

A Pilot Test of the Everyday Stressors Index–Spanish Version in a Sample of Hispanic Women Attending Prenatal Care

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Background and Purpose: Prenatal and postpartum psychosocial stress are associated with adverse pregnancy outcomes. Hispanic women experience higher levels of stress during pregnancy. This pilot study assessed the psychometric characteristics of the Everyday Stressors Index–Spanish (ESI-S) version. **Methods:** Secondary analysis in a convenience sample, $n = 51$ women. **Results:** The ESI-S showed adequate internal consistency (Cronbach's $\alpha = .86$). Two factors accounted for 40% of the item variance. The greatest sources of stress were “having too many responsibilities” and “not enough money for basics”. Higher levels of stressors were associated with older age, living without a partner, and working part or full time. The ESI-S was positively correlated with measures of perinatal depression. **Conclusions:** Findings support the reliability and validity of the newly translated ESI-S.

Keywords: Everyday Stressors Index; Hispanic; pregnancy; stress; reliability

Pregnancy is a very special event in a woman's life; however, it is also a period of adapting to significant physical and psychological changes. A growing body of empirical research emphasizes the relationship between maternal stress and birth outcomes. Prenatal and postpartum psychosocial stress are associated with adverse pregnancy outcomes including preterm birth (PTB), low birth weight, behavioral and mental health problems, and fetal morbidity (Lee, Schepp, & Jung, 2013; Ruiz, Fullerton, Guerrero, Garcia-Atwater, & Dolbier, 2006; Silveira, Pekow, Dole, Markenson, & Chasan-Taber, 2013). Stress occurs when an individual experiences physical or emotional distress in response to a threatening or anxiety provoking event (Centers for Disease Control and Prevention [CDC], 2014). Racially and ethnically diverse women of lower socioeconomic status, such as Hispanics, experience higher levels of psychosocial stress during pregnancy and higher rates of PTBs (Silveira et al., 2013). Hispanic or Latino populations in the United States are persons of Mexican, Cuban, Puerto Rico, South or Central America, or other Spanish culture or origin. The Hispanic population is growing rapidly and now stands

at over 54.1 million representing nearly 17% of the U.S. population and the nation's largest ethnic or racial group (Pew Research Center, 2015). Mexican Americans are the largest subgroup of Hispanics in the U.S. ranking at 64.3%, followed by Puerto Ricans (9.4%), Central Americans (9%), South Americans (5.9%), and Cubans (3.7%; Office of Minority Health, 2015). The immigrant population encompasses foreign-born nationals as well as their children who are born in the new land. These groups may or may not be fluent in the English language (Perez, Gonzales, & Pinzon-Perez, 2006). The CDC (2013) reports that in 2010, PTBs for Hispanics were higher than Whites and Asian/Pacific Islander (11.8% vs. 10.8 and 10.7%). Some studies have shown that PTBs among Hispanics are associated with greater acculturation or the duration of stay in the United States, and not related to the social determinants of health or lifestyle indicators alone (Crump, Lipsky, & Mueller, 1999; Ruiz, Pickler, Marti, & Jallo, 2013). The cultural and linguistic barriers faced by Hispanic women during the process of acculturation may create errors in communication and affect medical outcomes, which trigger additional stress and anxiety. Higher levels of acculturation are associated with greater perceived stress, suicidal thoughts, and higher levels of depression in pregnant women (Ruiz, Dolbier, & Fleschler, 2006; Walker, Ruiz, Chinn, Marti, & Ricks, 2012). Hispanic women with lower levels of acculturation in the United States are more likely to use the Spanish language as their first language. Spanish is the second language spoken in the United States and includes various terms/dialects that are unique to a given culture (Rose, 2010). Persons that face language barriers are more likely to experience errors in diagnosis and receive inappropriate quality of care (Anderson, Scrimshaw, Fullilove, Fielding, & Normand, 2003). Hence, it is important to use culturally and linguistically appropriate instruments for health research. There is little research of validated instruments in Spanish to measure stress in pregnant women. The literature review revealed only one study designed to validate a Spanish version of an instrument to assess stress in this population; this study examined stress caused by acute and chronic stressors related to various personal and external factors in the previous 12 months (Ruiz, Fullerton, et al., 2006). The literature did not reveal a Spanish language tool to measure everyday stressors, which are daily overload tasks faced by women, which in turn contribute to trigger stress. Daily stressors have been demonstrated as better predictors of emotional distress (Crnic & Greenberg, 1990; Kanner, Coyne, Schaefer, & Lazarus, 1981), specifically when overall well-being, family, finance, and health issues are involved. When providing prenatal care to low-income immigrant Spanish speaking women, it is important for nurses and other health care providers to assess these stressors giving the impact on pregnancy outcomes.

