Factor structure of the CES-D in a sample of Spanish- and English-speaking smokers on the Internet

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Abstract

Research on the Center for Epidemiological Studies-Depression Scale's (CES-D; Radloff, 1977) factor structure is mixed across diverse and international populations that differ from the one on which the scale was developed. This study examined the CES-D's factor structure in a large international sample of English ($n = 3827$) and Spanish-speaking ($n = 13,629$) smokers. A two-factor solution grouped into Positive and Negative factors emerged for the full English sample; the same two-factor solution emerged in the depressed English subsample identified with a separate screening instrument. A three-factor solution (Anxious/Somatic, Positive, and Negative) emerged for the full Spanish sample. Unlike the depressed English subsample, a different pattern of three factors (Negative, Positive, and Interpersonal Sensitivity) emerged in the depressed Spanish subsample. The findings in both languages differed from the original "four-factor" solution identified by Radloff (1977); they also suggest that the factor structure varies depending on language and depression status in international samples. The meaning of instruments and depressive symptoms may therefore vary across cultural and linguistic contexts.

Keywords

Depression; Screening; Cross-cultural; Language

1. Introduction

The Center for Epidemiologic Studies-Depression (CES-D; Radloff, 1977) Scale was developed to assess for depressive symptoms in the general population and is now widely used in primary care settings (Blank et al., 2004; Gunn et al., 2008; Murlow et al., 1995) and epidemiological studies (Shafer, 2006). Originally intended as a screening, rather than diagnostic, instrument, the CES-D has been shown to be useful for identifying individuals with depression (Weissman et al., 1977; Devins et al., 1988). The validity and reliability of the CES-D have been determined in a number of populations (Hertzog et al., 1990; Blazer et al., 1998; Wong, 2000), including international samples (Fava, 1983; Noh et al., 1992;

Ghubash et al., 2000; Fountoulakis et al., 2007; Spijker et al., 2004; Cheng and Chan, 2005; Vázquez and Blanco, 2006), languages other than English, and when administered by telephone (Piette, 2000; Graham et al., 2006) or over the Internet (Cuijpers et al., 2008).

Radloff (1977) originally proposed a four-factor solution for the CES-D consisting of Depressed Affect, Positive Affect, Somatic and Retarded Activity, and Interpersonal Troubles, that was similar across three different U.S. samples and subgroups within those samples. These factors have also been reported by confirmatory factor analytic studies among various U.S. based populations (Roberts, 1980; Golding and Aneshensel, 1989; Roberts et al., 1989; Hertzog et al., 1990; Blazer et al., 1998; Rhee et al., 1999; Wong, 2000; Nguyen et al., 2004; Crockett et al., 2005; Williams et al., 2007). Citing concerns over the predetermination of factors by confirmatory factor analysis, a recent meta-analysis investigated the CES-D factor structure with over 22,000 participants from 21 CES-D studies employing exploratory factor analysis (Shafer, 2006). While this meta-analysis largely confirmed the original Radloff four-factor solution, it must be noted that the meta-analytic sample included the original Radloff samples (22.4% of the sample) and other demographically similar individuals (21.9%) (Shafer, 2006). In addition, this study also described reasonable two and three-factor solutions that had also emerged, raising further questions about the universality of the four-factor solution.

A number of other studies employing exploratory factor analysis have yielded different CES-D factor structures, particularly among populations that are demographically distinct from those on which the CES-D was developed. Some studies have reported two factors (Edman et al., 1999; Schroevers et al., 2000; Kazarian, 2009), three factors (Guarnaccia et al., 1989; Ghubash et al., 2000; Fountoulakis et al., 2001), and as many as five factors (Thorson and Powell, 1993; Crockett et al., 2005). Additionally, some studies reported four-factor solutions that differed significantly from those reported by Radloff and others vis-à-vis item distribution (Garcia and Marks, 1989; Helmes and Nielson, 1998; Posner et al., 2001; Foley et al., 2002; Crockett et al., 2005). This range of factor solutions across cultural and international contexts suggests that the meaning of the CES-D may vary depending on the population being investigated.

