión lineal simple, siendo la escala BDI de Beck el criterio de depresión. Los resultados mostraron que existe un conjunto de variables que hacen a las mujeres más vulnerables a la depresión que a los hombres. Estas variables podrían explicarse a partir de un factor principal de emocionalidad negativa. Se discuten los resultados en el contexto de la teoría del conductismo psicológico de la depresión. *Palabras clave:* depresión en la mujer, personalidad, vulnerabilidad, diferencias según el sexo, teoría conductual de la depresión

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According to the National Institute of Mental Health (NIMH) –Bethesda, Maryland– in 1980 an average of 10.2% of the general population had depressive symptoms; of these, 70% were women and 30% were men. One in ten women can expect to suffer from serious depression in their lifetime (Kaplan 1986). In psychiatric facilities in the United States, the average, across all age groups, is 205.5 women (compared to 138 men) treated for depression per 100,000 people in the general population (Nolen-Hoeksema, 1990). Twice as many women than men present depressive symptoms (McGrath, Keita, Strickland, & Russo, 1991). The APA's latest report on women and depression (2002) states that 19 million Americans suffer from depression yearly and that women are twice as likely as men to experience a major depressive episode. Women are susceptible to suffer from depression at any age. Their depression can be linked to life events such as puberty, pregnancy, menopause, substance abuse, quality of relationships, life events, and cognitive styles. These figures might also be higher because, unfortunately, depression is under-diagnosed and under-treated by primary health care and other practitioners.

According to the 2001 World Health Organization (WHO) report, depression is the most common disease suffered by women when compared with other diseases. In the WHO's Global Burden of Disease Indexes, the point prevalence of unipolar depressive episodes is 1.9% for men and 3.2% for women; 5% of men and 9.5% of women experience a depressive episode in a 12-month period.

In Spain, Aragonès et al. (2001), conducted a study which intended to find the prevalence and characteristics of depressive disorders in patients receiving primary care. They found a 14.7% weighed prevalence for major depression and 4.6% for dysthymia, (a 19.3% prevalence for both), in a sample of 350 patients aged between 18 and 70.

Severe impairment in social and physical functioning can be derived from major depression. Depression is also a precipitating factor for suicide and has been associated with higher medical costs, more frequent care and increased morbidity and mortality (Katon & Sullivan, 1990).

Brems (1995) indicated three main groups or factors that could make women more vulnerable to depression than men: *biological*, *social*, and *psychosocial*. The *biological factors* include: genes, reproductive-related events that clearly differentiate women and men such as premenstrual syndrome, menopause, climacteric, and postpartum syndromes. The *social factors* include: socioeconomic condition, social roles and social support, as well as the effects of discrimination. Finally, *psychosocial factors* are comprised of socialization and personality development, interpersonal violence, sexual harassment, rape, spousal abuse, and a history of childhood sexual abuse. These groups could be used to outline risk factors that make women more vulnerable to depression than men.

In this study, we focused on psychological factors, and we attempted, more concretely, to detect which personality

variables make women more vulnerable to depression. Gender difference has not been thoroughly studied across personality models. We also attempted to evaluate the depression-vulnerability value of these variables. The significance of these aims is conceptualized in Staats' psychological behaviorism personality theory (PB) and in his depression theory (Staats, 1996, 2003; Staats & Heiby, 1985) which, uniquely, includes a theory of psychological tests as well as theories of psychological disorders including depression. In sum, personality is considered to consist of learned repertoires of behavior that are divided into three areas: language-cognitive, emotional-motivational, and sensory-motor. Specific responses are the basic units of behavior; traits are composed of repertoires of related responses. Although not elaborated with this purpose, psychological tests measure these basic repertoires. As examples, intelligence tests measure aspects of the language-cognitive repertoire, developmental tests measure aspects of the sensory-motor repertoire, and interest tests measure aspects of the emotional-motivational repertoire (Staats, 1996, 2003).

In Staats' theory, depression is defined in terms of the individual's emotional state, which is composed of the emotional responses, positive and negative, which the individual experiences as a result of his or her circumstances in life. The positive and negative emotional responses follow the *Principle of Additivity of Emotions* (see Staats, 1996). For instance, two individuals with the same traits may encounter different life circumstances, so that one may experience many more negative-emotion-eliciting stimuli than the other. Differences will also occur because of the way individuals have learned to respond emotionally to life stimuli. Thus, a person who has learned to respond in an emotionally negative way to more stimuli will probably experience more negative emotional responses, that is, more depression. Conversely, a person who has learned to respond in an emotionally positive way to more stimuli will experience—all things being equal—more positive emotional responses, that is, less depression. These expectations are derived from the Principle of Additivity of Emotions cited above.