Previous research by Hall and colleagues reported that everyday stressors (Hall, Gurley, Sachs, & Kryscio, 1991) and negative thinking (Peden, Rayens, Hall, & Grant, 2004) are positively associated with a greater risk of depressive symptoms. Depression in mothers of young children also is positively associated with children's problematic behavior (Hall & Farel, 1988). Thus, the incorporation of standard screening for psychosocial stress during prenatal care and the implementation of counseling services should be considered for women at high risk, especially for Hispanics who have the highest birth and immigration rates of any other minority group in the United States (Zambrana & Carter-Pokras, 2001). A reliable and valid measure of daily stressors for low income Spanish speaking pregnant women is essential to identify those in need of additional support and counseling, as well as increase the quality of services offered to these women. The purpose of this pilot study was to evaluate the psychometric properties of the Everyday Stressors Index-Spanish Version (ESI-S) in a group of low income Hispanic pregnant women seeking prenatal health care services in university-based health care clinics.

The specific aims of this study were to

1. Examine the reliability of the ESI-S
2. Determine the factor structure of the ESI-S
3. Identify the stressors of greatest concern to the women
4. Evaluate the construct validity of the ESI-S by testing the following hypothesis: The higher the everyday stressors as measured by the ESI-S, the greater the depressive symptoms measured by the Edinburgh Postnatal Depression Scale (EPDS)

BACKGROUND AND CONCEPTUAL FRAMEWORK

Conceptual Basis of the Everyday Stressors Index

The ESI is a 20-item measure developed in English by Hall (1983) to assess common problems faced on a daily basis by low income mothers with young children (Hall, 1987). The domains measured by this scale include financial concerns, role overload, employment problems, parenting worries, and interpersonal conflict. Hall (1983) conducted an extensive review of the literature, consulted with health professionals aware of the problems faced by these mothers, and adapted several items from the Kanner Hassles Scale (Kanner et al., 1981) and from previous research conducted by Crnic and Greenberg (1990). Kanner et al. (1981) reported that daily hassles and uplifts were better predictors of psychological symptoms than life events. Similarly, Crnic and Greenberg (1990) research findings noted that parenting daily hassles significantly predicted aspects of parent, child, and family status and were more powerful stress constructs than life events; thus an index of daily stressors was considered to be equally important to measure stress. Participants rate how much each of 20 problems worries, upsets, or bothers them from day-to-day. The ESI demonstrated good internal consistency in samples of low income mothers with young children with Cronbach's alphas ranging from .80 to .85 (Hall & Farel, 1988; Hall et al., 1991). Construct validity was supported by discrimination of everyday stressors from measures of maternal depressive and psychosomatic symptoms using factor analysis (Hall, 1983, 1987). The literature review revealed no studies of the ESI-S administered to Spanish speaking pregnant women.

Description Administration and Scoring of the Instrument

The ESI is a 20-item interview or self-report measure. Items are rated on a 4-point Likert scale of: 0 (*not at all bothered*), 1 (*a little bothered*), 2 (*somewhat bothered*), and 3 (*bothered a great deal*) by the particular stressor. Item scores are summed to form a total possible score ranging from 0 to 60. Higher scores indicate higher levels of daily stressors. The ESI is a short measure of daily stressors, which can help to identify women who need counseling and prevent further development of possible depression.

METHODS

Design

We conducted a secondary analysis of existing cross-sectional data from a convenience sample of 51 pregnant women from a multicenter study of racial/ethnically diverse pregnant women. Data were collected between August 2009 and July 2014.