Inconsistencies are also prevalent in studies of Spanish-speaking populations. While some confirmatory factor analytic studies including Spanish speakers have supported the original Radloff four factors (Roberts, 1980; Golding and Aneshensel, 1989; Roberts et al., 1989; Crockett et al., 2005), others have identified different factors. An exploratory factor analytic study of Mexican Americans found the best correspondence with the original CES-D factor structure among highly acculturated participants (Garcia and Marks, 1989), suggesting a role of culture in the interpretation of depression-related questions. Indeed, a close inspection of factor loadings in this study reveals that while Somatic and Negative affect items loaded together at all acculturation levels, this was less pronounced for the most acculturated (Garcia and Marks, 1989). Among university students in Spain (Vázquez and Blanco, 2006) and in Puerto Rican adolescents (Crockett et al., 2005), exploratory factor analyses yielded a four-factor structure where all Negative affect and Somatic items comprised one factor, except items reflecting retarded activity, which comprised a separate factor. Finally, exploratory factory analysis of three Hispanic groups in the U.S. found three-factor solutions

that included a Negative affect/Somatic factor, though with somewhat different item distributions (Guarnaccia et al., 1989).

The literature on the invariance of the factor structure of the CES-D is therefore mixed. In the present study, we examine separately the factor structure of the CES-D administered to a large international sample of English- or Spanish-speaking smokers in the context of a web-based smoking cessation trial. Given the frequent use of the CES-D as a depression symptom change monitoring tool, as well as a screening tool for depression, we also examine its factor structure among the subset of participants screening positive for an episode of major depression on a separate instrument (Muñoz, 1998). If the CES-D factor structure is truly invariant, then response patterns should be similar (1) across English and Spanish speakers from different countries; and (2) in depressed subsamples of English and Spanish speakers.

2. Methods

2.1. Participants

Data were provided by 17,456 English- and Spanish-speaking smokers enrolled in an online smoking cessation trial (Muñoz et al., 2009). The English-speaking sample (n= 3827) had slightly more men than women (52.2% vs. 47.8%) and a mean age of 37.0 (S.D. = 11.5). Half of the sample had at least some college education. English speakers were predominantly Caucasian (67.7%), with 6.7% identifying as Hispanic or Latino. The Spanish-speaking sample (n = 13,629) exhibited similar demographic characteristics with respect to sex (53.1% men vs. 46.9% women), mean age (36.0; S.D. = 10.6) and education. The vast majority of participants in the Spanish-speaking sample identified themselves as Hispanic or Latino (93.8%), with 69.1% identifying as Caucasian. Participants represented 162 countries and territories. The 3 most represented countries were USA, India, and South Africa among English speakers, and Spain, Argentina, and Mexico among Spanish speakers.

2.2. Measures

The Center for Epidemiological Studies-Depression Scale (CES-D; Radloff, 1977) is a 20-item self-report scale measuring the current level of depressive symptoms. The scale contains items assessing the physical, cognitive, and affective manifestations of depressive illness. It also contains 4 positive items that are reverse-coded. The scale is well-validated and was adapted for use on the Internet in the present study. In this sample, both the English and the Spanish versions of the measure attained excellent reliability, with Cronbach alphas of 0.91 and 0.92, respectively.

The Major Depressive Episode Screener (MDE Screener: Muñoz, 1998) is a 18-item self-report instrument intended to screen for the presence or absence of current and past major depressive episodes (MDEs) on the basis of the nine symptoms of depression according to the DSM-IV (American Psychiatric Association, 1994) over a period of two weeks or more. It also assesses whether significant impairment in functioning (DSM-IV Criterion C) was met within the same time span. All items are from the depression section of the Diagnostic Interview Schedule (Robins et al., 1995). A participant screens positive for a current MDE if

s/he endorses five of nine symptoms of depression (including either Sad Mood or Anhedonia) and Criterion C as being present in the past two weeks. Past MDE is diagnosed by the same criteria, except the two-week period can occur at any time in the past. The screener was shown to have good agreement with clinician-administered interviews (Vázquez et al., 2008).

2.3. Procedures

The Internet Stop Smoking study has been described in detail elsewhere (Muñoz et al., 2009). Briefly, participants were recruited by an online advertisement for a free Web-based smoking cessation study. Eligible participants were 18 years or older, current smokers (5+ cigarettes per day) willing to quit within the next 30 days, with at least weekly access to email, and able to read and write English or Spanish. At baseline, participants completed questionnaires assessing demographic characteristics and depressive symptoms. The presence or the absence of current and lifetime major depressive episode was assessed by the MDE Screener, and the CES-D was used to assess the level of depressive symptoms. These measures were completed at baseline and at follow-ups at 1, 3, 6, and 12 months. For this study, we used the CES-D data obtained during baseline for two reasons: (1) it provided the largest dataset given follow-up attrition; and (2) the ratings at baseline were unadulterated by physiological symptoms and psychological difficulties that can occur during a quit attempt, which may have affected follow-up CES-D data.