The more negative the resultant sum, the more depressed the individual becomes. The *Beck Depression Inventory (BDI)* (Beck et al., 1979), has been devised to provide measures of depression.

What the individual experiences depends on the learned repertoire, the trait, as well as on the life circumstances that are encountered. With respect to the trait, there are various tests that measure the individuals' emotional-motivational repertoire, which is composed of the various life stimuli that elicit an emotional response. The NEO-PI measures aspects of the emotional-motivational personality trait. As an example, NEO-PI item 86 (Hostility facet) states, "There are people who I really hate" (English translation). This statement clearly differentiates those who have an extreme emotional response to people and those who do not. An individual with this personality trait, other things being equal, will experience

more negative emotional responses than an individual who has not learned such emotional responses.

The individual's emotional state will also be determined by the life circumstances the individual encounters. The THARL Scales (Dua, 1989, 1990) include items that measure the extent to which the individual's life circumstances have presented the individual with emotion-eliciting stimuli. For example, items ask the individual to indicate the extent to which he or she has had positive or negative emotional experiences in the past month regarding important life stimuli—such as family members, colleagues, friends, health, and his/ her economic situation.

In sum, the trait of *extensiveness of emotional responding to life stimuli*, both of a positive and negative nature, will be a determining factor in depression. Moreover, the extent to which a person experiences depression will also be a function of how many life stimuli the person encounters that elicit positive as well as negative emotional responses.

The aim of this study is twofold: first, to explore whether there is a nomological network of dimensions and specific traits in some of the main personality models and clinical variables that differentiate personality as a function of sex; and second, to examine whether these sex differences in the personality and clinical variables employed can predict depression. We hypothesize that personality tests, insofar as they measure the individual's emotional characteristics, and the individual's emotional life circumstances, will be predictive of depression. It is also hypothesized that there are sex differences with respect to both emotional personality characteristics and emotional life circumstances.

Method

Participants

A group drawn from a nonclinical population ($N = 112$), 50% males and 50% females (mean age = 41.30, $SD = 15.09$, range 17- 67; $M = 42.66$, $SD = 14.48$, range 18-66, for men, and $M = 39.95$, $SD = 15.69$, range 17-67, for women) took part in the present study. The age difference between the two groups was not statistically significant, $F(1, 110) = 0.9$, $p = .34$. Participants were recruited using a "snowball" technique, in which a group of psychology undergraduates from the Complutense University of Madrid, after being briefed, gave the test to four people from their circle of friends, with some restrictions in order to maintain a balance of sex and the age distribution. The participants obtained credits for their cooperation.

Instruments

Two types of instruments were employed in this study: broad personality dimension measures and clinical measures. To measure personality, we used the Eysenck Personality

Questionnaire, Form A (EPQ-A; Eysenck & Eysenck, 1975) and the NEO Personality Inventory (NEO-PI; Costa & McCrae, 1985). For clinical measurements, we used the Beck Depression Inventory (BDI; Beck, Rush, Shaw, & Emery, 1979), the Schizotypy Questionnaire (STQ; Claridge & Broks, 1984), the THARL Scales (Dua, 1989, 1990; Dua & Carrillo's Spanish version, 1994), and the Adjustment Inventory (Bell 1974; Cerdá's Spanish version, 1980).

Broad Personality Dimension Measures

Eysenck Personality Questionnaire, Form A (EPQ-A; Eysenck & Eysenck, 1975). This questionnaire measures three major dimensions of normal adult personality: Neuroticism, Extraversion, and Psychoticism. The Spanish version of the EPQ-A (TEA, 1986) shows adequate indexes of reliability. The internal consistency coefficients for a sample of Spanish women ($N = 595$) were: Neuroticism = .83, Extraversion = .82, Psychoticism = .70, and the Lie Scale = .77; for a sample of Spanish men ($n = 435$), they were: Neuroticism = .85, Extraversion = .82, Psychoticism = .71, and the Lie Scale = .79.

