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Toward Evidence-Based Clinical Assessment of Ethnic Minority Youth

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This chapter focuses on the clinical assessment of ethnic minority and culturally diverse youth (hereafter referred to as "ethnic minority youth"). Given the field's increased emphasis on utilizing evidence-based assessments, we believe that a chapter on this segment of the child and adolescent population is timely for at least two primary reasons. First, comprehensive information about theoretical, methodological, and practical issues in the assessment of ethnic minority youth is scant, and as such this chapter helps fill a significant gap in the literature. Second, current population estimates show that these youth (both immigrant and U.S.-born) constitute a significant proportion of the nation's existing and growing population. For instance, estimates suggest that there are about 18 million Hispanic/Latino, 12 million African American, 3 million Asian American, and 1 million Native American youth in the United States (U.S. Census Bureau, 2010, 2011). Moreover, Census Bureau projections indicate that the number of ethnic minority youth in the United States will increase significantly over time (e.g., an increase of almost 7 million for Hispanic/Latino, 1 million for African Americans, and 2 million for Asian Americans is expected by 2020).

Emphasis on utilizing evidence-based assessments and the prominent growth of ethnic minority youth in the United States has prompted urgency for determining and establishing *whether* and *how* currently available clinical assessment tools developed for one cultural group can be used with other cultural groups. This is an important issue because data derived from

a cultural group may be artifactual if the measures used in the assessment, including diagnostic interviews and rating scales, yield nonequivalent information. More specifically, according to Okazaki and Sue (1995), nonequivalent cross-ethnic information can arise from variations in respondents' values, attitudes, language, and worldviews. As such, we have sought in this chapter to review evidence for the validity/reliability of clinical assessment tools for ethnic minority youth.

Whereas the focus of the chapter is on broadly defined groups of minority youth, it is important to note that variations exist within broad ethnic groups. As such, these groups should not be viewed as homogeneous or "pan-ethnic" (Knight, Roosa, & Umaña-Taylor, 2009), although very few studies report data about ethnic/cultural subgroups (e.g., youth from the Navajo Nation, Filipino youth, etc.). Our broad emphasis is on Hispanic/Latino, African American, Asian American, and Native American youth because these cultural groups are better represented in the extant literature. It is also important to note that although we primarily highlight clinical measures in this chapter, the conceptual issues presented are relevant to other areas (e.g., the assessment of emotion regulation; see Sulik et al., 2010).

In our review of the literature for this chapter, we found a modest body of culturally grounded, sophisticated research. A growing number of methodological and empirical pieces are focusing on two key issues very relevant to the clinical assessment of ethnic minority youth: "measurement equivalence" and "method bias." In an effort to keep within the space constraints of this chapter, but most importantly to advance the knowledge base, we have focused largely on these two issues; in addition, we have sought to fill gaps in the literature relevant to the assessment of ethnic minority youth. Moreover, we found a few studies that reported on the reliability and validity of diagnoses and symptoms ascertained via interviews, along with several studies that reported on the reliability and validity of rating scales for a single minority group. Because this body of research is critical to the process of establishing evidence-based clinical assessments for minority youth, we have also reviewed it briefly herein. Thus we begin with a brief conceptual overview of measurement equivalence and method bias. Then we review quantitative findings for clinical diagnostic measures and rating scales. We conclude with an overview of critical issues in the clinical assessment of ethnic minority youth—issues that must be considered because quantitative demonstration of validity and cross-ethnic equivalence is necessary but not sufficient for culturally sensitive clinical assessment.

MEASUREMENT EQUIVALENCE AND METHOD BIAS

Hui and Triandis (1985) discuss measurement equivalence by focusing on "item equivalence" and "construct validity equivalence" (Knight & Hill, 1998; Knight, Tein, Prost, & Gonzales, 2002; Millsap, 1997; Widaman &

Reise, 1997). Item equivalence (or "factorial invariance") can be evaluated from least restrictive to most restrictive—that is, "configural," "metric," "threshold," and "item uniqueness invariance." "Functional equivalence" and "scalar equivalence" (two main types of construct validity equivalence) can be evaluated by testing the relation of the construct in question to other constructs (Knight et al., 2002; Millsap & Kwok, 2004).

"Configural invariance" refers to whether the same factors of a measure exist across groups (Ghorpade, Hattrup, & Lackritz, 1999; Millsap & Tein, 2004; Vandenberg & Lance, 2000). For example, finding support for the configural invariance of the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978) (a child-completed measure that assesses negative affect/manifest anxiety) would mean that the three factors found in past research with European American youth (i.e., Physiological Anxiety, Worry/Oversensitivity, and Social Concerns/Concentration) would similarly be found in ethnic minority youth, thereby indicating that both groups share the same concept of negative affect/manifest anxiety. Conversely, lack of support for configural invariance would mean that some scale items do not load on the same factor for minority and European American youth. The RCMAS, for instance, includes a Physiological Anxiety factor scale. If physiological anxiety is noted by Asian American youth as "poor concentration," and not as having "sweaty hands" or "bad dreams" (as represented for European American youth), this would indicate that a different set of items would be needed for Asian American youth. Clearly, evidence supporting configural invariance is important, although not sufficient to support the use of a measure across groups. In fact, other levels relevant to item equivalence and construct validity equivalence are likely to yield more clinically and culturally meaningful information. For instance, metric invariance may be more informative than configural invariance, because it can yield information about important nuances in the presentation of clinical problems that might need to be considered in deriving a diagnosis and designing a treatment plan for a minority child. Below, we explore these issues and possibilities in greater depth.

