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Measuring Coping in Pregnant Minority Women

Roberta Jeanne Ruiz¹, Susan Gennaro², Caitlin O'Connor², Nathan Marti³, Amanda Lulloff², Tayra Keshinover⁴, Anne Gibeau⁴, and Bernadette Melnyk⁵

¹Texas Tech University Health Science Center, El Paso, TX, USA

²Boston College, Boston, MA, USA

³Abacist Analytics, Austin, TX, USA

⁴Jacobi Medical Center Bronx, NY, USA

⁵The Ohio State University, Columbus, OH, USA

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Coping strategies may help explain why some minority women experience more stress and poorer birth outcomes, so a psychometrically sound instrument to assess coping is needed. We examined the psychometric properties, readability, and correlates of coping in pregnant Black ($n = 186$) and Hispanic ($n = 220$) women using the Brief COPE. Exploratory and confirmatory factor analysis tested psychometric properties. The Flesch–Kincaid Reading Level test assessed readability. Linear regression models tested correlates of coping. Findings suggested two factors for the questionnaire: active and disengaged coping, as well as adequate reliability, validity, and readability level. For disengaged coping, Cronbach's α was .78 (English) and .70 (Spanish), and for active coping .86 (English) and .92 (Spanish). A two group confirmatory factor analysis revealed both minority groups had equivalent factor loadings. The reading level was at the sixth grade. Age, education, and gravidity were all found to be significant correlates with active coping.

Pregnant minority women in America are more likely to have poorer pregnancy outcomes than women from majority backgrounds (Alexander, Wingate, Bader, & Kogan, 2008). Minority women are more likely to have spontaneous abortions, preterm birth (PTB), and increased neonatal mortality than Caucasian women (Bryant, Worjolah, Caughey, & Washington, 2010; Cabacubgan, Ngui, & McGinley, 2012; Gennaro, 2005). The PTB rate differs significantly by the two major ethnic groups as compared with White women (nationally, the Black rate is 17.4%, Hispanics rate is 12%, and 10.9% for White women; National Center for Health Statistics, n.d.).

The reasons for these poorer health outcomes are multifactorial and are thought to do with poverty (Collins, Wambach, David, & Rankin, 2009; DeFranco, Lian, Muglia, & Schootman, 2008), environmental factors (Bryant et al., 2010; Donovan, Michael, Butry, Sullivan, & Chase, 2011), differences in treatment from health care providers (Gennaro,

2005), as well as differing patterns of comorbidities such as infections, hypertension, and obesity (Cabacubgan et al., 2012).

How people cope with stress remains a major area of study related to many different health outcomes, particularly in pregnancy. The conceptual analysis of stress and coping was first conducted by Lazarus and Folkman (1984). They defined stress and coping by three processes: primary appraisal, secondary appraisal, and coping. Primary appraisal was defined as the process of recognizing a threat or a challenge. Secondary appraisal was the process of contemplating a potential reaction to a threat. Coping is the process of carrying out the response. Carver (1997) used these conceptual definitions in development of the measure the Brief COPE. Some poor pregnancy outcomes, especially early spontaneous preterm labor (prior to 34 weeks gestation), have been closely associated with stress (Dominguez, 2008; Kramer & Hogue, 2009). It becomes vital for nurses to be able to identify which minority pregnant women are coping well with stress and which might need further intervention to improve such infant outcomes as PTB (Dole et al., 2004; Latendresse & Ruiz, 2010). Before nurses can identify pregnant minority women who are coping well or poorly, it is important to have a clinically useful tool that has demonstrated sound psychometric properties.

Development and Use of the Brief COPE

The Brief COPE was developed by Charles Carver (Carver, 1997) to study coping and recovery after the destruction caused by Hurricane Andrew. The Brief COPE has the advantage of being short (taking less than 5 min to complete). In addition, it is available in English and Spanish versions. Carver and his research team translated and back translated the Brief COPE and examined the convergence of the Spanish translation with the English translation in previously published work (Perczek, Carver, Price, & Pozo-Kaderman, 2000).