2.4. Analysis

The number of factors to be extracted was determined by three methods: Cattell's scree test (Cattell, 1966), parallel analysis (PA: Horn, 1965), which estimates the highest number of factors possible in a dataset, and Velicer's Minimum Average Partial test (MAP: Velicer, 1976, 2000). First, the scree plot was examined (Cattell's scree test) to approximate the number of possible factors. To determine the number of factors with greater precision, the MAP test was conducted, as well as the parallel analysis (permutations of the raw dataset), as outlined in O'Connor (2000). If disagreements arose between the parallel analysis and the MAP test, we explored a range of factor solutions afforded by these tests and invoked the comprehensibility criterion (also referred to as "interpretability") in selecting the most reasonable and clinically meaningful solution.

The factor structure of the CES-D was determined with common factor analysis (maximum likelihood), using the direct oblimin rotation with the delta set at 0. Common factor analysis was chosen because, unlike principal components analysis, which models common and unique variance, common factor analysis only models the common variance, which makes it more suitable for identifying underlying latent factors. The oblique rotation was preferred to an orthogonal rotation because intercorrelations were expected among individual items, as well as among the factors to be detected. Given this expectation, an oblique rotation would therefore presumably represent the data better. Two series of analyses were conducted within each language sample, first on the entire sample, and second on the subset of participants who screened positively for a current episode of depression with the MDE Screener.

3. Results

3.1. Sample depression characteristics

The mean CES-D scores were: 15.6 (S.D. = 11.6; range: 0 to 60) for the entire English sample, and 17.2 (S.D. = 12.2; range: 0 to 59) for the entire Spanish sample. Independent-sample *t*-test indicated that Spanish-language participants endorsed significantly (though not substantially) more depressive symptoms (t (6419.5) = 7.37, $P < 0.0001$, Cohen's $d = 0.13$). A significant and substantial difference was observed between the samples in the rates of current MDE, with only 11.8% ($n = 450$) of English-language participants screening positive for a current depressive episode compared to 18.5% ($n = 2517$) of the Spanish-language participants (Fisher's exact test, $P < 0.0001$). For the subsamples screening positive for current MDE, the mean CES-D scores were: 34.6 (S.D. = 10.4; range: 2 to 60) for the English subsample, and 33.1 (S.D. = 10.6; range 0 to 59) for the Spanish subsample ($t(2958)$ = 2.84, $P < 0.005$, $d = 0.14$) (Table 1).

3.2. Factor structure in the full English sample

A considerable discrepancy emerged between the results of the PA and the MAP test in estimating the number of factors. PA results suggested that a maximum of 9 factors could be extracted; the number estimated by MAP was 1 or 2, depending on whether the original estimate (partial correlations are squared: Velicer, 1976) or the revised estimate (partial correlations are raised to the 4th power: Velicer et al., 2000) was used. Using the Cattell's scree test, 3 meaningful factors were evident. We therefore explored a range of factor solutions, paying particular attention to solutions with fewer rather than more factors (9 factors are unlikely to be meaningful in a 20-item measure), no multiple high loadings, and no items without a sufficiently high factor loading.

The solution with the most comprehensible and interpretable factor structure was a two-factor solution separated on the basis of positivity/negativity. A Negative factor emerged first, accounting for 39.8% of the variance and consisting of all items measuring Affective, Somatic, and Interpersonal difficulties, followed by a Positive factor, accounting for 8.1% of the variance and consisting of the four reverse-scored items. The Cronbach's alphas were: 0.91 for the Negative factor, and 0.78 for the Positive factor, indicating acceptable to excellent reliability. Examination of the factor correlation matrix showed the factors to be highly correlated (r= |0.56|).