Sample

Participants were recruited in their first trimester at two primary health care facilities. Inclusion criteria were, pregnant, 18 years of age or older, singleton gestation, and seeking prenatal services in a primary health care center. Women with a history of diabetes, heart disease, drug abuse, and sexually transmitted disease were excluded. There were 304 women who completed a baseline survey; 17% were of Hispanic ethnicity ($n = 51$) and were included in the secondary analysis. Most of the Hispanic women enrolled in the study were from Mexico and El Salvador. The previous information was provided as anecdotal evidence by one of the research nurses and the principal investigator of the study. Recruitment took place in two university-based OB-GYN urban health clinics offering services to a high proportion of Spanish speaking women in Kentucky and Virginia where there is a growing population of Hispanics of Mexican heritage (Creciendo Juntos—Growing Together, 2015; Kentucky Long-Term Policy Research Center, 2006).

Measures

Everyday Stressors Index. The ESI was translated into Spanish by a certified bilingual translator (English/Spanish), native Spanish speaking original from Venezuela. The translation process was conducted before participant recruitment and as part of the university's institutional review board (IRB) research study's approval process. The ESI was translated keeping the same wording of the original version in English. The process included back-translation into English by another certified Spanish translator original from Puerto Rico who had not seen the original English version. Comparisons were made between the back-translated English version and the original English version. A native English speaking, U.S. born, English-Spanish bilingual clinical research member provided feedback to the comparisons in English. The original English version took into consideration plain language at the 6th grade level to address health literacy issues for low income women. The translators kept the same concept into the Spanish version. The two native Spanish speaking translators reviewed semantic equivalence and agreed on the Spanish wording that most closely represented the meaning of each English item. The Spanish version is given in Appendix.

Postnatal Depression. The 10-item EPDS is a screening tool used to identify patients at risk for perinatal depression (Cox, Holden, & Sagovsky, 1987). The EPDS has been validated in several countries and in several languages. Respondents select choices based on 0–3 range score. The maximum score is 30. The EPDS-Spanish version was tested in Spanish speaking women in Mexico (Alvarado-Esquivel, Sifuentes-Alvarez, Salas-Martinez, & Martinez-Garcia, 2006). The validation study revealed that mothers who score above a threshold of 12/13 are likely to be suffering from depression of varying severity. Cronbach's alpha for the EPDS in our pilot sample was .88.

Procedure

This study was approved by the IRB of the University of Kentucky and the University of Virginia. Women were approached by bilingual and bicultural English-Spanish speaker research nurses while waiting for their prenatal care appointment in the waiting area of the clinics and were invited to participate in the study. One of the research nurses was U.S. born non-Hispanic and the second one was of Hispanic ethnicity born in Cuba. The purpose of the study was explained, the informed consent was reviewed, and any questions were answered by the research nurses. Those who agreed to participate signed a consent form.

The consent form was written in Spanish language. Translation of the consent form adhered to the IRB research protocols regarding content and health literacy when recruiting Limited English Proficiency participants for research studies. The translation process was conducted by the English-Spanish certified translator from Venezuela. The bilingual research nurse in each clinic took time to explain the study in a private room, addressing any questions and concerns. The participants completed structured interviews providing information on demographic characteristics, psychosocial health (anxiety, stress, and depression), perceived support, and general health and well-being. The interview lasted approximately 40 min.

Data Analysis

The Statistical Package for the Social Sciences (SPSS) software Version 22 was used for data analysis. Descriptive statistics including frequencies, means, and standard deviations were used to describe the sociodemographic characteristics of the sample. Cronbach's alpha was calculated to assess internal consistency of the ESI-S version. The suitability of the correlation matrix for factor analysis was determined by the Kaiser-Meyer-Olkin (KMO) estimate of sampling adequacy and Bartlett's test of sphericity (Kaiser, 1974). Principal component analysis (PCA) was conducted followed by exploratory factor analysis with varimax rotation to simplify the factor structure of the measure. Varimax rotation is the best fit for factors to be rotated and to more clearly delineate them (best factor solution; Burns & Grove, 2001). Construct validity was evaluated by examining the association between the ESI total score and the EPDS. One-way ANOVA was conducted to test for differences in means across the groups.

RESULTS

Sociodemographic characteristics of the sample are presented in Table 1. The age of participants ranged from 19 to 38 years with mean age of 26 years ($SD = 4.52$). Most participants were of lower socioeconomic status with annual income of \$20,000 or less. Most participants lived with a partner. Nearly one-third had high school degree or general educational development (GED), and approximately two-thirds were working full or part time.