NEO Personality Inventory (NEO-PI; Costa & McCrae, 1985). This inventory provides measures of five major personality dimensions: Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness. Six 8-item facet scales measure more specific traits within each of the first three factors. Silva, Avia, Sanz, Martínez-Arias, Graña, and Sánchez-Bernardos (1994) analyzed the structure and some psychometric properties of the NEO-PI Spanish version used in this study. Internal consistency (Cronbach's α) for the five domains was as follows: Neuroticism ($\alpha = .88$), Extraversion ($\alpha = .83$), Openness to Experience ($\alpha = .86$), Agreeableness ($\alpha = .65$), and Conscientiousness ($\alpha = .83$). Avia, Sanz, Sánchez-Bernardos, Martínez-Arias, Silva, and Graña (1995) reported validity data for NEO-PI with respect to some clinical and health measures and factorial analysis. They found, as expected, that all the clinical variables they used (Beck Depression Inventory [BDI], Social Avoidance and Distress [SAD], Dysfunctional Attitudes Scale [DAS], Schizotypy Questionnaire [STQ: STB Borderline Scale and STA Schizotypy Scale]) were positively associated with the NEO-PI Neuroticism factor ($p < .001$ in all correlations). Also, consistent with their expectations, most of the clinical scales used were inversely related to the NEO-PI Extraversion factor (BDI, SAD, IAS, $p < .001$) and DAS ($p < .01$). Factorial analyses also showed that NEO-PI N and EPQ N defined a Neuroticism factor, whereas NEO-PI E and EPQ E defined an Extraversion factor. This version of the NEO-PI, then, seems to have adequate construct validity, despite problems with some facets, especially Impulsiveness, which did not correspond clearly to Neuroticism, and could also be ascribed to Extraversion. The NEO Personality Inventory (Costa & McCrae, 1985) may be considered to measure an individual's traits, in relation to emotional

experiences, in the areas of anxiety, self-consciousness, vulnerability, and hostility, and thus should be predictive of the person's susceptibility to depression.

Clinical measures

Beck Depression Inventory (BDI; Beck, Rush, Shaw, & Emery, 1979). This is a 21-item self-report scale, designed to assess the severity of depressive symptoms. This instrument is widely used and documented in literature, in samples from North America (Beck, Steer, & Garbin, 1988) and Spain (Vázquez & Sanz, 1991), and appears to be reliable and valid for assessing depression. Vázquez and Sanz (1997) reported BDI internal consistency data in a general population ($N = 445$; $\alpha = .83$). They also indicated that, in this sample, upon comparing the BDI item content with depression criteria from the *Diagnostic and Statistical Manual of Mental Disorders, 4th edition* (DSM-IV; American Psychiatric Association, 1994), the BDI also had satisfactory content validity. Vázquez and Sanz (1997) obtained a mean score of 7.53 ($SD = 6.75$, range 0-39); in our sample the mean was 7.97 ($SD = 7.84$, range 0-35).

Schizotypy Questionnaire (STQ; Claridge & Broks, 1984; Carrillo & Rojo's Spanish version, 1999). This questionnaire assesses psychotic traits in the normal population. It consists of two scales: the Schizotypal Personality Scale (STA), reflecting diagnostic criteria for schizotypal personality disorder according to the DSM-IV (American Psychiatric Association, 1994), and the Borderline Personality Scale (STB), which reflects diagnostic criteria for borderline personality disorder. The STQ appears to be a reliable and valid measure of psychotic characteristics. Jackson and Claridge (1991) established test-retest reliability for the STQ in a normal adult sample after a long span of four years. The STA and STB scales provided respective test-retest reliability coefficients of .64 and .61 ($N = 228$). Claridge and Broks (1984), in a validity analysis, reported that the STA and STB scales correlated significantly with an early form of the Eysenck P Scale that had more psychotic content than other versions. Jackson and Claridge (1991) compared STA and STB means in normal and clinical samples, and both factors significantly differentiated the two groups, the clinical scores being higher than the normal scores. In our sample, we obtained: $M = 15.03$, $SD = 6.65$, range 0-31, and $M = 5.51$, $SD = 3.76$, range 0-16, for the STA and the STB, respectively.

THARL Scales (Dua, 1989, 1990; Dua & Carrillo's Spanish version, 1994). The THARL Scales contain four subscales: positive emotions from thoughts, positive emotions from real life experiences, negative emotions (or distress) from thoughts, and negative emotions from real life experiences. The scale presents 14 items and the participants are requested to indicate, on a scale ranging from 0-100, the degree to which their thoughts or real life experiences cause positive affects and negative affects. The 14 items are: yourself, family, relatives, friends, other people you

know, strangers, colleagues, subordinates, superiors, others at work, work in general, people in general, surroundings in general, and the world in general. In preliminary studies, the four subscales of the THARL had reliability coefficients ranging from .69 to .78 (Dua, 1989). Cuadra (2003) presented very acceptable internal consistency indexes (Cronbach's α) for the four THARL scales (Spanish version, Dua, & Carrillo, 1994). For positive emotions from thoughts $\alpha = 0.82$, for positive emotions from real life experiences $\alpha = .86$, for negative emotions (or distress) from thoughts $\alpha = .92$, and for negative emotions from real life experiences $\alpha = .92$. The α consistency indexes were higher for the negative affect scales.