3.3. Factor structure in the depressed English sample

The structure revealed for depressed participants closely resembled that of the full English sample. Once again, there was a considerable discrepancy between the maximum number of factors as determined by PA (8 factors), MAP (2 factors), or the scree test (4 factors). Upon examining a range of solutions, the same two-factor solution found in the full English sample (Negative and Positive factors) was deemed best both in terms of loading parameters and comprehensibility. Again, the factors emerged in order of Negative (26.5% of variance), then Positive (10.7% of variance). The Cronbach's alpha for the Negative factor was 0.85, and 0.69 for the Positive factor, indicating acceptable to good reliability. The factor

correlation matrix revealed a relatively weak correlation between the two factors (r= |0.23|) (Table 2).

3.4. Factor structure in the full Spanish sample

As in the English sample, a discrepancy was observed among the three methods used to determine the maximum number of factors, with PA resulting in 8 factors, MAP with 2, and the scree test with approximately 3 factors. Unlike the English sample, however, the solution that was deemed the best in terms of comprehensibility and the pattern of factor loading was a three-factor solution, rather than the two-factor solution found in the English sample. Three factors emerged in the following order: an Anxious/Somatic factor (42.1% of variance), consisting of items assessing physiological difficulties, fear, and Interpersonal Sensitivity-related items; a Positive factor (8.5% of variance), consisting of all reverse-scored items; and an Affective factor 4.6% of variance), consisting of items suggesting affective difficulties and affect regulation issues. The Cronbach's alphas were: 0.88 for Anxious/Somatic factor, 0.74 for the Positive factor, and 0.88 for the Affective factor, indicating acceptable to good reliability. Factor correlation matrix revealed moderate-to-high intercorrelations (r= |0.33| to r = |0.77|).

3.5. Factor structure in the depressed Spanish sample

Once again, there was a considerable discrepancy in the number of factors determined by PA (8 factors), MAP (1 factor), and the scree test (5 factors). Exploring several possible factor solutions, a three-factor solution again emerged as the most meaningful. Interestingly, the loading pattern in the depressed sample was not the same as that of the full Spanish sample. While the Positive factor containing the reverse-scored items remained the same, the Affective and the Anxious/Somatic factors observed in the full Spanish sample collapsed into one "Negative" factor. Two items emerged as a distinct Interpersonal Sensitivity factor, not observed in the full sample. The factors emerged in the following order: Negative (30.1% of variance; Cronbach's alpha = 0.85), Positive (8.86% of variance; Cronbach's alpha = 0.68), and Interpersonal Sensitivity (5.88% of variance; Cronbach's alpha = 0.72). The factors were found to be mildly to moderately intercorrelated (r= |0.13| to r = |0.45|).

4. Discussion

The purpose of the present study was to evaluate the factor structure of the CES-D using exploratory factor analyses in a large international sample of English- and Spanish-speaking smokers attempting to quit via the Internet. Because both English and Spanish versions of the CES-D were delivered invariably, in the same medium, using the same format and presentation, differences between factor structures should be due to linguistic or cultural factors, rather than method of administration. Three key observations are that: (1) the factor structures differed from the original Radloff (1977) solutions for both the English and Spanish-speaking samples; (2) the factor structure differed across English and Spanish speakers; and (3) the factor structure in depressed subsamples was similar to the full sample for English speakers but not for Spanish speakers.

A two-factor solution characterized by a Negative factor and a Positive factor emerged for both the full English sample and the subsample screening positively for a current episode of major depression. A three-factor solution was found that differed somewhat between the full Spanish sample and the subsample screening positively for a current major depressive episode. For the full Spanish sample, Anxious/Somatic, Positive, and Affective factors emerged, whereas in the depressed subsample, Negative (consisting of most items from the previous Anxious/Somatic and Affective factors), Positive, and Interpersonal Sensitivity factors emerged. These findings indicate that the Internet-delivered CES-D performs differently between English and Spanish speakers. This would further suggest that the CES-D cannot be assumed to have equivalence across these groups, casting doubt on its ability to accurately compare the experience of depression across cross-cultural samples.