Carver (1997) has suggested that tailoring of the Brief COPE by selecting subscales suitable for a specific population allows for a reduced response burden and does not compromise the integrity of the instrument. Therefore, in adapting this tool for use with pregnant minority women, we omitted two subscales that were also omitted by Vosvick and colleagues (2002). These were questions about Instrumental Support and Self-Blame. The following four questions from the Instrumental Support and Self-Blame subscales were omitted: "I've been trying to get advice or help from other people about what to do," "I've been getting help and advice from other people," "I've been criticizing myself," and "I've been blaming myself for things that happened." For pregnant minority women, we concentrated on scales that measured use of emotional social support, as opposed to instrumental support, as emotional support has been shown to be a buffer for anxiety and stress (Ruiz et al., 2013) particularly in relationship to the physiological response related to PTB. Items on self-blame were excluded as these did not appear appropriate to coping with pregnancy.

A recent review of factor analyses of the Brief COPE indicated that there are only three published reports using confirmatory factor analysis (CFA) among the 212 published factor analyses (Krageloh, 2011). David and Knight (2008) fit a two-factor CFA in a hierarchical factor analysis model in which each of the original subscales formed a factor and two higher

order factors that they termed Disengaged Coping and Active Coping. Moscardino, Scrimin, Capello, Altoe, and Axia (2008) fit a three-factor CFA, and Knoll, Rieckmann, and Schwarzer (2005) fit a four-factor CFA.

Race and ethnicity influence coping patterns. Torres and Rollock (2004) found that first generation Hispanics used less active coping approaches, such as planning, problem solving, and positive reframing, in dealing with problems. Farley et al. (2005) used the Brief COPE to analyze coping by comparing a group of immigrants with a group of Hispanics born in the United States. Mexican immigrants were more likely to use positive reframing, denial, and religion as coping strategies. Mexican Americans were intermediate in the use of these strategies, suggesting a relationship with acculturation.

Blacks have also been shown to have coping responses consistent with their use of religion, as seen throughout their history in the United States. Multiple studies suggest Blacks primarily use religious coping in the face of a stressor (Adams & Roberts, 2010; Conner et al., 2010). The use of religion as a way to cope is positively correlated with a sense of control in Blacks, as it may improve cognitive coping, help determine meaning of problems, and improve social connections by attendance at religious gatherings. The sense of control attained from the use of religious coping has been negatively correlated with psychological distress, even in the presence of multiple life stressors (Archibald, Dobson-Sydnor, Daniels, & Bronner, 2013).

When dealing with health concerns, active coping, including prayer, is frequently used by Blacks but disengaged coping is also common. Lunsford et al. (2006) used the Brief COPE with a group of renal patients in need of kidney transplants. They found Blacks were much less likely to use humor. They discovered that for active coping, they were more likely to use religious coping. Blacks were also more likely to use disengaged coping than other groups, specifically denial, or not dealing with the situation/giving up.

Numerous studies have examined coping during the prenatal period using different types of instruments to measure the constructs involved with coping. Huizink, Robles de Medina, Mulder, Visser, and Buitelaar (2002) developed the 19-item Utrecht Coping List based on emotion-focused or problem focused coping only in first time mothers of normal risk, related to pregnancy complaints. The Brief COPE is applicable to all types of pregnancies, as it is a more general measure and we maintain that it is thus more advantageous. Hamilton and Lobel (2008) argued that women use varied strategies to manage stress prenatally and developed the Revised Prenatal Coping Inventory (PCI). This instrument is 42 items as compared with the 28 items with the Brief COPE, allowing easier screening with the Brief COPE. Borcharding (2009) also looked at healthy first time mothers using the Coping Inventory for Stressful Situations (CISS) as well as the PCI. They proposed three types of coping strategies: problem-focused coping, emotion-focused coping, and avoidance. An advantage of using the Brief COPE is that Carver encourages adapting use of selective scales for the population under study, which we have done, and is appropriate when considering different ethnic populations. Carver (1997) has noted that different samples exhibit different patterns of relations, and this allows maximum flexibility when interpreting the results.

Coping in the third trimester of pregnancy has been studied with high risk women who are most likely to use prayer as a coping strategy (Giurgescu, Penckofer, Maurer, & Bryant, 2006). Prayer has also been found to be a frequent coping strategy in low risk women during this same time period (Borcherding, 2009), but it is not known whether prayer is also a commonly used coping technique earlier in pregnancy. Younger women in the third trimester use distraction coping more frequently than older women, and younger and less educated women are two groups likely to use preparation as a common coping strategy (Borcherding, 2009). Demographic factors that influence coping earlier in pregnancy have not yet been explored.