In validity studies using the Adjective Check-List (Mackay, Cox, Burrows, & Lazzarini, 1978) for the assessment of stress, the two THARL distress subscales correlated positively with measures of stress (Dua, 1989; Rappa, 1987). In this study, we used the Spanish version of this scale (Dua & Carrillo, 1994). In our group we obtained means of 37.21 ($SD = 17.91$, range 5.2-80.5) and 39.62 ($SD = 17.54$, range 6.4-83.) for positive emotions from thoughts and from real life experiences, respectively; and means of 24.55 ($SD = 12.86$, range 5.0- 61.7) and 26.41 ($SD = 14.74$ range 5.0-81.9) for negative emotions from thoughts and from real life experiences, respectively.

The Adjustment Inventory (Bell, 1974; Cerdá's Spanish version: *Cuestionario de Adaptación para Adultos*, 1980). This questionnaire yields five measures of adjustment in family, health, social, emotional, and professional contexts. It also provides a score of total adjustment. High scores in the adjustment scales indicate maladjustment, whereas low scores indicate healthy adjustment.

In this study we took into account only the family, health, social and emotional scales. We obtained the following data for our sample: Family Adjustment, $M = 8.05$, $SD = 5.7$, range 0-26; Health Adjustment, $M = 7.70$, $SD = 5.37$, range 0-24; Social Adjustment, $M = 11.72$, $SD = 6.71$, range 1-28; and Emotional Adjustment: $M = 11.09$, $SD = 7.11$, range 0-27.

Procedure

Participants filled in all the measurement instruments anonymously, in random order and in two sessions.

Data Analysis

Analysis of variance was used in the first step of our study to identify possible differences in personality and clinical variables as a function of sex. In order to examine whether these sex differences have depression value, we carried out simple linear regression analyses of those personality and clinical variables that revealed statistically significant sex differences. These simple linear regression analyses were done not only for our total sample, but separately for the men and women as well.

Results

First, one factor ANOVA's were carried out to examine whether there were sex differences in the following broad personality dimension measures: Neuroticism, Extraversion, and Psychoticism, as measured by the EPQ-A; Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness, as measured by the NEO-PI; and the facets from the first three NEO-PI factors. So, in these analyses, "sex" was considered to be the factor and the other measures cited above were used as dependent variables. Similar statistical analyses were carried out on the following clinical measures: Schizotypal Personality and Borderline Personality, as measured by the STQ; Positive Emotions from Thoughts, Positive Emotions from Real Life Experiences, Negative Emotions from Thoughts, and Negative Emotions from Real Life Experiences, as measured by the THARL Scales; and Family Adjustment, Health Adjustment,

and Emotional Adjustment, as measured by the Adjustment Inventory. A significance level of $p = .05$ was used for all analyses. With regard to the variables that revealed statistically significant sex differences, we carried out a simple linear regression analyses using the total sample, the sample of men and the sample of women with each of these variables as a predictor, in order to assess their depression value (BDI). Tables 1a and 1b show the results of these analyses with respect to the EPQ-A personality measures.

EPQ-A Variables

The ANOVA performed on the EPQ-A domain revealed statistically significant sex differences in Neuroticism, $F(1, 110) = 29.25, p < .001$. Therefore, it seems that women score higher in Neuroticism than do men. Neuroticism (see Table 1b) also seems to have high potential as a positive predictor of depression, $R^2 = .295, F(1, 110) = 45.96, p < .001$.

Table 1a

Means, Standard Deviations and F-values for Sex Differences in the EPQ-A Personality Factors

Variables	Sex	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>	Levene's Test	<i>p</i>
Neuroticism	Men	10.11	5.8	29.25	.000	0.410	.523
	Women	15.55	5.48				
Extraversion	Men	12.43	4.08	0.03	.856	0.051	.822
	Women	12.29	4.23				
Psychoticism	Men	2.68	2.35	3.03	.085	6.055	.015
	Women	1.98	1.85				

Note. $N = 112$ (56 men, 56 women).