"Metric invariance" refers to the meaning of scale items across groups (Labouvie & Ruetsch, 1995; Raykov, 2004), and it focuses on item-level factor loadings. Non-invariance in factor loadings could reflect differences in the presentation of a clinical problem or differences in semantic/linguistic interpretation of an item. A semantic/linguistic example can be demonstrated with the RCMAS item "I feel nervous when things don't go the right way." If Puerto Rican youth interpret the word "nervous" as meaning the same as *nervios* (e.g., as in *ataques de nervios,* a culture-bound syndrome),[1] which is distinct from "nervous" (Baer et al., 2003; Guarnaccia,

[1]*Ataques de nervios* are intense episodes of emotional distress typically expressed through trembling, crying, and screaming. Episodes often result from disruptions in familial bonds, such as a parent–child conflict or bereavement (see López, Rivera, Ramirez, Guarnaccia, Canino, & Bird, 2009).

Lewis-Fernández, & Marano, 2003; Salgado de Snyder, Diaz-Perez, & Ojeda, 2000), then the loading of this item on the Worry/Oversensitivity factor would be different across these groups, indicating that the RCMAS would lack metric invariance. Clinically, the distinction between "nervous" and *nervios* is important, because for some Hispanic/Latino youth these terms denote anxiety and depression, respectively.

When it comes to the next two invariance levels, "threshold invariance" refers to the severity of the construct needed before a respondent endorses a given categorical item on a scale (Widaman & Reise, 1997), whereas "item uniqueness invariance" refers to the error or unexplained variance in the endorsement of an item (Byrne, Shavelson, & Muthén, 1989). Continuing with the RCMAS, let us suppose that threshold invariance is not supported for the item "I have trouble making up my mind"; this would mean that greater indecisiveness is needed in youth from one group than in youth from another to provide positive endorsement. When it comes to item uniqueness invariance, the focus is on whether the errors in measurement associated with any specific item are the same or different across ethnic groups. As such, variations (or differential measurement error) could differentially attenuate the observed relations between the construct as measured by the focal scale and other related measures across groups. Hence any cross-group differences (or similarities) found could be due to measurement artifact.

Construct validity equivalence—consisting of "functional equivalence" and "scalar equivalence"—is quite important as well. These latter two terms mean that the construct being assessed has similar precursors, consequences, and/or correlates across groups (Knight & Hill, 1998; Knight et al., 2002). More specifically, functional and scalar equivalence refer to the equivalence of the slopes and intercepts, respectively, of the construct validity relations. Thus, to evaluate these two types of equivalence, theoretically relevant predictors need to be utilized in the analyses (Knight, Little, Losoya, & Mulvey, 2004; Pina, Little, Knight, & Silverman, 2009). For the RCMAS, construct validity equivalence could be evaluated by examining cross-group relations to measures of the same construct (i.e., negative affect/manifest anxiety) or related constructs (e.g., depression). If supported, functional and scalar equivalence would indicate that RCMAS anxiety is related to other constructs (e.g., depression) equivalently across groups. Functional equivalence would indicate cross-group similarity in the slopes of the construct validity relations, whereas scalar equivalence would indicate cross-group similarity in the intercepts of these relations. Support for functional and scalar equivalence would indicate that the RCMAS has potential utility for advancing theory—for example, about the relation between negative affect/anxiety and depression in the particular ethnic group being studied. If construct validity equivalence is not supported, this could indicate that the RCMAS has potential limitations, and other clinical measures might need to be used/developed for this ethnic group.

In addition to measurement equivalence, a brief note on method bias is

warranted as we work to move closer to securing clinical tools for the assessment of ethnic minority youth. Van de Vijver and colleagues (e.g., Van de Vijver & Poortinga, 1997; Van de Vijver & Tanzer 2004; Van de Vijver & Leung, 2011) point to the problem of method bias, or the degree to which assessment methods (e.g., interviews, questionnaires) yield (non)equivalent information. For instance, data show variability in ethnic differences based on assessment method. In interviews, for example, Asian Americans score significantly lower on social anxiety than European Americans, but they score significantly higher on social anxiety than European Americans on questionnaires; on peer reports and behavioral indices of social anxiety, no significant differences between the two groups typically emerge (Hwu, Yeh, & Chang, 1989; Okazaki, 1997, 2000, 2002; Okazaki, Liu, Longworth, & Minn, 2002; Somers, Goldner, Waraich, & Hsu, 2006; Sue, Ino, & Sue, 1983; Lee et al., 1987; Wittchen & Fehm, 2001). In other words, the assessment method may partially account for cross-cultural differences in the construct being measured. As explained by Matsumoto and Kupperbusch (2001), method differences with Asians may be due to cultural values that discourage display of emotions, especially to outsiders. Since Asian cultures typically value emotional discretion, the use of interviews, peer reports, and behavioral observations may underestimate emotional distress, whereas self-rating scales may yield better information. Given this knowledge, should interviews (and the like) be barred in the clinical assessment of Asian American youth? We do not have a concrete answer to this question. However, we suggest that the role cultural values may play in the clinical assessment of ethnic minority youth needs to be carefully considered, and in this case it seems prudent to give preference to self-rating scales (alone or in combination with other methods) for assessing internalizing symptoms with this population.