In one of the few studies to examine coping in the second trimester of pregnancy, Latendresse and Ruiz (2010) found that a major stress hormone Corticotrophin Releasing Hormone (CRH; which has been associated with PTB) was higher in women who used religion and disengagement as their coping style than it was for women who used more active coping styles. Also in this study, reliability and validity of the Brief COPE was cited for pregnant women, but primarily for White women.

In low-income pregnant Black women, low levels of social support and passive coping methods (as measured by the Brief COPE) predicted antenatal depression during the third trimester of pregnancy (Rudnicki, Graham, Habboushe, & Ross, 2001). Antenatal depression is of itself a health concern as it is also highly correlated with postpartum depression (Milgrom et al., 2008; Robertson, Grace, Wallington, & Stewart, 2004).

Coping techniques have been associated with other pregnancy outcomes. Women who experienced racism but used active coping mechanisms had lower risk for PTB than women who experienced the stress of racism but used other coping strategies (Rankin, David, & Collins, 2011). A study by Dole and colleagues (2004) supports the relationship between coping behaviors and pregnancy outcomes. In 1,898 pregnant Black women, the risk ratio for PTB was 1:8 (95% confidence interval [CI] = [1, 3.2]) for women who used distance coping as a primary method of coping, compared with women who had a low use of this coping technique. Messer, Dole, Kaufman, and Savitz (2005) also found that Black women who reported distancing from problems as a coping strategy had a higher risk for PTB (Relative Risk [RR] = 1.3, 95% CI = [1, 1.8]) as compared with women who did not use this strategy. White women had an increased risk for PTB (RR = 1.5) when they used escape or avoidance strategies.

Nearly half of the population of adults in the United States has low or limited literacy levels (Paasche-Orlow, Parker, Gazmararian, Nielsen- Bohlman, & Rudd, 2005). Lower literacy has been found to contribute to health disparities, especially among racial and ethnic minorities, specifically in Hispanics and Blacks (Heinrich, 2012; Hill-Briggs, Schumann, & Dike, 2012; Wilson, 2009).

Many formulas are available and reliable to test readability including the Flesch–Kincaid Reading Level test, the Flesch Reading Ease, the Simple Measure of Gobbledygook (SMOG), and the Gunning Fog (FOG) Index, though no one measure has been proven to be more accurate than another (Hill-Briggs et al., 2012; Paasche- Orlow et al., 2005). Due to

the low literacy rates in the United States, it is recommended that readability levels for health documents, including questionnaires and surveys (Calderon, Morales, Lie, & Hays, 2006), be evaluated prior to distributing among minority populations to ensure they are appropriate for maximum comprehension.

Therefore, the purposes of this study were to (a) examine the psychometric properties of The Brief COPE when used with pregnant minority women, (b) determine the readability of the scale, and (c) identify the correlates of coping in Hispanic and Black women.

Methods

Sample

This sample was derived from a larger population of patients participating in a National Institute of Health funded prospective, observational multi-site clinical study investigating mechanisms underlying PTB in minority women. Data from 220 pregnant Hispanic women from Texas and 186 pregnant Black women from New York was analyzed. Institutional Review Board approval was obtained from the University of Texas at Austin as well as from Boston College and from institutional review boards in the health care settings where data were collected. In Texas, eligible participants were women who self-identified as Mexican American and received their routine prenatal care at private practices or clinics in central Texas and the Gulf coast region of Texas affiliated with three hospitals. Patients recruited in New York self-identified as Black and received their prenatal care at hospital-based clinics within one health network in the Bronx. At both sites, data collectors obtained informed consent before administering questionnaires to willing participants. Data collectors answered all questions about the study itself. When questions arose about the questionnaire itself, the data collectors asked participants to use their best judgment in terms of the meaning of questions and subsequent answers. Questions from the participants were minimal.

In Texas, women were asked to participate if they were 14 years of age or older; between 22 to 24 weeks gestational age with an uncomplicated, single intrauterine pregnancy; and could read and speak English or Spanish. In New York, all participants were above 18 years and spoke English but all other eligibility requirements applied. Women under the age of 18 years were asked to give child assent and parental consent was obtained either on site or returned with the participants at their data collection visit. Women with chronic diseases were also excluded in both sites. The sample was low risk minority pregnant women.