Table 1b

Simple Linear Regression Analyses for the EPQ-A Scales Predicting BDI Scores

Predictor Variables	Groups	<i>R</i>	<i>Adjusted R</i> ²	<i>F</i>	<i>p</i>
Neuroticism	Total	.543	.288	45.96	.000
	Men	.431	.171	12.32	.001
	Women	.501	.237	18.13	.000
Extraversion	Total	.143	.009	2.00	.160
	Men	.032	-.017	0.56	.814
	Women	.200	.022	2.257	.139
Psychoticism	Total	.293	.078	10.34	.002
	Men	.421	.162	11.64	.001
	Women	.390	.136	9.66	.003

Note. $N = 112$ (56 men, 56 women).

With respect to Psychoticism, we observed a tendency for men to score higher than women, $F(1, 110) = 3.03, p = .085$. Levene's test for the homogeneity of variance (Levene, 1960) was $6.055, p = .015$. According to Eysenck's Psychoticism, statistically significant differences between the sexes do not exist ($F(1, 110) = 3.03, p = .085$). Nevertheless, Levene's test showed that homogeneity of variance did not exist ($F = 6.055, p = .015$). Thus the above mentioned absence of differences between sexes is not totally reliable and requires further research.

Eysenck's Psychoticism was present in the above mentioned problems and was also a positive predictor of depression, despite the fact that the variance accounted for is very low, $R^2 = .085, F(1, 110) = 10.34, p = .002$.

NEO-PI Variables

Results of the analyses of the personality measures of the NEO-PI factors and facets are shown in Tables 2a and 2b. Table 2a displays the ANOVA for detecting statistically significant sex differences, and Table 2b shows the results of the simple linear regression analyses, with the NEO-PI factors and facets as predictors and the BDI as the dependent variable. In the Spanish 1995 version used, only facets for Neuroticism, Extraversion, and Openness to Experience are included.

Women scored higher than men in Neuroticism, and this difference was statistically significant, $F(1, 110) = 12.38, p < .001$. Neuroticism is, at the same time, very important as

Table 2a
Means, Standard Deviations and F-values for Sex Differences in the NEO-PI Personality Factors and Facets

Variables	Sex	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>	Levene's Test	<i>p</i>
Neuroticism Factor	Men	82.79	19.62	12.38	.001	2.205	.140
	Women	96.88	22.65				
Anxiety Facet	Men	16.23	5.05	15.35	.000	0.111	.740
	Women	20.13	5.46				
Hostility Facet	Men	12.02	3.70	3.656	.058	3.637	.59
	Women	13.55	4.73				
Depression Facet	Men	12.82	5.81	11.93	.001	2.664	.106
	Women	17.00	6.94				
Self-Consciousness Facet	Men	13.89	4.63	7.504	.007	0.609	.437
	Women	16.16	4.12				
Vulnerability Facet	Men	11.80	4.52	5.826	.017	0.808	.371
	Women	13.86	4.46				
Activity Facet (Extraversion Factor)	Men	17.41	3.95	6.360	.013	0.275	.601
	Women	19.41	4.43				
Excitement-Seeking (Extraversion Factor)	Men	15.80	4.36	5.887	.017	2.534	.114
	Women	13.61	5.18				
Agreeableness Factor	Men	43.43	6.48	3.899	.051	0.030	.864
	Women	46.18	8.16				

Note. $N = 112$ (56 men, 56 women).

Table 2b

Simple Linear Regression Analyses for the NEO-PI Factors and Facets that Revealed Statistically Significant Sex Differences Predicting BDI-Scores

Predictor Variables	Groups	<i>R</i>	<i>Adjusted R</i> ²	<i>F</i>	<i>p</i>
Neuroticism Factor/ Facets	Total	.611	.368	65.41	.000
	Men	.445	.183	13.34	.001
	Women	.639	.398	37.33	.000
Anxiety	Total	.507	.251	38.12	.000
	Men	.260	.050	3.91	.053
	Women	.556	.296	24.16	.000
Hostility	Total	.438	.185	26.16	.000
	Men	.289	.067	4.93	.031
	Women	.468	.204	15.12	.000
Depression	Total	.621	.380	69.01	.000
	Men	.573	.316	26.40	.000
	Women	.590	.316	28.87	.000
Self-Consciousness	Total	.535	.280	44.15	.000
	Men	.473	.209	15.56	.000
	Women	.550	.290	23.45	.000
Vulnerability	Total	.454	.199	28.63	.000
	Men	.133	-.001	0.97	.329
	Women	.602	.350	30.68	.000
Activity Facet (Extraversion Factor)	Total	.166	.019	13.12	.800
	Men	.183	.016	1.88	.180
	Women	.244	.042	3.41	.070
Excitement-Seeking (Extraversion Factor)	Total	.196	.030	4.42	.038
	Men	.157	.007	1.36	.248
	Women	.122	-.003	.81	.370
Agreeable-Ness Factor	Total	.033	-.008	0.122	.727
	Men	.063	-.015	.213	.646
	Women	.124	-.003	.84	.362

Note. *N* = 112 (56 men, 56 women).

a positive predictor of depression, $R^2 = .373$, $F(1, 110) = 65.51$, $p < .001$. (see Table 2b).

