

# Validation of Interpersonal Support Evaluation List-12 (ISEL-12) Scores Among English- and Spanish-Speaking Hispanics/Latinos From the HCHS/SOL Sociocultural Ancillary Study

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The Interpersonal Support Evaluation List-12 (ISEL-12; Cohen, Mermelstein, Kamarck, & Hoberman, 1985) is broadly employed as a short-form measure of the traditional ISEL, which measures functional (i.e., perceived) social support. The ISEL-12 can be scored by summing the items to create an overall social support score; three subscale scores representing appraisal, belonging, and tangible social support have also been proposed. Despite extensive use, studies of the psychometric properties of ISEL-12 scores have been limited, particularly among Hispanics/Latinos, the largest and fastest growing ethnic group in the United States. The current study investigated the reliability and structural and convergent validity of ISEL-12 scores using data from 5,313 Hispanics/Latinos who participated in the Hispanic Community Health Study/Study of Latinos Sociocultural Ancillary Study. Participants completed measures in English or Spanish and identified their ancestry as Dominican, Central American, Cuban, Mexican, Puerto Rican, or South American. Cronbach's alphas suggested adequate internal consistency for the total score for all languages and ancestry groups; coefficients for the subscale scores were not acceptable. Confirmatory factor analyses revealed that the one-factor and three-factor models fit the data equally well. Results from multigroup confirmatory factor analyses supported a similar one-factor structure with equivalent response patterns and variances between language groups and ancestry groups. Convergent validity analyses suggested that the total social support score related to scores of social network integration, life engagement, perceived stress, and negative affect (depression, anxiety) in the expected directions. The total score of the ISEL-12 can be recommended for use among Hispanics/Latinos.

*Keywords:* ISEL, social support, Hispanics/Latinos, psychometrics, confirmatory factor analysis

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Decades of research have supported a connection between social support and physical and mental health outcomes in a variety of populations (e.g., Barth, Schneider, & Von Känel, 2010; Holt-Lunstad, Smith, & Layton, 2010; Reblin & Uchino, 2008). Social support is posited to affect health through direct effects on physiological processes such as cardiovascular reactivity, immune functioning, and inflammation, as well as indirect mechanisms through links with behavioral (e.g., smoking, diet) and psychological (resilience to depression) factors that in turn influence these physiological pathways (Uchino, 2006; Uchino, Bowen, Carlisle, & Birmingham, 2012). Indeed, low levels of social support have been associated with greater incidence of a number of conditions including diabetes, cardiovascular disease, arthritis, chronic pain, and mood and anxiety disorders (Barth et al., 2010; Reblin & Uchino, 2008); poorer adjustment to diseases such as cancer, arthritis, multiple sclerosis, and HIV/AIDS (Barskova & Oesterreich, 2009; Dennison, Moss-Morris, & Chalder, 2009); and greater all-cause mortality (Holt-Lunstad et al., 2010). Social support is considered so critical that even the *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition, text revision (American Psychiatric Association, 2000) multiaxial system encourages clinicians to assess social and environmental functioning as factors central to a person's psychological health status. Importantly, conceptualizations of social support vary widely and, at the broadest level, can be distinguished according to whether they capture structural (i.e., objective aspects of social networks, such as the number of relationships or roles, or contact frequency) or functional (i.e., the perceived availability of specific supportive functions, such as tangible aid or emotional support, or, less often, social support functions actually received) components of support (Brisette, Cohen, & Seeman, 2000; Cohen & Wills, 1985; Lakey & Cohen, 2000).

A large number of instruments have been used to assess perceived social support; however, the 40-item Interpersonal Support Evaluation List (ISEL; Cohen & Hoberman, 1983) has been, perhaps, the most widely embraced. The short form of this measure, the ISEL-12 (Cohen, Mermelstein, Kamarck, & Hoberman, 1985), has also been broadly adopted as a measure of social support. The ISEL-12 yields a total score that describes overall perceived social support and three subscales representing perceived availability of *Appraisal* (advice or guidance), *Belonging* (empathy, acceptance, concern), and *Tangible* (help or assistance, such as material or financial aid) social support (Cohen et al., 1985).

Although scores from the ISEL long form have shown good internal consistency reliability, test-retest reliability, convergent validity (Cohen & Hoberman, 1983; Cohen & Wills, 1985), and structural validity (Brookings & Bolton, 1988), less is known about the ISEL-12. Cohen (2008) has presented preliminary psychometric characteristics for the ISEL-12 among 1,399 predominantly non-Hispanic/Latino White respondents; however, it is unknown whether the ISEL-12 reliably and validly measures social support in diverse ethnic populations. Moreover, even though the ISEL and its short forms, including the ISEL-12, have been translated into several languages, including Spanish, the measurement properties of these adapted instruments have not been verified.

A key assumption of behavioral research is that instruments measure the same construct across groups; when this assumption is violated, interpretations of scores from that instrument will be

misleading. It is well known that measures can perform differently across diverse cultural and ethnic groups due to either true group differences or differences in the ways that different groups define, experience, and communicate psychological phenomena (Corral & Landrine,

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specifically recommended as a preliminary method of establishing cross-cultural validity of a measure's scores (Allen & Walsh, 2000; Ben-Porath, 1990; Geisinger, 1994). If the internal structure is not upheld, concerns are raised regarding whether the resulting data can be validly interpreted in a new group. The invariance of the best fitting model (i.e., one-factor or three-factor) was then tested between English and Spanish responders and also among Hispanic/Latino ancestry groups. We hypothesized that the internal structure of the ISEL-12 would be upheld for all models, meaning that there would be no differences in the structural construct validity between groups. Convergent validity (i.e., the relationship between a measure and other theoretically related constructs; Foster & Cone, 1995; Groth-Marnat, 2009) with indicators of social network integration (i.e., structural support), life engagement, perceived stress, and negative affect was also tested, given the established correlations between these variables and the ISEL-12 (Cohen, 2008). We hypothesized that the best fitting model would match the relationships evidenced by Cohen's (2008) samples by demonstrating positive associations of moderate/large magnitude with social network integration (i.e., number of roles of people with regular social contact), a positive and moderate association with life engagement (i.e., engagement in personally valued activities), and a negative and small association with perceived stress and negative affect (i.e., trait anxiety, recent symptoms of depression).