Statistical Methods

This study was adequately powered for a factor analyses with a sufficient sample for at least moderate factor recovery of up to four factors (de Winter, Dodou, & Wieringa, 2009). The sample size of the smaller group ($n = 186$) was sufficiently powered (power = .80, two-tailed $\alpha = .05$) for CFA models with close model fit and with as few as 60 degrees of freedom, which is well under the degrees of freedom in the models that we report (MacCallum, Browne, & Sugawara, 1996). M-Plus implements direct maximum likelihood estimation (Kenward & Molenberghs, 1998), allowing use of all available data, thus making

it an optimal method for handling missing data. We examined convergent validity and discriminant validity by comparing coping scores with positive mastery (Hispanic sample) and depression as measured by the Center for Epidemiological Studies of Depression (CES-D) (Black and Hispanic sample).

Factor analysis was conducted in two phases: In the first phase, we conducted an exploratory factor analysis (EFA). The EFA was conducted to establish the factor structures of the Brief COPE in the Hispanic and Black samples. Once factors were established, a multiple-group CFA comparing the two samples was performed to assess the extent to which measurement properties (e.g., items group together in a similar manner) were equivalent across groups. We conducted EFA using SAS (9.2) and CFA using M-plus (version 7) software (Muthen & Muthen, 2012).

The EFA used a Varimax rotation for all models. We used a cutoff of .4 for rotated factor loadings as an indication that an item loaded on a putative factor. We followed recommendations for the use of factor models in scale revision from Reise, Waller, and Comrey (2000) and conducted EFA on each of the samples. The EFA was to evaluate the extent to which items represented the latent constructs postulated in the original version of the scale (i.e., 14 subscales with two items each) by evaluating evidence for a putative number of factors. Items were pruned on the basis of ambiguous factor loadings.

For the CFA models, we assessed departures from normality using guidelines from Curran, West, and Finch (1996) who indicate that skewness values greater than 2 and kurtosis values greater than 7 are suspect in structural equation models (SEM) using maximum likelihood estimation and thus may potentially bias test statistics. CFA model fit was evaluated using root mean square error of approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR), the comparative fit index (CFI), and the Tucker–Lewis Index (TLI) using conventional cutoff values to assess model fit: RMSEA values < .05, .05 to .08, and .08 to .10 respectively indicate close, fair, and mediocre fit (MacCallum et al., 1996); a CFI .90 and 0.95 respectively represent adequate and excellent fit (Hooper, Coughlan, & Mullen, 2008); and a SRMR < .08 (Hu & Bentler, 1999) indicates good fit. Hu and Bentler (1999) recommend a two-index presentation strategy in which the SRMR is supplemented with a second index, including the TLI, CFI, and RMSEA. In addition, we tested how well items loaded across samples using the sequence outlined by Brown (2006) for measurement invariance in a multiple-group CFA.

We examined correlates of coping in Black and Hispanic pregnant women by investigating relationships between demographic variables using linear regression models. We used the average of the variables underlying each coping factor in our CFA model (see Figure 1) and demographic variables. All models included the race of the participant, which was also an indicator of the sample. We examined interactions between race and each demographic variable and only included it if there was evidence that the interaction model was a better fit to the data than a model without an interaction.

Results

Demographic characteristics are outlined in Table 1. Black women had lower incomes with 62% of the African Americans reporting an income level under \$5,000 as compared with only 24.09% of the Hispanic participants earning less than \$5,000. On the high end of the income scale, 9% of Hispanics made more than \$50,000 whereas only 1.15% of Black women reported this income level. Eighteen percent of the Hispanic sample completed the Brief COPE in Spanish. Among the Hispanic women, 59% were married in contrast to 24% of the Black participants (43% of the total sample was married); 38% of the Hispanic women were employed and 47% of the Black women were employed (42% of the total sample was employed).

Missing data

There was minimal missing data in the sample. Among the Hispanic participants, 216 out of 220 participants provided complete data and among the Black participants, 179 of 186 participants provided complete data. There was not more than 2% missing data for any single item used in the analysis.

Reliability and Validity of the Brief COPE and Factor Analyses

Reliability—Cronbach's α for the general disengaged coping scale was .78 and was .86 for the general active coping scale. Among the 39 women who completed the scale in Spanish, Cronbach's α for the general disengaged coping scale was .70 and was .92 for the general active coping scale. Subscales for the full sample and for those that completed the scales in Spanish are included in Table 2.