Of the six facets of Neuroticism, four revealed statistically significant sex differences: Anxiety, $F(1, 110) = 15.35$, $p < .001$; Depression $F(1, 110) = 11.93$, $p < .001$; Self-Consciousness $F(1, 110) = 7.504$, $p = .007$; and Vulnerability $F(1, 110) = 5.826$, $p = .017$. The facet of Hostility showed a trend toward statistical significance, $F(1, 110) = 3.656$, $p = .058$. In all of these facets, women scored higher than men. These facets (see Table 2b) were also positive predictors of depression: Anxiety, $R^2 = .257$, $F(1, 110) = 38.12$, $p < .001$; Depression, $R^2 = .386$, $F(1,$

$110) = 69.01$, $p < .001$; Self-Consciousness, $R^2 = .286$, $F(1, 110) = 44.15$, $p < .001$; Vulnerability, $R^2 = 0.207$, $F(1, 110) = 28.63$, $p < .001$; and Hostility, $R^2 = .192$, $F(1, 110) = 26.16$, $p < .001$. The only Neuroticism facet that did not show statistically significant sex differences was Impulsiveness.

With regard to Extraversion, two facets from this factor revealed statistically significant sex differences: Activity, $F(1, 110) = 6.360$, $p = .013$ and Excitement-Seeking, $F(1, 110) = 5.887$, $p = .017$. In this case, women scored higher in Activity, but this facet did not reach statistical significance as a predictor of depression, $R^2 = .028$, $F(1, 110) = 13.12$,

$p = .08$. In Excitement-Seeking, men's scores were higher than women's, but this facet appears to be a negative predictor of depression, $R^2 = .039$, $F(1, 110) = 4.42$, $p = .038$.

Finally, women's scores were higher than men's in Agreeableness, $F(1, 110) = 3.899$, $p = 0.051$, but this factor was not statistically significant for predicting depression ($R^2 = .001$, $F(1, 110) = 0.122$, $p = .727$).

Taking into account the simple linear regression analyses, Vulnerability did not predict depression in the men's group while in the women's and in the total groups, it did.

Clinical Variables

Table 3a and 3b show the results of the analysis of the clinical measures. Six of them revealed statistically significant sex differences. In the Schizotypy Questionnaire, a statistically significant sex difference was observed in the Schizotypal Personality (STA), with women scoring higher than men, $F(1, 110) = 15.26$, $p < .001$. Schizotypal Personality is a strong predictor of depression, $R^2 = .277$, $F(1, 110) = 42.08$, $p < .001$. Borderline Personality revealed similar sex differences, $F(1, 110) = 7.960$, $p = .006$ and also predicted depression, $R^2 = .286$, $F(1, 110) = 44.14$, p

$< .001$). In the Adjustment Inventory, women also scored significantly higher than men in Health Maladjustment, $F(1, 110) = 11.51$, $p < .001$, which also predicted depression, $R^2 = .152$, $F(1, 110) = 19.54$, $p < .001$. In Emotional Maladjustment, women also scored higher than men, $F(1, 110) = 34.71$, $p < .001$, although in this variable the null hypothesis of the homogeneity of variances was rejected (Levene's test, $F(1, 109) = 12.148$, $p < .001$). Among the clinical scales, Emotional Maladjustment was one of the best predictors of depression, $R^2 = .390$, $F(1, 110) = 69.75$, $p < .001$. In the THARL, men scored higher than women in Positive Affect from Thoughts, $F(1, 110) = 4.419$, $p = .038$, and this factor predicted depression: $R^2 = .128$, $F(1, 110) = 17.25$, $p < .001$. Positive Affect from Real Life showed a trend for men to score higher than women, but this did not reach statistical significance, $F(1, 110) = 3.494$, $p = .064$. This variable was an acceptable predictor of depression: $R^2 = .141$, $F(1, 110) = 18.04$, $p < .001$.

According to simple linear regression analyses, Health Maladjustment (Adjustment Inventory) and Real Life Positive Affect (THARL) did not predict depression in the men's group while in the women's and in the total groups, it did.

