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Item Type	Article
Authors	Loyd, A.B;Derlan, C.L;Smith, E.V;Norris, S.A;Richter, L.M;Roeser, R.W
Citation	Loyd AB, Derlan CL, Smith EV, Norris SA, Richter LM, Roeser RW. Evaluating the Psychometric Properties of a Measure of Ethnic Identity Among Black South African Youth. Identity. 2019;19(1):44-61. DOI: 10.1080/15283488.2019.1566070.
Publisher	Taylor & Francis
Download date	2026-03-06 23:16:50
Link to Item	https://www.tandfonline.com/doi/full/10.1080/15283488.2019.1566070



Identity

An International Journal of Theory and Research

ISSN: 1528-3488 (Print) 1532-706X (Online) Journal homepage: <https://www.tandfonline.com/loi/hidn20>

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To cite this article: Aerika Brittian Loyd, Chelsea L. Derlan, Everett V. Smith, Shane A. Norris, Linda M. Richter & Robert W. Roeser (2019) Evaluating the Psychometric Properties of a Measure of Ethnic Identity Among Black South African Youth, *Identity*, 19:1, 44-61, DOI: [10.1080/15283488.2019.1566070](https://doi.org/10.1080/15283488.2019.1566070)

To link to this article: <https://doi.org/10.1080/15283488.2019.1566070>



Published online: 30 Jan 2019.



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Evaluating the Psychometric Properties of a Measure of Ethnic Identity Among Black South African Youth

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ABSTRACT

The authors examined the dimensionality and psychometric properties of the Multigroup Ethnic Identity Measure (MEIM) among Black South African adolescents (ages = 13–14; 52% female) representing several ethnic groups (Ndebele, Pedi, Sotho, Swati, Tsonga, Tswana, Venda, Xhosa, Zulu) and evaluated the measure for differential item functioning primarily among four ethnic groups (Sotho, Tswana, Xhosa, and Zulu). Results indicated that a two-dimensional model best represented the data, reflecting *ethnic search/clarity* and *ethnic affirmations*. Subsequently, we evaluated the equivalence of the MEIM among the four South African ethnic groups and a sample of African American adolescents ($M_{age} = 15.57$ years; $SD = 1.22$; 51% female). Further analyses revealed that configural and metric models were excellent across the four South African ethnic groups and the African American group. However, scalar invariance (i.e., intercept) was not found; the item intercepts were different for the South African ethnic groups and African Americans. Findings are discussed with consideration for conducting research on ethnic identity among youth in South Africa.

Identity formation is a cognitive, developmental, and psychological process through which a person explores, negotiates, and comes to understand and establish their place in the social world at a particular time in history (Erikson, 1968). At the same time, identity development is a social process by which one is socialized and positioned within certain roles and identities, and not others, through powerful social influences in one's sociocultural context (e.g., Roeser, Peck, & Nasir, 2006). Empirical studies support that adolescents and young adults who have achieved clarity regarding their identity are less likely to exhibit acts of delinquency and engage in substance use (Schwartz et al., 2015) and are more likely to express prosocial behaviors in the form of contributions to society (Brittian & Lerner, 2013). *Ethnic identity*, one domain of a person's overall sense of identity that is associated with ethnicity and/or ethnic group membership, has been identified as a particularly important psychological and psychosocial construct that is linked to healthy development for individuals from ethnically marginalized groups (Umaña-Taylor et al., 2014).

Although studies conceptualizing and empirically examining ethnic identity have expanded notably since the 1990s (see Schwartz et al., 2014; Umaña-Taylor, 2011), relatively few studies have examined this construct among youth in African contexts. One reason for this is the lack of studies assessing the psychometric properties (e.g., reliability, validity, measurement equivalence) of ethnic identity measures among African populations (e.g., Bornman, 1999; Worrell, Conyers, Mpfu, & Vandiver, 2006). With accurate measurements, we may be able to examine and understand what

role ethnic identity serves in human development in non-Western contexts, where most of the young people in the world live. Therefore, we examined the psychometric properties of a widely used ethnic identity measure, the Multigroup Ethnic Identity Measure (MEIM; Phinney, 1992), in a sample of Black South African youth representing several ethnic groups and examined its equivalence to a sample of African American adolescents from the United States, for whom ethnic identity has been established as a prominent psychological construct (Resnicow, Soler, Braithwaite, Selassie, & Smith, 1999; Roberts et al., 1999; Umaña-Taylor, 2011; Umaña-Taylor et al., 2014).