Convergent and discriminant validity—In the Hispanic sample, we derived evidence for convergent validity by correlating positive coping with the Positive Control Mastery subscale (Pearlin & Schooler, 1978; $r = .31, p < .001$) and disengaged coping with the CES-D total (Radloff, 1977; $r = .45, p < .001$); both effects are in the medium to large effect size range ($r = .10$ is small, $r = .30$ is medium, and $r = .50$ is large; Cohen, 1988). Evidence for discriminant validity was derived using the complementary relationships that we used for convergent validity. Positive control was not correlated with CES-D total ($r = .05, p = .221$) and disengaged coping was not correlated with the Positive Control Mastery subscale ($r = -.07, p = .269$). In the Black sample, we observed a large effect size for our test of convergent validity: Disengaged coping correlated with the CES-D total ($r = .52, p < .001$). Positive control exhibited only a small correlation (with the CES-D total ($r = .15, p = .050$), providing evidence of discriminant validity.

Exploratory factor analysis—We identified two items that appeared problematic in the EFA: “expressed my negative feelings” and “did something to think about it less.” The former item was from the Venting subscale and the later was from the Behavioral Disengagement subscale (also a form of disengaged coping). Both items cross-loaded on Active and Disengaged factors in both samples, indicating that they were not being interpreted consistently by participants.

Confirmatory Factor Analysis—Based on the similarity between the David and Knight (2008) two-factor CFA model and our two-factor EFA models, we fit a two-factor CFA model comprised of disengaged coping and active coping factors that we used to compare the samples of Black and Hispanic women. We ultimately fit a hierarchical CFA model in which the item pairs specified by Carver (1997) formed factors at the first level and these factors formed general factors of Disengaged and Active coping. Where individual items had been removed based on results of the EFA and thus reduced a putative item pair to one item, the items loaded directly on the general factors. See Figure 1 for a diagram of the factor structure.

All items included in the CFA model were below those skewness and kurtosis criteria, with the following exceptions: The item “alcohol or drugs feel better” exceeded criteria for both skew and kurtosis in the Hispanic (skew = 2.94; kurtosis = 8.19) and the Black women (skew = 6.70; kurtosis = 49.23), “alcohol or drugs to get through it” in the Hispanic (skew = 3.42; kurtosis = 11.30) and Black samples (skew = 6.52; kurtosis = 44.89), and “gave up attempt to cope” in the Black sample (skew = 2.03). The substance use items were very low frequency, which was the source of the nonnormality and thus, we decided to eliminate the items from subsequent analyses.

Goodness of fit for the Texas sample was adequate, $\chi^2(161) = 286.79, p < .001$; RMSEA = .060 (90% CI = [.048, .071]), SRMR = .07, CFI = .92, TLI = .91. Goodness of fit for the New York sample was partially adequate, $\chi^2(163) = 323.73, p < .001$; RMSEA = .073 (90% CI = [.061, .084]), SRMR = .08, CFI = .87, TLI = .85. The multiple-group model, in which separate models were fit for the Hispanic and Black samples to test factor invariance, indicated that samples had equivalent factor loadings, which is evidence for weak factorial invariance, $\chi^2(10) = 14.4, p = .155$, but did not meet criteria for strong factorial invariance, $\chi^2(20) = 75.98, p < .001$.

Readability of the Brief COPE

The readability of the Brief COPE in the current study was examined using the widely used Flesch–Kincaid Grade Level accessed through Microsoft Word 2010. The 24-item modified Brief COPE was found to be at a sixth grade level both in English and Spanish, a 6.1 on the Flesch–Kincaid Grade Level Scale.

Correlates of coping in Black and Hispanic pregnant women

Hispanic women reported significantly lower active coping scores than Black women (Hispanic $M = 2.59, SD = 0.58$; Black $M = 2.72, SD = 0.66$), $t(404) = -2.14, p = .033$, but Hispanic women’s disengaged coping did not differ from Black women’s disengaged coping (Hispanic $M = 1.75, SD = 0.57$; Black $M = 1.70, SD = 0.63$), $t(404) = 0.82, p = .413$.

Active coping was related to age and education. Age and active coping had a significant quadratic effect, $t(402) = -2.12, p = .035$, with a positive relationship between age and active coping up to age 23 at which point the effect reversed and exhibited a negative effect. Education was a significant positive predictor of active coping, $t(392) = 2.49, p = .013$, with more educated women using active coping strategies. Married participant’s active coping

did not differ from unmarried participant's active coping (married participant's $M = 2.61$, $SD = 0.65$; unmarried participant's $M = 2.67$, $SD = 0.61$), $t(403) = -0.22$, $p = .830$. Disengaged coping was not related to age, $t(402) = -1.53$, $p = .126$; education, $t(392) = -0.46$, $p = .644$; or marital status (married participant's $M = 1.78$, $SD = 0.63$; unmarried participant's $M = 1.68$, $SD = 0.5$), $t(403) = 1.39$, $p = .166$.