## **Method**

### **Participants and Procedure**

The sample (

groups. A coefficient  $\geq .70$  was considered to represent adequate reliability.

To examine the factorial validity of the ISEL-12 scores, confirmatory factor analysis (CFA), a theory-driven factor analytic technique, was used. Multiple a priori models were specified and tested using maximum likelihood mean adjusted estimation to correct for nonnormality of the data. Missing data were handled via the full information maximum likelihood method used by Mplus (Muthén & Muthén, 2006), which makes use of all available data points. First, a one-factor model representing the ISEL-12 total score was tested. Next, a three-factor model representing the Appraisal, Belonging, and Tangible subscale scores was tested.

The overall fit of each target model was determined by inspecting statistical and descriptive fit. The Satorra-Bentler scaled  $\chi^2$  (S-B $\chi^2$ ; Satorra & Bentler, 2001), a test of model fit when data are multivariately nonnormal, was used. Given that the likelihood ratio  $\chi^2$  test statistics have a number of limitations, including a dependence on sample size (see Hoyle, 2000), several descriptive fit indices were also used (Bentler, 2007). Although the use of descriptive fit indices and cutoff thresholds is controversial (Marsh, Hau, & Wen, 2004), the root-mean-square error of approximation (RMSEA; Steiger, 1990), stan-

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Central American ( $\alpha$ s = .55–.64), Cuban ( $\alpha$ s = .64–.69), Mexican ( $\alpha$ s = .53–.65), Puerto Rican ( $\alpha$ s = .62–.65), and South American ( $\alpha$ s = .57–.64) subsamples.

### **CFA: One- Versus Three-Factor Models**

Table 3 presents fit indices for the one- and three-factor models for the full sample. Both models fit adequately according to the SRMR, although the RMSEA was not optimal. A  $\Delta$ S-B $\chi^2$  test revealed that the three-factor model fit better statistically, but the descriptive fit indices ( $\Delta$ RMSEA = .001,  $\Delta$ SRMR = 0) indicated no difference between nested models.

For the one-factor model, all standardized factor loadings were generally large and statistically significant ( $\lambda$ s = .37–.66;  $SE$ s = .011–.014). For the three-factor model, all standardized factor loadings were also large and statistically significant for





with stress, anxiety, and depression. All correlations were moderate in magnitude.

### **Discussion**

The current study supports the internal consistency reliability, multiple-group invariance across language and ancestry, and convergent validity of the overall social support score of the ISEL-12 among Hispanics/Latinos. The total score was internally consistent for the full sample, and also when considered by language and Hispanic/Latino ancestry. However, the three subscale scores fell below the recommended minimum cutoff (.70) for the full sample. Further inspection of the coefficients revealed inadequate internal consistency for the three subscale scores in Spanish; the Tangible subscale was also inadequate in English. Given that there were more Spanish ( $n = 4,166$ ) than English ( $n = 1,138$ ) responders, this was likely

what drove the lower internal consistency of the subscale scores for the full sample and ancestry groups where English and Spanish responders were handled together. Additionally, the three subscales were not adequately reliable when considered across Hispanic/Latino ancestry groups.

When a one-factor model, representing the overall social support score, and a three-factor model, representing the three subscale scores, were tested and compared, both fit the data similarly.

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criteria for evaluating instruments that attempt to capture complex psychological phenomena (see [Hopwood & Donnellan, 2010](#)). As such, although results from this single study do not definitively suggest that the three-factor model should not be used in Hispanic/Latino populations, they do raise questions about whether the subscale scores are sufficiently reliable. There are several possible explanations for this. First, regardless of the ethnic group being studied, the three subscale scores may simply not be internally consistent, given that the formula for Cronbach's alpha favors longer scales. Additionally, the subscales may simply be intercorrelated, regardless of group. Few studies using the ISEL-12 have used the subscale scores, with the majority relying on the total score (e.g., [Berg et al., 2012](#)). In addition, many studies that have used the subscale scores have failed to report Cronbach's alphas (e.g., [Cooper, Ziegler, Nelesen, & Dimsdale, 2009](#)); thus, it is unclear whether the subscale scores were sufficiently reliable.<sup>3</sup> Notably, high subscale score intercorrelations (e.g., [Businelle et](#)

construct in understanding Hispanic/Latino health, additional research regarding the utility of ISEL-12 scores is warranted. Future studies might evaluate other aspects of reliability and construct validity in both the overall and subscale scores in Hispanics/Latinos. Issues of translation/adaptation, education/literacy, and cultural differences in the nature of functional social support should also be explored as possible factors contributing to poor reliability of the three-factor model. Specifically, appraisals of the stability of scores over time, sensitivity to change, and other aspects of construct validity (e.g., divergent validity) are needed. The results do, however, provide preliminary evidence that the overall social support score of the ISEL-12 can be applied to Hispanics/Latinos in clinical and research settings.

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