Table 3a

Means, Standard Deviations and F-values for Sex Differences in the Clinical Measures Schizotypal Personality (STA), Borderline Personality (STB), Health Maladjustment, Emotional Maladjustment, Positive Affect from Thoughts (THARL), and Positive Affect from Real Life (THARL)

Variables	Sex	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>	Levene's Test	<i>p</i>																																																		
Schizotypal Personality (STA)	Men	12.71	6.54	15.26	.000	0.127	.722																																																		
	Women	17.34	5.97					Borderline Personality (STB)	Men	4.54	3.63	7.960	.006	0.079	.779	Women	6.48	3.67	Health Maladjustment (Adjustment Inventory)	Men	6.04	4.93	11.51	.001	1.199	.276	Women	9.34	5.32	Emotional Maladjustment (Adjustment Inventory)	Men	8.89	7.58	34.71	.000	12.148	.001	Women	16.50	14.54	Positive Affect from Thoughts (THARL)	Men	40.71	18.04	4.419	.038	1.100	.297	Women	33.71	17.23	Positive Affect from Real Life (THARL)	Men	42.68	17.31	3.494	.064
Borderline Personality (STB)	Men	4.54	3.63	7.960	.006	0.079	.779																																																		
	Women	6.48	3.67					Health Maladjustment (Adjustment Inventory)	Men	6.04	4.93	11.51	.001	1.199	.276	Women	9.34	5.32	Emotional Maladjustment (Adjustment Inventory)	Men	8.89	7.58	34.71	.000	12.148	.001	Women	16.50	14.54	Positive Affect from Thoughts (THARL)	Men	40.71	18.04	4.419	.038	1.100	.297	Women	33.71	17.23	Positive Affect from Real Life (THARL)	Men	42.68	17.31	3.494	.064	0.002	.964	Women	36.56	17.38						
Health Maladjustment (Adjustment Inventory)	Men	6.04	4.93	11.51	.001	1.199	.276																																																		
	Women	9.34	5.32					Emotional Maladjustment (Adjustment Inventory)	Men	8.89	7.58	34.71	.000	12.148	.001	Women	16.50	14.54	Positive Affect from Thoughts (THARL)	Men	40.71	18.04	4.419	.038	1.100	.297	Women	33.71	17.23	Positive Affect from Real Life (THARL)	Men	42.68	17.31	3.494	.064	0.002	.964	Women	36.56	17.38																	
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	Women	16.50	14.54					Positive Affect from Thoughts (THARL)	Men	40.71	18.04	4.419	.038	1.100	.297	Women	33.71	17.23	Positive Affect from Real Life (THARL)	Men	42.68	17.31	3.494	.064	0.002	.964	Women	36.56	17.38																												
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Positive Affect from Real Life (THARL)	Men	42.68	17.31	3.494	.064	0.002	.964																																																		
	Women	36.56	17.38																																																						

Note. $N = 112$ (56 men, 56 women).

Table 3b

Simple Linear Regression Analyses for the Clinical Measures Schizotypal Personality (STA), Borderline Personality (STB), Health Maladjustment, Emotional Maladjustment, Positive Affect from Thoughts (THARL), and Positive Affect from Real Life (THARL) that Revealed Statistically Significant Sex Differences Predicting BDI-Scores

Predictor Variables	Groups	<i>R</i>	<i>R</i> ²	Adjusted <i>R</i> ²	<i>F</i>	<i>p</i>
Schizotypal Personality (STA)	Total	.526	.277	.270	42.08	.000
	Men	.491	.241	.227	17.18	.000
	Women	.481	.231	.217	16.21	.000
Borderline Personality (STB)	Total	.535	.286	.280	44.14	.000
	Men	.418	.175	.159	11.44	.001
	Women	.560	.314	.301	24.73	.000
Health Maladjustment (Adjustment Inventory)	Total	.390	.152	.144	19.54	.000
	Men	.070	.005	-.014	.259	.613
	Women	.466	.217	.202	14.95	.000
Emotional Maladjustment (Adjustment Inventory)	Total	.625	.390	.385	69.75	.000
	Men	.447	.200	.185	13.22	.001
	Women	.607	.368	.357	31.50	.000
Thoughts Positive Affect (THARL)	Total	.368	.136	.128	17.25	.000
	Men	.290	.084	.067	4.97	.030
	Women	.371	.137	.121	8.60	.005
Real Life Positive Affect (THARL)	Total	.375	.141	.133	18.04	.000
	Men	.245	.060	.043	3.46	.068
	Women	.415	.172	.157	11.23	.001

Note. *N* = 112 (56 men, 56 women).