Reliability

Cronbach's alpha in this sample was .86 which indicated excellent internal consistency. A measure of an emotional construct should have a minimum Cronbach's alpha coefficient of .70 (Nunnally & Bernstein, 1994). The corrected item-total correlations ranged from .19 to .64 with a mean of .44. Items 4 and 12 had the lowest item-total correlations (less than .30). Item 4 "problems with child(ren)'s behavior" had an item-total correlation of .19 and item 12 "concerns about how child(ren) is/are doing in school" had an item-total correlation of .24. The mean item-total correlation of the other 18 items was .47. Deleting any one item from the index did not improve alpha.

Principal Component Analysis and Factor Analysis

The 20×20 correlation matrix had suitability indices within the acceptable range. The KMO index was .648 that indicates adequacy; Kaiser (1974) recommends values greater than 0.5 as acceptable. The Bartlett's test of sphericity chi-square index was 480.94

TABLE 1. Sociodemographics Characteristic of Hispanic Women Attending Prenatal Care (N = 51)

Variables	N	%
Educational level		
Less than high school	21	41.2
High school or GED degree	14	27.5
Some College/vocational	9	17.6
College	6	11.7
Missing value	1	2.0
Age		
18–25 years	24	47.0
26–35 years	25	47.0
36–45 years	2	3.9
Living arrangements		
Living with partner	36	71.0
Living with no partner	15	30.0
Family annual income		
Less than 20,000	34	66.7
20,000–39,999	9	17.6
40,000 and more	5	9.8
Missing values	3	5.9
Employment status		
Employed part or full time	29	56.9
Unemployed	22	43.1

Note. GED = general educational development.

($p < .0001$), convincingly rejecting the null hypothesis that the correlation matrix was an identity matrix and unsuitable for factor analysis.

The 20 items of the ESI-S were subjected to PCA. A minimum eigenvalue of one and the scree plot were examined to determine that two factors was the optimal number to retain and rotate. The exploratory factor analysis with varimax rotation of two factors yielded two distinct factors that accounted for the 40.43% of the item variance (Table 2). The first factor that accounted for the 28.22% of the variance had an eigenvalue of 5.64; 13 items loaded .30 or greater. Nine of these loadings were .50 or greater. This factor contained daily stressors related to role overload, financial concerns, employment, and interpersonal conflict (Items 1, 2, 3, 5, 8, 10, 11, 13, 15, 16, 17, 19, and 20). The second factor that accounted for the 12.21% of the variance had an eigenvalue of 2.44; 7 items loaded .49 or greater. This factor consisted of items related to parenting concerns about children's behavior, children's discipline, how children are performing at school, children's health, difficulties with children's father, not enough time to do things, and problems with transportation (Items 4, 9, 12, 14, 18, 6, and 7).

TABLE 2. Exploratory Factor Analysis of the Everyday Stressors Index-Spanish Version With Rotation of Two Factors in a Sample of Pregnant Hispanic Women ($N = 51$)

ESI Items	Factor	
	1	2
1. Having too many responsibilities	.48	.29
2. Taking care of family other than kids	.47	.11
3. Owing money or getting credit	.65	.03
4. Problems with child(ren)'s behavior	.20	.81
5. Not enough money for basics	.73	.04
6. Not enough time to do things want to do	.48	.52
7. Problems with transportation	.44	.62
8. Problems with job or not having job	.60	.13
9. Disagreements with others over child(ren)'s discipline	.01	.70
10. Problems with housing	.68	.04
11. Concerns about health of family (not child[ren])	.60	.04
12. Concerns about how child(ren) is/are doing in school/daycare	.12	.74
13. Problems with friends and neighbors	.59	.09
14. Concerns about child(ren)'s health	.29	.49
15. Problems getting along with family	.67	.30
16. Problems with being married/single	.33	.22
17. Feeling safe in neighborhood	.33	.29
18. Difficulties with child(ren)'s father	.33	.49
19. Problems holding a job	.57	.17
20. Trouble finding employment	.53	.11
Eigenvalue	5.64	2.44
Explained variance (%)	28.22	12.21

Note. Extraction method: principal component analysis. Rotation method: varimax with kaiser normalization. ESI = Everyday Stressors Index. Numbers set in boldface indicate the item higher loading per factor.