PROMISING TOOLS FOR THE ASSESSMENT OF CLINICAL ISSUES IN ETHNIC MINORITY YOUTH

In regard to diagnostic tools for the clinical assessment of ethnic minority youth, we should note that although the knowledge base is growing, little is known about most assessment procedures. For instance, we identified the most widely used and cited child diagnostic interview schedules; however, studies reporting on the validity and reliability of these tools in ethnic minority youth are scant (see Table 13.1). We found several studies reporting on the reliability (and validity; Bravo, Woodbury-Farina, Canino, & Rubio-Stipec, 1993) of *Diagnostic and Statistical Manual of Mental Disorders* (DSM) diagnoses among certain segments of ethnic minority youth, with the Diagnostic Interview Schedule for Children (DISC; Costello, Edelbrock, Dulcan, Kalas, & Klaric, 1984; DISC for DSM-III-R: Fisher et al., 1993; Shaffer et al., 1996; DISC for DSM-IV: Shaffer, Fisher, Lucas,

TABLE 13.1. Diagnostic Interview Schedules Evaluated with Ethnic Minority Youth

Interview	Study	Sample	Reliability	Validity
Preschool Age Psychiatric Assessment (PAPA): DSM-IV	Egger et al. (2006) (English; ~11-day retest); parent estimates provided.	Community sample of 307 youth (ages 2–5 years); 46% girls; 55% African American, 35% European American, 2% Hispanic/ Latino, 1% Asian American, 7% other; lay interviewers used.	Kappas were excellent for attention-deficit/ hyperactivity disorder and elimination disorders; good for depression, separation anxiety disorder, posttraumatic stress disorder, conduct disorder, and serious emotional disturbance. Remaining kappas were largely fair and a few poor. No significant differences (kappas or ICCs) between African Americans and non-African Americans were found.	Not evaluated.
Diagnostic Interview Schedule for Children (DISC): DSM-IV.	Bravo et al. (2001) (Spanish; ~12-day retest); child and parent estimates provided.	Clinical sample of 146 youth (ages 4–17 years); 33% girls; 100% Puerto Rican; lay interviewers used.	Kappas were excellent for parent-reported separation anxiety disorder (with impairment) and depression in younger children, and for older-youth-reported substance use; kappas were good for parent-reported oppositional defiant disorder in younger children, and for older-youth-reported alcohol abuse. Remaining kappas were largely fair and some poor.	Not evaluated.
DISC: DSM-III-R	Bravo, Woodbury-Fariña, Canino, & Rubio-Stipec (1993); Ribera et al. (1996); Rubio-Stipec et al. (1994) (Spanish; ~2-week retest); child, parent, combined child–parent (c/p) estimates provided.	Community sample of 248 youth, and clinical sample of 74 youth (ages 9–17 years); 58% girls; 100% Puerto Rican; psychiatrist and lay interviewers used.	For combined c/p, community: Kappas were excellent for disruptive disorders, poor for anxiety and depression. For combined c/p, clinical: Kappas were good for depression and disruptive disorders, fair for anxiety. Parent reports about younger children were generally more reliable.	For combined c/p using "best diagnostic estimate" criterion, community: Psychiatrist kappas were good for depression and disruptive disorders, fair for anxiety; lay kappas were fair for disruptive disorders, poor for anxiety and depression. For combined

(*continued*)

TABLE 13.1. *(continued)*

Interview	Study	Sample	Reliability	Validity
				c/p as above, clinical: Psychiatrist kappas were good for depression and disruptive disorders, fair for anxiety; lay kappas were fair for depression and disruptive disorders, poor for anxiety. Clinicians' reports were most concordant with child-reported depression and with parent-reported disruptive disorders.
DISC: DSM-III-R	Roberts, Solovitz, Chen, & Casat (1996) (mostly English; 7- to 14-day retest); adolescent estimates provided.	Clinical sample of 101 youth (ages 12–17 years); ~60% girls; Mexican American, African American, European American; lay interviewers used.	Kappas for separation anxiety disorder, dysthymia, oppositional defiant disorder, conduct disorder, and attention-deficit/hyperactivity disorder were good. Remaining kappas were largely fair and a few poor. Kappas were slightly better for African Americans (compared to the other two groups) on anxiety, disruptive, and substance use disorders, although the differences were nonsignificant. Kappas were slightly better for Mexican Americans (compared to the other two groups) on affective disorders.	Not evaluated.

Note. Criteria provided by Landis and Koch (1977) were used to evaluate kappa coefficients. The criteria are as follows: kappa > 0.74 indicates excellent reliability; kappa between .59 and .74 indicates good reliability; kappa between .40 and .58 indicates fair reliability; and kappa < 0.40 indicates poor reliability. These criteria are generally consistent with those reported by Shrout (1998). ICC, intraclass correlation coefficient.

Dulcan, & Schwab-Stone, 2000) receiving by far the most research attention. Canino and colleagues (e.g., Bravo et al., 1993; Bravo et al., 2001; Ribera et al., 1996; Rubio-Stipec et al., 1994) translated the DISC (for DSM-III-R and DSM-IV) into Spanish and reported on its (Spanish) reliability and validity in community and clinic samples from Puerto Rico, with lay interviewers versus psychiatrists, and across various time points (e.g., 2 weeks) (see Table 13.1). Roberts, Solovita, Chen, and Casat (1996) evaluated the reliability of diagnoses using the DISC with Mexican American and African American adolescents.