The factor solutions identified in this study do not correspond with the original solution proposed by Radloff (1977), which differentiated negative experiences into dimensions of Depressed Affect, Somatic/Retardation difficulties, and Interpersonal Sensitivity. Identification of this solution has typically occurred in U.S. English-speaking samples and among acculturated minorities in the U.S., however, so its applicability to an international sample is less established. Three-factor solutions have been found among Spanish speakers (Guarnaccia et al., 1989) and others (Ghubash et al., 2000; Fountoulakis et al., 2001). The two-factor solution reported here has also been identified among English-speaking Filipino-American adolescents (Edman et al., 1999), a Dutch sample of cancer patients and healthy reference subjects (Schroevers et al., 2000), and in a sample of ethnic Armenians (Kazarian, 2009). Finally, a recent meta-analysis also described the same two-factor solution found in the current English-speaking sample, despite concluding that the original four-factor solution proposed by Radloff (1977) "appeared to be best in terms of having an interpretable pattern of loadings and consistency with previous findings" (Shafer, 2006; p. 133). Perhaps the commonly reported four-factor solution is a cultural variant of a more general two-factor solution that may be found more broadly.

The combination of Somatic and Affective items observed in Spanish speakers in our sample has been frequently observed in other factor analytic studies including Spanish speakers (Garcia and Marks, 1989; Guarnaccia et al., 1989; Crockett et al., 2005; Vázquez and Blanco, 2006). Our finding of an Affective factor comprised of most of the original Depressed Affect items for the overall Spanish-speaking sample has also been previously reported (Garcia and Marks, 1989). It is interesting to note that the factor solution for the overall Spanish-speaking sample more closely approximates the original Radloff factor solution than the English-speaking sample by nearly reproducing the Positive and Affective factors. In contrast, the English sample collapses all non-positive items into one generic Negative factor. It is unclear why this affective dimension is later collapsed into a generic Negative factor among depressed Spanish speakers, while the Interpersonal factor emerges. It is possible that for depressed Spanish speakers, the interpersonal aspects of their lives are more salient, whereas other negative aspects of their experience are less differentiated. For example among Latinos, who are typically considered to be culturally interdependent and family-oriented (Green et al., 2005, Losada et al., 2006), the Interpersonal factor may be a particularly salient domain when depressed.

Several limitations must be considered when interpreting these findings. First, this sample may differ from the general population as a function of their smoking status, their desire to quit smoking, and their search for smoking cessation help on the Internet. The similarity of the present findings with other reports in the literature, however, suggests that characteristics of this sample are unlikely to have adversely affected the results. Second, the linguistic categories (Spanish and English) each comprised a number of cultural groups: specific cultural differences within or across linguistic categories were not tested. Finally, the administration of the CES-D via the Internet may have somehow impacted these results. This is unlikely, however, as previous studies demonstrating the validity and reliability of the CES-D administered via telephone (Piette, 2000; Graham et al., 2006) or the Internet (Cuijpers et al., 2008) lend support to this method. Furthermore, numerous studies have been conducted showing virtual equivalency on a variety of psychometric properties of Web-, telephone-, or paper-based administration of questionnaires (e.g., Basnov et al., 2009; Kongsved et al., 2007; Vallejo et al., 2008). Internet administration also permitted the recruitment of a very large international sample across a wide geographic distribution, providing an unprecedented and unique opportunity to examine the factor structure of the CES-D across the world.

The CES-D is widely used internationally to assess depression symptom levels and identify potential cases of depression in the general population. Our findings suggest that the use of the CES-D in cross-cultural research warrants further investigation. Differences in factor structures between languages and levels of depression suggest that comparisons based on the CES-D across different groups may be imprecise. Although the four-factor structure found by Radloff (1977) is the first and most commonly cited factor structure, it may also be a culturally specific pattern not be generalizable to international or cross-cultural samples. The CES-D factor structure may also vary by clinical depression status within certain populations. These differences suggest that we consider linguistic and cultural differences in the interpretation of findings using the CES-D and call for further study examining potential cultural mechanisms responsible for these differences. The identification of CES-D factors across different subgroups may shed light on how depression is experienced by diverse populations.

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Table 1

English CES-D factor structures, full sample and depressed subsample.