Women's Identification of Their Greatest Stressors

Responses to each ESI-S item were analyzed in aggregate and ranked-order from the highest to lowest mean (M) score. Table 3 shows the (M) scores for each item in rank order for stressors women rated as most bothersome. The greatest sources of stress identified by women were "having too many responsibilities ($M = 2.18$, $SD = .91$)" and "not enough money for basic necessities" ($M = 2.12$, $SD = 1.07$). These mean scores lie between "somewhat bothered" and "bothered a great deal." All other ESI-S items had a (M) score of less than two placing them between the "not at all bothered" and "a little bothered" categories.

TABLE 3. Mean Scores for Individual Items of the Everyday Stressors Index in Rank Order From Highest to Lowest ($N = 51$)

Item	Everyday Stressors	<i>M</i>	<i>SD</i>
1	Having too many responsibilities	2.18	0.91
5	Not enough money for basics	2.12	1.07
7	Problems with transportation	1.98	1.10
6	Not enough time to do things want to do	1.90	0.90
15	Problems getting along with family	1.88	1.05
8	Problems with job or not having job	1.86	1.17
11	Concerns about health of family (not child[ren])	1.84	0.93
14	Concerns about child(ren)'s health	1.80	1.08
20	Trouble finding employment	1.73	1.06
10	Problems with housing	1.59	0.90
3	Owing money or getting credit	1.55	0.90
2	Taking care of family-other than kids	1.53	0.95
13	Problems with friends and neighbors	1.43	0.78
18	Difficulties with child(ren)'s father	1.39	0.90
16	Problems with being married/single	1.37	0.77
4	Problems with child(ren)'s behavior	1.35	0.80
17	Feeling safe in neighborhood	1.33	0.77
19	Problems holding a job	1.33	0.74
12	Concerns about how child(ren) is/are doing in school/daycare	1.29	0.83
9	Disagreements with others over child(ren)'s discipline	1.24	0.62

Construct Validity Assessment

The association between sociodemographic characteristics and the ESI-S total score were examined. The ESI-S (*M*) score was positively correlated with women's age ($r = .50$; $p \leq .001$; $M = 25.71$, $SD = 4.52$). There were significant differences in the ESI-S total score by living arrangements and employment status. ESI-S score was significantly associated with living with no partner ($M = 37.40$, $F = 5.56$, $df = 1$, $p = .022$) and working part or full time ($M = 35.14$, $F = 4.64$, $df = 1$, $p = .036$). The ESI-S had a strong positive correlation with depressive symptoms ($r = .53$, $p < .001$) measured by the Edinburgh Postpartum Depression Scale, which supports the construct validity of the ESI-Spanish version.

DISCUSSION

This study presents an exploratory pilot test of the psychometric properties of the ESI-S in a sample of racially/ethnically diverse Spanish speaking pregnant women of Hispanic origin. The internal consistency, factor structure, and construct validity of the ESI-S were evaluated. The results provide support for the reliability and validity of the ESI-S. The

alpha coefficient in this sample of pregnant Hispanic women was similar to the alphas from other samples of mothers of young children in previous studies, which range from .80 to .85 (Hall, Schaefer, & Greenberg, 1987; Hall, Williams, & Greenberg, 1985). In exploratory factor analysis, all items loaded with values of .30 or greater on the first component and .49 or greater on the second component. Examination of the factor structure of the ESI-Spanish version indicated that the sources of everyday stressors were clustered mainly on role overload, financial, housing, job, and interpersonal issues (Factor 1) and children's overall well-being, not enough time to do things, and problems with transportation (Factor 2).

The highest sources of stress identified as "having too many responsibilities" and "not enough money for basics" are related to role function and socioeconomic status. Higher stressors because of financial burden and fear of not being able to provide for their families were identified in a previous study of low income pregnant women (Hall et al., 1985). Moreover, financial concerns have been reported in the literature as important stressors in pregnant women from vulnerable populations who are more likely to face emotional and logistical challenges (Novick, Sadler, Knafl, Groce, & Kennedy, 2012; Silveira et al., 2013).