Overall, DISC data suggest that diagnoses of separation anxiety disorder, disruptive disorders, substance use disorders, and mood disorders can be reliably derived among Hispanic/Latino and African American youth (DSM-III-R and DSM-IV). Among preschoolers, the Preschool Age Psychiatric Assessment (PAPA; Egger & Angold, 2004; Egger, Ascher, & Angold, 1999) was found to yield reliable diagnoses for elimination disorder, conduct disorder, attention-deficit/hyperactivity disorder, depression, separation anxiety disorder, posttraumatic stress disorder, and serious emotional disturbance among African Americans. Data also suggest that reliability estimates across sources (child, parent) are typically similar across certain minority and European American populations (see Table 13.1; McClellan & Werry, 2000). Reliability is better when diagnoses are derived by experts (e.g., psychiatrists) than when derived by lay diagnosticians. When diagnoses are based on parent reports, reliability is better for younger children, but self-report data from older children yield better reliability about substance use. However, the reliability of children's diagnoses has not been evaluated in certain U.S. ethnic minority groups (i.e., Asian Americans, Native Americans). In addition, the reliability of minority children's diagnoses has not been systematically evaluated with many other diagnostic interviews, including the Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS; Chambers et al., 1985), the Dominic-R: A Pictorial Interview (Valla, Bergeron, Bidaut-Russell, St.-Georges, & Gaudet, 1997), and the Anxiety Disorders Interview Schedule for DSM-IV: Child and Parent Versions (ADIS-IV: C/P; Silverman & Albano, 1996). The ADIS-IV: C/P reliability study did include 32 Hispanic/Latino participants (Silverman, Saavedra, & Pina, 2001) and Pina and Silverman (2004) found reliability for the Spanish version of the ADIS-IV: C/P to range from .64 to .92 (no additional details were reported). As such, caution is recommended when deriving diagnoses or symptom scores for minority youth, and certainly in using the K-SADS or the Dominic-R for this purpose.

In regard to rating scales, data are scant when it comes to cross-ethnic measurement equivalence and basic reliability (interitem) and validity (concurrent). Tables 13.2 and 13.3 summarize findings from our comprehensive search of the literature, in which we identified studies reporting basic reliability/validity estimates and a few measurement equivalence studies reporting on widely used clinical measures. Most studies reporting basic

reliability/validity focused on broad measures of child behavior problems (e.g., the Achenbach System of Empirically Based Assessment [ASEBA]), with several others reporting on measures for specific clinical problems (e.g., the Children's Depression Inventory [CDI]). Across measures, studies typically reported on samples of African American youth, followed by Hispanic/Latino youth. Notably, some studies reported basic reliability/validity in the acceptable range for specific clinical measures, whereas others reporting on the same measures showed lack of cross-ethnic invariance (i.e., failed some measurement equivalence tests). For example, the Center for Epidemiologic Studies Depression Scale (CES-D) has been found to yield adequate alpha reliability estimates for Hispanic/Latino youth (see Table 13.2), but Crockett, Randall, Shen, Russell, and Driscoll (2005) obtained no support for the configural or metric invariance of the CES-D with this same group.

Between-study variability can occur for several reasons, including possible variations in within-group cultural heterogeneity and the fact that alpha reliability estimates are based on "basic" interitem correlations, whereas invariance tests are more robust (based on item-level factor loadings, errors, and slopes). Nonetheless, the measurement equivalence studies reviewed in Table 13.3 indicate a number of promising clinical measures for minority youth.

Briefly, we found this literature to be characterized by studies that relied on adequate sample sizes (with some exceptions; e.g., Varela & Biggs, 2006) and scales designed to measure mood problems/negative affect. A small number of studies also evaluated the cross-ethnic measurement equivalence of disruptive behavior problem scales (e.g., the IOWA Conners Teacher Rating Scale). Most studies reported on samples of Hispanic/Latino and European American youth (e.g., Crockett et al., 2005; Knight, Virdin, Ocampo, & Roosa, 1994; Pina, Little, et al., 2009), followed by studies reporting on African American and European American youth (e.g., Reid, Casat, Norton, Anastopoulos, & Temple, 2001; Tyson, Teasley, & Ryan, 2011). Remarkably, only one study reported on a sample of Native American youth (Beiser, Dion, & Gotowiec, 2000)—a population that is largely underrepresented in the research literature as a whole. Lastly, Gross et al. (2007) and Prenoveau et al. (2009) reported measurement equivalence data of somewhat limited utility, because minority youth were aggregated pan-ethnically for the analyses. Unfortunately, findings from these types of studies cannot be generalized to any particular ethnic minority group.

It also is important to note that across most studies, configural invariance was supported (i.e., the same factors of a measure were found to exist across groups—the "weakest" index of measurement equivalence), with some notable exceptions. For instance, the configural invariance of the Child Behavior Checklist for Ages 6–18 (CBCL/6–18; Internalizing and Externalizing scales) across European American and African American

TABLE 13.2. Selected Rating Scales for Assessing Clinical Problems in Ethnic Minority Youth

Clinical measures	Hispanic/ Latino	African American	Native American	Asian American	Selected studies
			Comprehensive rating scales		
ASEBA: Child Behavior Checklist for Ages 6–18	V R	V R	R	V R	Dionne, Davis, Sheeber & Madrigal (2009); Lau et al. (2004)
ASEBA: Teacher's Report Form	V R	V R	R	V R	Dionne et al. (2009); Lau et al. (2004)
ASEBA: Youth Self-Report	V R	V R	R	V R	Lau et al. (2004); Silmere & Stiffman (2006)
Behavior Assessment System for Children	R	V			McCloskey, Hess, & D'Amato (2003); Jastrowski Mano, Davies, Klein-Tasman, & Adesso (2009)
Behavior Problem Index	R	R	R		Momper & Jackson (2007); Spencer, Fitch, Grogan-Kaylor, & McBeath (2005)
			Internalizing rating scales		
Center for Epidemiologic Studies Depression Scale	V R	R	V R	R	Brown, Meadows, & Elder (2007); Thrane, Whitbeck, Hoyt, & Shelley (2004); Umaña-Taylor & Updegraff (2007)
Children's Depression Inventory	V R	V R	V R	R	Cole, Martin, Peeke, Henderson, & Harwell (1998); Davanzo et al. (2004); Hamill, Scott, Dearing, & Pepper (2009); Kistner, David-Ferdon, Lopez, & Dunkel (2007); Randall & Bohnert (2009); Rieckmann, Wadsworth, & Deyhle (2004)
Fear Survey Schedule for Children—Revised	V R				Varela, Sanchez-Sosa, Biggs, & Luis (2008)
Multidimensional Anxiety Scale for Children	V R	V R	R		Goodkind, LaNoue, & Milford (2010); McLaughlin, Hilt, & Nolen-Hoeksema (2007)