Discussion

In accordance with our expectations, the results mapped a nomological network of differences in personality and clinical variables as a function of sex. Furthermore, practically all of the personality dimensions and clinical variables in which statistically significant sex differences were found, were also good predictors of depression. These findings suggest that such differences in personality and clinical variables may make women significantly more vulnerable to depression than men.

A question arises in the context of these findings: How are the personality factors that differentiate the sexes involved as determinants of depression? Is there a conceptual framework within which to interpret the findings? The psychological behaviorism theory of personality (Staats, 1996, 2003) was employed as the framework of this study. To illustrate, let us consider the NEO-PI Neuroticism facets (with the exception of Impulsiveness) to measure the extent to which the individual has a negative emotional response to life stimuli, part of the emotional-motivational trait (repertoire). For example, when items in the Anxiety facet are analyzed, we see that they measure negative emotional

responses to certain types of life stimuli. "I get upset easily" is an example of an item from this facet which clearly illustrates how the scale measures a recurrent negative emotional response. The same is true for the Self-Consciousness, Vulnerability, and Hostility facets of the NEO-PI. Each of them measures learned negative emotions to certain types of life stimuli. An example of an item from the Self-Consciousness facet is, "I rarely feel uneasy when I am with people." A "false" answer indicates that this person describes him or herself as having an uneasy feeling (a negative emotional response) to people. Ordinarily this response to the item indicates that the person experiences a lot of negative emotion responding. An example of an item from the Vulnerability facet is, "I am sufficiently stable emotionally." A "false" answer indicates that the person experiences inappropriate emotions frequently, and hence negative emotions. And finally, an example of an item from the Hostility facet is, "I am frequently annoyed by the way people treat me." A "true" answer to this item also describes a person who frequently experiences a negative emotional response.

So, these NEO-PI facets measure parts of an individuals' emotional-motivational trait (repertoire); but why do the

facets predict depression, and distinguish the sexes? The psychological behaviorism theory of depression, briefly described in the introduction, is that an individual's level of depression is a result of the sum of negative and positive emotional responses to life stimuli. Hence, with regard to the NEO-PI, increasing scores in the areas of anxiety, self-consciousness, vulnerability, and hostility are indicative of increased experiences of negative emotional response. Increased negative emotional responses means an increase in both life experience of depression as well as higher scores on tests of depression. Our results support this expectation.

With regard to the STQ, according to Claridge (1984) and Stone (1980), Schizotypal Personality and Borderline Personality are related to schizophrenic and affective disorders, respectively. It is suggested that people with schizophrenia experience more life situations that elicit negative emotions than normal people; the same applies to people with affective disorders.

Regarding the Adjustment Inventory, Health Adjustment and Emotional Adjustment were also relevant markers of sex differences, with women scoring higher than men in these variables, and both variables being fairly good predictors of depression. In both cases, high scores on these scales indicate that the individual is experiencing a high quantity of negative emotional responses—for example, in worrying over health matters—and hence more depression. In contrast, in the THARL scales, men scored higher than women on Positive Affect from Thoughts and Positive Affect from Real Life. That means that men experience a larger quantity of life stimuli which elicit positive emotional responses. Once again, men have the advantage, since more positive emotions yield a better “emotional summation,” which means less depression. These results give general support to the psychological behaviorism principle of the additivity of emotions.

In conclusion, these findings help to explain why women present with more depression than men, and in doing so, aid the understanding of depression in general. We suggest that women suffer more from depression because they have learned negative emotional responses to more life stimuli than men, which represents a personality trait difference. Moreover, they face more life situations that elicit negative emotions. More evidence is called for with respect to both of these factors. What circumstances make women learn negative emotions to a greater extent than men? And what is it about life that presents women with more situations that elicit negative emotions? There is a large set of social, economic, and cultural factors as well as educational practices that provide men with more opportunities to experience life situations that elicit positive emotions, as compared to women. For instance, according to the 1995 Spanish wages survey structure (Instituto Nacional de Estadística), the average salary for women is 30 % lower than for men.

This theory of sex differences in depression might be in accordance with other approaches, such as those by Brems (1995), Staats (1996, 2003), Carrillo Rojo, and Staats (1996), or Bonilla and Martínez-Benlloch (2000), who have called attention to sex differences in early education. As Claridge (1984) stated in relation to schizotypal characteristics, sex differences may reflect functional differences in hemispheric organization, but in our opinion this biological aspect can be considered a covariate, and not a determinant. We believe that learning can be the determinant of many differences between the sexes. It is important to gain further knowledge of these possibilities, since this could contribute to the prevention of certain experiences that produce depression, as well as to the treatment of depression in women once it has appeared.

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