Everyday stressors were positively associated with depressive symptoms as reported in prior studies (Hall et al., 1991; Hall et al., 1985). In our sample, older age, living with no partner, and working full or part-time were positively associated with a greater number of daily stressors. Consistent with other studies of pregnant Hispanic women, Silveira et al. (2013) reported that increasing age of women was positively associated with higher levels of stress. Likewise, Hall et al. (1985) reported that unmarried women were more likely to experience daily stressors. Health care providers need tools to assess stressors of at-risk women during the prenatal care to provide appropriate support and referrals. The use of culturally and linguistically appropriate measures is essential. This study contributes to the literature by providing a validated index that can be used with a vulnerable population that experiences health disparities. This study supports the use of the ESI-S as a measure of daily stressors of pregnant Spanish speaking women.

LIMITATIONS

The sample size was small and the findings cannot be generalized; although, they are consistent with the findings of prior research using the English version of the ESI. Overall, most Hispanic women were from Mexico and El Salvador, which limits the findings to these countries. Specific country of origin per subject was not available. This study was an exploratory pilot assessment and included a convenience sample; power analysis was not conducted for this reason. Further research considering recruitment of a larger sample of Hispanic women including women from different Hispanic nationalities is recommended.

CONCLUSIONS

The 20-item ESI-S showed satisfactory reliability and evidence of construct validity in Spanish speaking pregnant women mainly from Mexico and El Salvador origin. Stress is a significant risk factor that may lead to an increase in depressive symptoms. Increased stress and low social support increase a woman's risk for adverse health outcomes. Nurses and other health care providers provide a critical role in linking women to community and

social services; thus, there is a critical need to assess for maternal stress and social support to throughout pregnancy. It is fundamental that health providers are aware of the culturally sensitive factors to address women's needs. Assisting mothers to develop relationships that foster practical daily support from partners, friends, and relatives may help to reduce the burden of chronic stressors in this population.

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APPENDIX

Everyday Stressors Index (Spanish Version)

Índice de Estresores Cotidianos

Las siguientes preguntas son acerca de los problemas comunes que la gente tiene en su vida diaria. Por favor, marque la respuesta que mejor describa lo preocupada que usted está con los problemas diarios.

ESI Items	No preocupada para nada	Un poco preocupada	Más o menos preocupada	Muy preocupada	No sé
1. Teniendo demasiadas responsabilidades					
2. Cuidando a la familia aparte de los hijos (as)					
3. Debiendo mucho dinero o aplicando para tarjetas de crédito					
4. Problemas con la conducta de sus hijos (as). Si no tiene hijos, por favor marque "no preocupada para nada".					
5. No tiene suficiente dinero para sus necesidades básicas, como ropa, casa, comida o cuidados médicos.					
6. No tiene suficiente tiempo para hacer las cosas que desea hacer.					
7. Problemas con transporte					
8. Problemas con su trabajo o que no tiene trabajo.					
9. Discusiones con otros acerca de cómo disciplina a sus hijos (as). Si no tiene hijos marque "no preocupada".					

(Continued)

(Continued)

ESI Items	No preocupada para nada	Un poco preocupada	Más o menos preocupada	Muy preocupada	No sé
10. Problemas con vivienda					
11. Preocupada por la salud de un miembro de la familia (no incluyendo a sus hijos).					
12. Preocupada de cómo están haciendo sus hijos en la escuela o en la guardería.					
13. Problemas con amistades y vecinos.					
14. Preocupada por la salud de sus hijos (as). Incluyendo cualquiera de sus hijos/as y también el/la que no ha nacido.					
15. Problemas en llevarse bien con su familia.					
16. Problemas relacionados con estar casada o soltera.					
17. Preocupaciones con respecto a sentirse segura en su vecindario.					
18. Dificultades con el padre de sus hijos (o).					
19. Problemas de permanecer en el trabajo.					
20. Problemas para encontrar trabajo.					
Total por columna					
Puntaje total					

Puntaje:

0 = No preocupada para nada

1 = Un poco preocupada

2 = Más o menos preocupada

3 = Muy Preocupada

Posible puntaje total: 60

A mayor puntaje, mayor estrés.

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