(continued)

TABLE 13.2. *(continued)*

Clinical measures	Hispanic/ Latino	African American	Native American	Asian American	Selected studies
Revised Child Anxiety and Depression Scale				V R	Chorpita, Yim, Moffitt, Umemoto, & Francis (2000)
Revised Children's Manifest Anxiety Scale	V R	R			Argulewicz & Miller (1984); Pina, Little, et al. (2009)
Reynolds Adolescent Depression Scale	V R	V R	V R		LaFromboise, Medoff, Lee, & Harris (2007); Stein et al. (2010)
Social Phobia and Anxiety Inventory for Children	V R	V R			McLaughlin et al. (2007)
State–Trait Anxiety Inventory for Children	R	R			Ortiz, Silverman, Jaccard, & La Greca (2011); Walton, Johnson, & Algina (1999)
State–Trait Anxiety Inventory for Children		R			Walton et al. (1999)
			Externalizing rating scales		
Eyberg Child Behavior Inventory	V R	V R	R		Dionne et al. (2009); Gross et al. (2007)
IOWA Conners Rating Scale		V			Reid, Casat, Norton, Anastopoulos, & Temple (2001)
Sutter–Eyberg Student Behavior Inventory		V R			Floyd, Rayfield, Eyberg, & Riley (2004)
Swanson, Nolan, and Pelham–IV		V R			Bussing et al. (2008)

Note. ASEBA, Achenbach System of Empirically Based Assessment; R, reliability demonstrated; V, validity demonstrated. No published report showing inadequate reliability/validity was found.

youth was not supported in one study (Tyson et al., 2011). If these findings are replicated, it may be the case that (1) these measures have lower accuracy in capturing the underlying construct in the cultural groups of interest; (2) there are cultural and contextual factors influencing the basic nature of the construct; or (3) both. As also shown in Table 13.3, threshold, item uniqueness, functional, and scalar equivalence remain largely unexamined in the literature.

ADDITIONAL ISSUES IN THE CLINICAL ASSESSMENT OF ETHNIC MINORITY YOUTH

As noted earlier, quantitative demonstration of validity and cross-ethnic equivalence is necessary but not sufficient for culturally sensitive clinical assessment. For this reason, we articulate a few further critical issues that must be considered in the clinical assessment of ethnic minority youth.

1. *Clinical measures need to be evaluated in the context of informed theory.* That is, they need to be evaluated in terms of the degree to which constructs being assessed conform to theory about the population being measured (e.g., Knight, Tein, et al., 2002; Knight & Zerr, 2010; Pina, Little, et al., 2009). A main implication of informed theory is that a measure may fail certain measurement equivalence tests and still be useful with minority youth. Knight, Roosa, et al. (2009) explain that whereas an item assessing the frequency of suicidal ideation may be appropriate on a scale measuring depression, there may be less variability in responses to this item in a given ethnic group because of a strong religious prohibition against suicide. As a result, the suicidal item may load on different factors for different ethnic groups, due to differences in response variance. Dropping the item due to lack of factorial invariance, however, is not recommended (not only clinically, but also culturally). Instead, if there is a culturally related phenomenon that explains ethnic differences on the item(s), accepting partial invariance on the basis of informed theory would be more appropriate than dropping the "offending" item to secure full invariance.

A related implication of informed theory is that interpretations of expressed emotion in ethnic minority youth need to be considered in the context of culture. We found a general lack of theory-driven and culturally grounded explanations for variations in severity/endorsement of expressed emotions among ethnic minority youth. In the literature, a typical interpretation of such variations is that certain segments of ethnic minority youth are at increased risk for poor mental health outcomes. On the basis of informed theory, however, assigning culturally grounded meaning to clinical phenomena is sometimes worth considering. For instance, among African American youth, emerging evidence shows that physiological arousal is especially intense among those suffering from anxiety (e.g., Carter,

TABLE 13.3. Cross-Ethnic Measurement Equivalence Studies Assessing Clinical Measures with Ethnic Minority Youth