CES-D items	Full sample (n=3827)		Depressed subsample (n=450)	
	1	**2**	**1**	**2**
1. I was bothered by things that usually don't bother me.	**0.57**	−0.01	**0.46**	0.05
2. I did not feel like eating; my appetite was poor.	**0.44**	0.02	**0.31**	0.06
3. I felt that I could not shake off the blues even with help from my family or friends.	**0.66**	−0.12	**0.47**	−0.24
4. I felt that I was just as good as other people.	−0.02	**0.46**	−0.07	**0.46**
5. I had trouble keeping my mind on what I was doing.	**0.60**	−0.01	**0.41**	−0.07
6. I felt depressed.	**0.71**	−0.13	**0.59**	−0.21
7. I felt that everything I did was an effort.	**0.63**	0.02	**0.37**	−0.05
8. I felt hopeful about the future.	0.03	**0.59**	−0.05	**0.50**
9. I thought my life bad been a failure.	**0.61**	−0.12	**0.55**	−0.20
10. I felt fearful.	**0.63**	0.01	**0.53**	0.04
11. My sleep was restless.	**0.46**	0.01	**0.42**	−0.09
12. I was happy.	−0.04	**0.84**	0.05	**0.76**
13. I talked less than usual.	**0.59**	0.03	**0.51**	0.14
14. I felt lonely.	**0.64**	−0.06	**0.57**	−0.04
15. People were unfriendly.	**0.61**	0.06	**0.56**	0.19
16. I enjoyed life.	−0.05	**0.82**	0.03	**0.72**
17. I had crying spells.	**0.63**	0.09	**0.50**	0.08
18. I felt sad.	**0.75**	−0.10	**0.67**	−0.15
19. I felt that people dislike me.	**0.66**	0.02	**0.57**	0.03
20. I could not get "going."	**0.64**	−0.06	**0.59**	−0.12
	Intercorrelations		Intercorrelations	
1	1.00	−0.59	1.00	−0.23
2	−0.59	1.00	−0.23	1.00

Table 2

Spanish CES-D factor structures, full sample and depressed subsample.

CES-D items	Full sample (*n*=13,629)			Depressed subsample (*n*=2517)		
	1	**2**	**3**	**1**	**2**	**3**
1. Me molestaron las cosas que usualmente no me molestan.	**0.51**	−0.05	−0.06	**0.37**	−0.01	−0.10
2. No me sentía con ganas de comer; no tenía apetito.	**0.34**	0.02	−0.11	**0.26**	0.07	−0.04
3. Me sentía que no podía quitarme de encima la tristeza, aún con la ayuda de mi familia o amigos.	0.21	−0.09	**−0.61**	**0.77**	−0.07	0.17
4. Sentía que yo era tan bueno(a) como cualquier otra persona.	0.16	**0.44**	0.01	0.11	**0.43**	0.09
5. Tenía dificultad en mantener mi mente en lo que estaba haciendo.	**0.76**	0.00	0.07	**0.48**	0.09	−0.06
6. Me sentía deprimido(a).	0.31	−0.09	**−0.54**	**0.84**	−0.07	0.18
7. Sentía que todo lo que hacía requería esfuerzo.	**0.80**	0.00	0.11	**0.53**	0.03	−0.01
8. Me sentía optimista sobre el futuro.	−0.07	**0.65**	0.04	−0.05	**0.62**	−0.03
9. Pensé que mi vida había sido un fracaso.	**0.39**	−0.12	−0.29	**0.45**	−0.17	−0.14
10. Me sentía con miedo.	**0.44**	−0.03	−0.25	**0.48**	−0.05	−0.09
11. Mi sueño era inquieto.	**0.51**	0.02	−0.06	**0.36**	0.00	−0.11
12. Estaba contento(a).	−0.23	**0.70**	0.02	−0.19	**0.65**	−0.07
13. Hablé menos de lo usual.	**0.48**	0.00	−0.13	**0.36**	0.05	−0.14
14. Me sentía solo(a).	0.33	−0.04	**−0.44**	**0.52**	−0.08	−0.16
15. Sentía que la gente no era amistosa.	**0.56**	−0.03	−0.06	0.14	−0.05	**−0.67**
16. Disfruté de la vida.	−0.27	**0.70**	−0.04	−0.10	**0.64**	−0.01
17 .Pasé ratos llorando.	−0.05	0.02	**−0.70**	**0.52**	−0.02	0.07
18. Me sentía triste.	0.13	−0.08	**−0.76**	**0.79**	−0.10	0.08
19. Sentía que no le caía bien a la gente.	**0.50**	−0.02	−0.10	0.19	−0.08	**−0.59**
20. No tenía ganas de hacer nada.	**0.64**	−0.09	−0.10	**0.53**	−0.10	−0.07
	Intercorrelations			Intercorrelations		
1	1.00	−0.33	−0.77	1.00	−0.33	−0.45
2	−0.33	1.00	0.38	−0.33	1.00	0.13
3	−0.77	0.38	1.00	−0.45	0.13	1.00