Gravidity was a significant negative predictor of active coping, $t(403) = -3.83$, $p < .001$, but not disengaged coping, $t(403) = -0.32$, $p = .750$. Because results for age and gravidity were somewhat similar, we conducted an additional regression model containing both the age and gravidity variables to assess the possibility that there was collinearity between those variables; both gravidity, $t(401) = -3.08$, $p = .002$, and the quadratic age effect, $t(401) = -2.14$, $p = .033$, remained significant.

DISCUSSION

Implications for Research

The Brief COPE is an easy to read, quick measure of coping that has demonstrated construct validity when used with pregnant minority women. Our results support that the two factors active coping and disengaged coping, suggested by David and Knight (2008), are appropriate to use in pregnant minority women. These two factors both have good reliability when used with pregnant minority women. The Brief COPE was reliable in both the English and Spanish versions with only the Humor subscale in the Spanish version showing low reliability. This could be due to sample size, a cultural difference in the interpretation of one or more of the items, or a problematic translation and so further evaluation of this subscale in the Spanish version is recommended.

The Brief COPE was found to have an appropriate readability level. The National Adult Literacy Study found that in the United States, the average adult reads at a seventh-grade level (Calderon et al., 2006; DuBay, 2004). In a study of low-income pregnant women, Arnold and colleagues (2001) found that 72% of African American women could read at or above a seventh-grade level with an additional 19% reading between fourth- and sixth-grade level. The Brief COPE, at a sixth-grade reading level, is thus an appropriate tool to be used in such a pregnant, minority population. During the study, data collectors were present with participants as they completed questionnaires and no difficulties were found with the use of the Brief COPE. There were no items that participants found difficult to answer.

Items related to alcohol and other drugs had no variability in this population. This is presumably because women are counseled not to use these substances during pregnancy so they either are following recommendations and not using substances or they are unwilling to report that they are. Therefore, we would not recommend including these items in other studies of pregnant women.

In Black women, there was a skew exceeding Curran et al. (1996) guidelines on the item "gave up the attempt to cope." In Hispanic women, this item was not skewed. This result is comparable with previous literature supporting the idea that Blacks are more likely to use behavioral disengagement as a primary coping style than other populations (Lunsford et al.,

2006). Behavioral disengagement may be defined as giving up the effort of dealing with a stressor and can be related to feelings of helplessness and depression (Carver & Connor-Smith, 2010). This finding may be particularly important in relationship to depression and the increased risk African American women have for PTB (Dole et al., 2004).

In addition, there were two items (“expressed my negative feelings” and “did something to think about it less”) that cross-loaded on both active and disengaged factors, indicating that these items were potentially ambiguous. We believe that both items have face validity issues due to the fact that they could viably be used in an active or disengaged manner. Expression of negative feelings could either be an expression of anger or discontent or could represent an active attempt to explain and understand feelings and doing something to think about it less could either be a form of denial or a purposeful attempt to release negative emotions. While the removal of the two substance use items and the cross-loaded items is a departure from the original scale, it is apparent that there is substantial variability in the factor structure derived from the Brief COPE (Krageloh, 2011). Using a portion of the scale is consistent with the author’s suggestion that the scale does not need to be used in an all-or-none fashion but rather should be flexibly adapted.

The multiple-group CFA model provided evidence that factor loadings were equal across groups, which is considered weak factorial invariance (Brown, 2006). In the context of basic research in which the goal is to confirm nomothetic laws, weak factorial invariance is sufficient for establishing that latent variables have the same meaning across groups but results in incomparable latent means. A failure to establish strong measurement invariance can be due to group difference in means and/or variances (Meredith & Teresi, 2006) and are subject to capitalization on chance given the large numbers of parameters that are constrained in invariance models (Brown, 2006). Equivalent factor loadings indicate that the participants from the two samples were interpreting the items in the same manner and that the underlying psychological constructs had shared meaning. The evidence provided here indicates that the factor structure is consistent across two diverse populations and can be used in applied research. While fit indices for the Hispanic CFA model were adequate, the fit indices for the Black CFA model were somewhat marginal. The model reached criterion for SRMR and was in the range of fair fit for RMSEA, thus meeting criteria for the Hu and Bentler two-index presentation strategy; however, it was marginally below fit for the TLI and CFI. It should however be noted that the TLI is known to be sensitive to small sample sizes (i.e., below 200) and in such situations, may exhibit poor fit in the presence of adequate fit on other indices (Tabachnick & Fidell, 2012).