Study	Sample	Clinical measures	Findings
		Comprehensive rating scales	
Guttmannova, Szanyi, & Cali (2008)	Community sample of 1,099 youth (ages 5–11 years); sex not reported; 47% European American, 32% African American, 21% Hispanic/Latino	Behavior Problem Index (BPI; Internalizing and Externalizing scales; Peterson & Zill, 1986).	Results showed no support for the configural invariance of the two BPI scales across Hispanic/Latino, African American, and European American youth. For the short version of the BPI (17 items identical to some from the CBCL), results showed support for the configural, metric, and threshold invariance of the two scales across the three ethnic groups. Item uniqueness, functional, and scalar equivalence were not examined.
Spencer, Fitch, Grogan-Kaylor, & McBeath (2005)	Community sample of 1,691 youth (*M* age = 10.45 years, *SD* = 2.83); 49% girls; 53% European American, 28% African American, 19% Hispanic/Latino.	BPI (Internalizing and Externalizing scales; Antisocial, Anxious/Depressed, Dependent, Headstrong, Hyperactive, and Peer Problems subscales).	Results showed no support for the configural invariance of the two-factor or six-factor model of the BPI across Hispanic/Latino, African American, and European American youth.
Tyson, Teasley, & Ryan (2011)	Community sample of 910 adopted youth (ages 6–18 years); sex not reported; 68% European American, 32% African American.	Child Behavior Checklist for Ages 6–18 (CBCL/6–18; Internalizing and Externalizing scales; Achenbach & Rescorla, 2001).	Results showed no support for the cross-ethnic configural or metric invariance of the two CBCL/6–18 broad-band scales.
		Internalizing rating scales	
Crockett, Randall, Shen, Russell, & Driscoll (2005)	Community sample of 10,691 youth (ages 12–18 years); 51% girls; 80% European American, 12% Mexican American, 4% Cuban American, 4% Puerto Rican living in mainland United States.	Center for Epidemiologic Studies Depression Scale (CES-D; Negative Affect, Positive Affect, Somatic Symptoms, and Interpersonal Aspects subscales; Radloff, 1977).	Results showed support for the configural and (partial) metric invariance of the four CES-D subscales across European American and Mexican American youth. There was no support for the configural or metric invariance of the CES-D between European American and Cuban youth or between European American and Puerto Rican (mainland) youth.

			After establishment of configural and metric invariance for the Add Health Self-Esteem Scale between European American and Mexican American youth and European American and Puerto Rican (mainland) youth, and of configural invariance between European American and Cuban American youth, functional and scalar equivalence were supported for the CES-D total score (after controls for sex, age, parental education, and receipt of public assistance) across European American, Mexican American, Cuban American, and Puerto Rican (mainland) American youth. Threshold and item uniqueness invariance were not examined.
Gonzalez, Weersing, Warnick, Scahill, & Woolston (2012)	Clinic sample of 808 parents of youth (ages 5–18 years); 38% girls; 60% European American, 40% African American. Clinic sample of 374 youth (ages 11–18 years); 46% girls; 60% European American, 40% African American.	Screen for Child Anxiety Related Emotional Disorders, Parent and Child Report (SCARED-P, SCARED-C; General Anxiety, Separation Anxiety, Panic/ Somatic, Social Phobia, and School Phobia subscales; Birmaher et al., 1999).	Results showed support for the cross-ethnic configural and (partial) metric invariance of the five SCARED-P and five SCARED-C subscales. Threshold, item uniqueness, functional, and scalar equivalence were not examined.
Knight, Virdin, Ocampo, & Roosa (1994)	Community sample of 968 youth (ages 9–13 years); sex not reported; 72% European American, 28% Hispanic/ Latino (mostly Mexican American).	Children's Depression Inventory (CDI; Kovacs, 1985).	Results showed support for the cross-ethnic functional and scalar equivalence of the CDI (total scale) with the Child Hostility Scale (Cook, 1986), the Global Self-Worth scale from the Self-Perception Profile for Children (Harter, 1985), and the General Life Events Schedule for Children (Sandler et al., 1986). Configural, metric, threshold, and item uniqueness invariance were not examined.

(continued)

TABLE 13.3. *(continued)*

Study	Sample	Clinical measures	Findings
Pina, Little, Knight, & Silverman (2009)	Clinic sample of 677 youth referred for anxiety (ages 6–16 years); 47% girls; 59% Hispanic/Latino, 41% European American	Revised Children's Manifest Anxiety Scale (RCMAS; Physiological Anxiety, Worry/ Oversensitivity, and Social/ Concerns/Concentration subscales; Reynolds & Richmond, 1978); CDI; Fear Survey Schedule for Children—Revised (FSSC-R; Ollendick, 1983).	After the configural, metric, threshold, and item uniqueness invariance of the RCMAS were established across sex and age, results showed support for the cross-ethnic configural, metric, threshold, and item uniqueness invariance of the three RCMAS subscales. After configural, metric, threshold, and item uniqueness invariance were evaluated for the CDI total and the FSSC-R subscales, functional and scalar equivalence for the RCMAS Total Anxiety scale were supported.
Prenoveau et al. (2009)	Community sample of 542 youth (*M* age = 16.9 years, *SD* = 0.81); 68% girls; 50% European American, 15% Hispanic/Latino, 12% African American, 4% Asian American, 1% Pacific Islander, 13% mixed race/ethnicity, 5% other.	Dysfunctional Attitude Scale, Form A (DAS-A; Dysfunctional Attitudes about Achievement, Dysfunctional Attitudes about Needing Approval, Reverse-Worded Items subscales; Weissman & Beck, 1978; Weissman, 1979).	After the configural and (partial) metric invariance of the DAS-A were established across sex, results showed support for the cross-ethnic (European American and non-European American) configural and (partial) metric invariance of the three DAS-A subscales and the Total scale. Threshold, item uniqueness, functional, and scalar equivalence were not examined.
Russell, Crockett, Shen, & Lee (2008)	Community sample of 9,262 youth (ages 12–18 years); 51% girls; 92% European American, 5% Filipino American, 3% Chinese American.	CES-D (Negative Affect, Positive Affect, Somatic Symptoms, and Interpersonal Aspects subscales).	Results supported the configural, metric, (partial) threshold, and (partial) item uniqueness invariance of the four CES-D subscales between European American and Filipino American youth. Configural invariance was not supported between European American and Chinese American youth for the four CES-D subscales. An alternative three-factor model was found for Chinese American youth, consisting of Negative Affect/Somatic, Positive Affect, and Interpersonal Aspects. Functional and scalar equivalence were not examined.

Varela & Biggs (2006)	Community sample of 150 youth (ages 10–14 years); 47% girls; 35% Mexican, 34% European American, 31% Mexican American.	RCMAS (Physiological Anxiety, Worry/Oversensitivity, Social Concerns/Concentration, and Lie subscales).	Results showed support for the configural, metric, and (partial) item uniqueness invariance of the four RCMAS subscales across Mexican, Mexican American, and European American youth. Functional equivalence also was supported among the four RCMAS subscales across the three groups. Threshold and scalar equivalence were not examined.
Varela, Sanchez-Sosa, Biggs, & Luis (2008)	Community sample of 217 youth (ages 7–16 years); 46% girls; 46% Mexican, 33% Hispanic/Latino, 21% European American.	RCMAS (Physiological Anxiety, Worry/Oversensitivity, Social Concerns/Concentration, and Lie subscales); FSSC-R (Failure and Criticism, Unknown, Injury and Small Animals, Danger and Death, and Medical Phenomena subscales); Multidimensional Anxiety Scale for Children (MASC; Physical Symptoms, Harm Avoidance, Social Anxiety, and Separation Anxiety subscales; March, Parker, Sullivan, Stallings, & Conners, 1997).	Results showed support for the configural invariance of the child- and mother-completed versions of the four RCMAS subscales across Mexican, other Hispanic/Latino, and European American youth. Configural invariance was supported for the child- and mother-completed versions of the five FSSC-R subscales and the four MASC subscales across the three groups. Functional equivalence of the child-completed FSSC-R (total score and five subscales) was supported with the child-completed MASC (total and four subscales) and RCMAS (total and four subscales). Functional equivalence of the mother-completed FSSC-R was not examined. Threshold, item uniqueness, and scalar equivalence were not examined.
		Externalizing rating scales	
Beiser, Dion, & Gotowiec (2000)	Community sample of 2,044 youth (second and fourth graders; for second graders, *M* age = 8.5 years, *SD* = 0.65; for fourth graders, *M* age = 10.6 years, *SD* = 0.50); 52% girls; 76% Native American, 23% European American, 1% Hispanic/Latino, Asian American, or African American.	Child's Assessment by a Parent—Attention-Deficit/Hyperactivity Disorder (CAP-ADHD; Attention-Deficit and Hyperactivity/Impulsivity subscales); Teacher Interview Form—ADHD (TIF-ADHD; Attention-Deficit and Hyperactivity/Impulsivity subscales); Student's Observation of Self—ADHD (SOS-ADHD; Combined ADHD subscale).	Results showed support for the cross-ethnic (Native American and non-Native American) metric invariance of the two CAP-ADHD subscales, the two TIF-ADHD subscales, and the SOS-ADHD scale. Configural, threshold, item uniqueness, functional, and scalar equivalence were not examined.

(*continued*)

TABLE 13.3. *(continued)*

Study	Sample	Clinical measures	Findings
Gross et al. (2007)	Community sample of 682 youth (ages 2–4 years); 52% girls; 47% Hispanic/Latino, 29% African American, 24% European American	Eyberg Child Behavior Inventory, Intensity subscale (ECBI-I; Eyberg & Ross, 1978; Eyberg & Pincus, 1999).	Results supported the configural invariance of the ECBI-I subscale for European American and non-European American youth (African American and Hispanic/Latino). Threshold, item uniqueness, functional, and scalar equivalence were not examined.
Reid, Casat, Norton, Anastopoulos, & Temple (2001)	Community sample of 3,998 youth (ages 5–11 years); sex not reported; 53% African American, 47% European American	IOWA Conners Teacher Rating Scale (Inattention/Overactivity and Aggression subscales; Loney & Milich, 1982; Pelham, Milich, Murphy, & Murphy, 1989).	Results showed support for the cross-ethnic configural invariance of the two IOWA Conners subscales. Metric, threshold, item uniqueness, functional, and scalar equivalence were not examined.

Miller, Sbrocco, Suchday, & Lewis, 1999; Kingery, Ginsburg, & Alfano, 2007; Lambert, Cooley, Campbell, Benoit, & Stansbury, 2004; Nishina, Juvonen, & Witkow, 2005). Higher levels of physiological arousal among anxious African American youth could be viewed as an acceptable way to express suffering while avoiding the stigma associated with mental illness in the culture (Kingery et al., 2007; Nishina et al., 2005), or even avoiding institutionalization (especially given African Americans' discrimination and segregation history). As such, to assign culturally grounded meaning to anxiety-related physiological symptom levels in African American youth, historical trends and culture may prove more useful than the overpathologizing of these youth.

2. *Measurement equivalence studies need to move beyond cross-ethnic comparisons.* Using ethnicity as the main focal variable in measurement equivalence studies probably offers limited information about a measure's performance. For example, since within-ethnic-group variations exist, it should not be expected that a measure would perform equivalently when administered to U.S.-born Mexican American youth versus recent-immigrant Mexican youth. Immigration status, generational status, ethnic identity, racial/ethnic socialization, and acculturation may prove to be meaningful indicators of a measure's performance among youth within certain broad ethnic groups, especially if the construct targeted by the measure can be influenced by the contextual indicator. As such, explanatory variables may need to be considered as focal variables in equivalence studies.