The finding that Hispanics had lower active coping scores than Blacks is consistent with the work of Torres and Rollock (2004) in which first generation Hispanics used less active coping techniques than more acculturated Hispanics. However, the differences in this study might also be due to geography, as well as to race, ethnicity, or acculturation and may require further research. In addition, due to the fact that the multiple-group CFA did not demonstrate strong factorial invariance, mean differences should be interpreted with caution as, in addition to true mean differences, these findings could be due to multiple common factors and group differences in variances (Meredith & Teresi, 2006). There were no differences between the Hispanic sample and the Black sample for disengaged coping.

Assessment and intervention might be indicated for both minorities related to disengagement, as disengaged coping has been shown to be related to an increased risk of PTB (Messer et al., 2005).

The “Brief COPE” may be clinically useful in that it can differentiate between types of coping in different groups of pregnant women. This becomes increasingly important in a diverse society in which cultural competency is important in the clinical setting. Women under 23 (younger women) used more active coping and after age 23 they tended to use less active coping. These results seem counter-intuitive as one would expect that as one matures, they might use more planning and problem solving to deal with stress. This result is also different from those reported by Borcharding (2009) as in that study they found younger women used more distraction coping. Borcharding also found that younger women did use preparation as a common coping strategy, which is also considered active coping. However in our study, women under age 23 were most likely having their first baby and had more social and financial support than women over age 23. These younger women were less cynical than their older counterparts who were having subsequent pregnancies. As it was their first child, participants, their families, and their partners considered this a joyous time and wanted to lend support to the young mother. This support included having a family member or their partner present at the prenatal care visits, and monetary support. Many of these young women also lived at home with their mothers, grandmothers, or partners. Due to this increased amount of support, women aged 23 and younger were possibly more likely to engage inactive coping mechanisms. However, the majority of the women in the study above age 23 were having a subsequent pregnancy and received much less social and financial support. This is because their support systems believed that this was not a new experience for the mothers, as they already had their first child, therefore leaving the women to deal with their own issues. We speculate that this lack of support, coupled with the increased stress of another pregnancy, may be one explanation why the women used less active coping mechanisms. Further research into age as a factor related to coping style is warranted both for African American and Hispanic pregnant women.

In addition, higher gravidity, or number of times a woman has been pregnant, was related to a decrease in active coping in our study. This may also be related to age and the findings previously discussed. Traditionally most nurses have focused their attention on women who are having their first baby as needing more help to cope during pregnancy and delivery. This result brings up the possibility that attention should also be directed to those women who have several children to better understand what is going on with them in relation to behavioral disengagement and less active coping. This may be particularly true for minority women who have lower income and lack monetary resources.

This study adds important information to the literature on coping by identifying items that can be used to assess active and disengaged coping in pregnant minority women, specifically Hispanic Mexican Americans and African Americans. The Brief COPE is easy to use, has good health literacy, and may prove very helpful in identifying positive coping during pregnancy.

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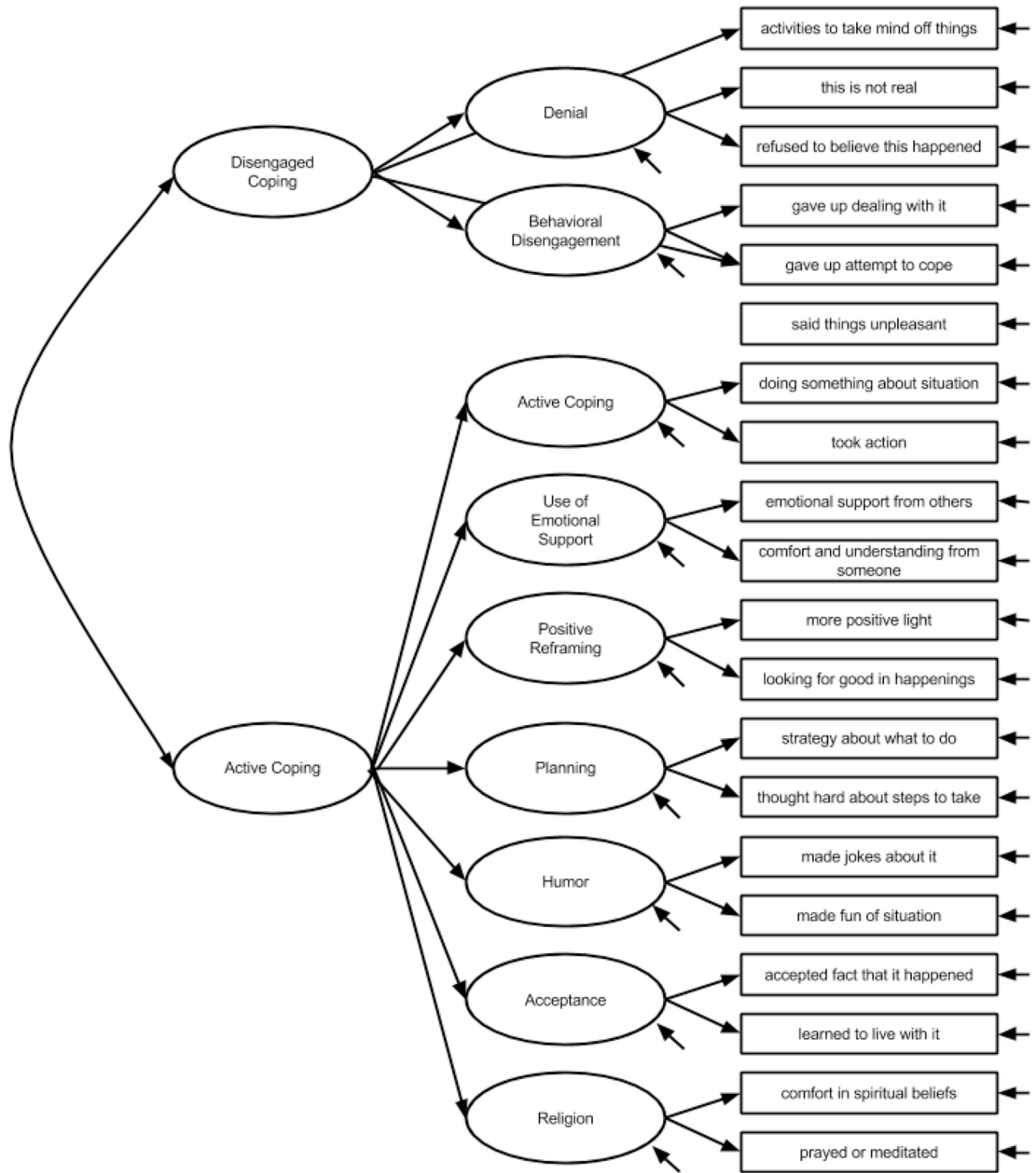


Figure 1.
Factor Loadings from Confirmatory Factor Analysis with the Brief Coping subscales

Table 1

Demographic characteristics

| Descriptive Statistic | Sample Characteristic | Hispanic Women | Black Women | Full Sample |
|----------------------------------|------------------------------------|---------------------------|--------------------|--------------------|
| Mean (SD) | Age | 24.51 (6.12) | 25.89 (6.08) | 25.15 (6.13) |
| | Years of Education | 12.06 (2.62) | 12.75 (1.82) | 12.37(2.32) |
| | Number of pregnancies | 2.61 (1.66) | 2.87 (1.95) | 2.73 (1.80) |
| | Hours worked per week ^l | 33.81 (12.36) | 30.14 (12.45) | 31.96 (12.51) |

Only employed women included.

Table 2

Scale Reliability

| General Factor | Specific Factor | English Version Cronbach's α (n = 365) | Spanish Version Cronbach's α (n = 39) | Full Sample Cronbach's α (n = 406) |
|-------------------|--------------------------|---|--|---|
| Disengaged Coping | Denial | .69 | .64 | .68 |
| | Behavioral Disengagement | .64 | .67 | .64 |
| Active Coping | Active Coping | .73 | .77 | .74 |
| | Use of Emotional Support | .75 | .85 | .77 |
| | Positive Reframing | .61 | .79 | .64 |
| | Planning | .70 | .57 | .69 |
| | Humor | .82 | .13 | .78 |
| | Acceptance | .65 | .75 | .69 |
| | Religion | .73 | .80 | .73 |