3. *Cultural norms need to be carefully considered in the clinical assessment of ethnic minority youth.* As illustrated in the discussion of method bias, cultural norms and values can influence outcomes measured by various methods (e.g., self-report, observations). Whereas most method bias research has focused on youth of Asian origin, additional data suggest that this type of bias may also be relevant in the assessment of other minority youth. Native American youth, for example, may appear nonassertive, nonspontaneous, and quiet; make limited eye contact; and appear reluctant to disclose their problems—all of which may be linked to the fact that many Native cultures emphasize perfection and actively reinforce these behaviors (Manson, Bechtold, Novins, & Beals, 1997). Hispanic/Latino children also may present as less expressive, may look down, and may speak softly. Again, these behaviors probably reflect the fact that Latino families typically strive to raise children who are *bien educados* (well mannered) and *respetuosos* (respectful). Both of these concepts translate into being calm, quiet, and agreeable, especially in social situations with adults and authority figures; naturally, English-language ability may also influence these youth's expressiveness (Canino & Guarnaccia, 1997). Therefore, Native American and Latino youth may perform differently during behavior observation tasks and interviews compared to questionnaires. For these reasons, systematic research examining method bias in these groups is needed.

4. *For some clinical issues among ethnic minority youth, new measures need to be developed.* When it comes to negative affect, there is evidence that cross-ethnic variations in expressed emotion may arise when cultures selectively emphasize and elaborate experiential aspects of emotional distress. Outcomes from these cultural processes include distress syndromes that vary from Western taxonomy, as well as differences in the way distress is labeled or emphasized. For example, Guarnaccia and colleagues (Guarnacchia, Martinez, Ramirez, & Canino, 2005; López et al., 2009) surveyed Puerto Rican youth's experiences with *ataques de nervios.* In adults, *ataques* are characterized by screaming uncontrollably, crying spells, trembling, and becoming verbally and/or physically aggressive (Guarnaccia, Rivera, Franco, & Neighbors, 1996). *Ataques* typically occur after a stressful family life event (e.g., death, separation; Guarnaccia et al., 1996). *Ataques* in adults also may include dissociative experiences, seizure-like episodes followed by fainting, and suicidal gestures (Guarnaccia, Canino, Rubio-Stipec, & Bravo, 1993; Lewis-Fernandez, Garrido-Castillo, et al., 2002). One feature that differentiates an *ataque* from a panic disorder episode is its temporal association with the stressful event and the absence of acute fear symptoms (Lewis-Fernandez, Guarnaccia, et al., 2002). In children, research on *ataques* is scant, but data show that *ataques* tend to occur among those who meet DSM criteria for a psychiatric disorder, especially depression rather than anxiety. The only two research studies on *ataques* in children published to date have relied on a single item: "Have you ever had an *ataque de nervios*?" (Guarnaccia et al., 2005; Lopez et al., 2009). Clearly, this is one example where a comprehensive and culturally grounded measure of expressed emotion for youth needs to be developed.

APPLICATION TO THE CASE OF SOFIA

Our review and evaluation of the research literature suggest that practitioners can use selected measures in the assessment of ethnic minority youth, but should do so cautiously. Some measures are especially promising (e.g., the CES-D), but should not be applied across ethnic groups equivalently (see Table 13.3). And, just as in the assessment of nonminority youth, clinicians should rely on the use of multiple measures and informants in assessing minority youth.

For example, in the case of Sofia (the Guatemalan-origin girl experiencing affective difficulties and school refusal behavior as described by McLeod, Jensen-Doss, & Ollendick, Chapter 4, this volume), the CBCL/6–18 could be completed by her parent(s), and Sofia might complete the Reynolds Adolescent Depression Scale, the CDI, and/or the RCMAS. Given evidence from "basic" psychometric and measurement equivalence studies, the CDI and the RCMAS probably would offer good clinical information.

In addition, a thorough clinical assessment of Sofia's case should include a cultural component (i.e., a focus on cultural values, practices, affiliation, and identity) to help guide case conceptualization and treatment plans (see Pina, Villalta, & Zerr, 2009), with particular attention to within-ethnic-group variation or cultural heterogeneity (Knight, Roosa, et al., 2009). One way to gather basic information on cultural factors that could influence minority youth's responses is to use open-ended follow-up questions about emotions, behaviors, and cognitions endorsed at the item level on a given measure. For example, suppose Sofia were to endorse the CDI item "I do not like being with people many times." With follow-up questions, the clinician could learn how, if at all, this feeling was related to a family-referent cultural script (e.g., children should be taught to be good at all times because they represent the family; Knight et al., 2010). That is, Sofia might feel she had disappointed her family by not going to school—especially her father, who, like many Hispanics/Latinos, probably migrated to the United States to offer his children the opportunity to attend college. Moreover, if the family referent cultural script was related to Sofia's distress, then the clinician could probably determine how interpersonal therapy for depression (see Bernal & Rosselló, 2008) might help Sofia and her family. In short, the practitioners might find several mainstream measures useful in Sofia's case, albeit culturally guided probing would be an essential part of the evaluation.

CONCLUDING COMMENTS

A growing number of assessment tools appear to be promising for use with ethnic minority youth, although research remains scant when it comes to the evaluation of such tools with robust methodological strategies. At the very least, studies that include significant proportions of minority youth must report reliability estimates for measures completed by the specific ethnic group(s) being studied. In addition, cross-ethnic comparison studies should report measurement invariance results for the scales used, to assist the process of primary hypothesis testing. In studies focusing on a single ethnic group (e.g., Mexican Americans), it will be important for future research to explore whether within-group variability along theory-relevant cultural variables (e.g., cultural orientation, ethnic/racial socialization) attenuates a measure's ability to assess a focal construct in the study. For example, findings from a study aimed at testing the relations between control, stress reactivity, and anxiety may be biased if the measure used to assess control yields nonequivalent information for less acculturated versus highly acculturated Mexican adolescents. As we move forward with all these endeavors, we can improve our knowledge about mental health issues relevant to minority youth in the United States, and subsequently can help to improve the lives of these youth and their families.

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