Historical and social context of South Africa

South Africa is a society experiencing notable political, economic, cultural, and societal transitions (Dimitrova et al., 2017; Ferguson & Adams, 2016; Naudé, 2017). Like many industrialized countries, it is also an example of a historically denigrative cultural context for racially and ethnically marginalized groups (Barbarin, 1999; Zegeye, 2001). Although colonization, and subsequently apartheid, assigned individuals to seemingly homogenous and distinct racial groups, *black* was comprised of individuals from several diverse and distinct ethnic groups varying in languages, histories, traditions, and practices (Ndebele, Pedi, Sotho, Swati, Tsonga, Tswana, Venda, Xhosa, Zulu, and many others). Similarly, *white* was comprised of people from several ethnicities, including those who identify as Afrikaner (Afrikaans-speaking descendants of the Dutch and Huguenot settlers), descendants of British and Irish settlers, and other European immigrant groups (Adams, van de Vijver, & De Bruin, 2012).

Race and ethnicity are both social and politically constructed categories, often used to describe and differentiate individuals and groups of people who share commonalities around physical appearance, historical treatment, heritage, beliefs, language, and traditions (Omi & Winant, 1994), and these categories have been used to define status for various groups. In South Africa, race and ethnicity are interrelated in that people may share racial group membership due to government mandated separation, but they may vary in ethnic group membership (Marx, 1998). In this article, we use terms ascribed to *race* (e.g., Black and White) as they are typically understood in South Africa due to apartheid separation and *ethnicity* to refer to ethnic and/or cultural groups that may share racial group classification but vary in language, heritage, and traditions (e.g., Sotho, Xhosa, Zulu).

Under the previous political system, South Africans who were racially classified as White were awarded the most social and material privileges (e.g., access to better education, health care, and employment opportunities), followed by people of mixed ancestry (Coloureds), Asians (mostly Indian, but including Chinese immigrants), and last Black South Africans (Barbarin, 1999; Marx, 1998; Worden, 1994). The collapse of the apartheid system in the early 1990s was followed by the election of Nelson Mandela, the first Black South African president, in 1994. The idea of the “rainbow nation” and an emphasis on an overarching South African national identity emerged after the first democratic elections (Alexander, 2002; Peberdy, 2001), and new perspectives were adopted in South Africa regarding social policy and socially acceptable (and prohibited) practices around racial and ethnic diversity and interracial and intercultural group contact (Ferguson & Adams, 2016).

Presently, Black South Africans compose the numerical majority (80.9%), while people of mixed ancestry (8.8%), White South Africans (7.8%), and Asians (2.5%) are numerical minorities (Statistics South Africa, 2018). Since the first democratic election and Nelson Mandela’s inauguration, Black South African citizens have gradually gained political power and representation (e.g., all subsequent South African Presidents have been Black). However, being the numerical and political majority has not necessarily impacted access and equity for most Black South Africans. Research indicates that despite efforts to promote equality and increase opportunities for upward social and economic mobility under the current political system (e.g., legislation for equality, financing to improve public health and education services, and Black economic empowerment practices), Black South Africans continue to

experience myriad disparities across several domains of human development: education, health, and employment (e.g., Benatar, 2013; Boswell, 2014; Olson, Shutts, Kinzler, & Weisman, 2012).

South Africa's political and historical context as well as rapid social transitions have also created a unique, yet challenging, sociological environment for identity development (Naudé, 2017). South Africans are charged with the task of integrating multiple complex aspects of identity around race and ethnicity, as well as gender and class, with a collective national identity that is situated within the global community; many are redefining what it means to be South African and what it means to be African (Dimitrova et al., 2017; Ferguson & Adams, 2016). Thus, it offers identity researchers another context in which to assess and understand how identity synthesis and integration occurs for people living amid dynamic social change and transitions.

For Black South African youth, in particular, establishing a positive identity must involve creating a vitalizing sense of self that encompasses the historical aftermath of apartheid and its inequities, in which the government was positioned against the interests of phenotypically Black individuals (e.g., Boswell, 2014). For these young people, the task of constructing a meaningful and functional identity may be challenging, given the many personal and social identities to navigate in the context of dramatic social change (Brittian, Lewin, & Norris, 2013; Norris et al., 2008; Yoder, 2000). They must also construct an identity that acknowledges other aspects of their identity regarding ethnicity, language, and culture (e.g., Adams & van de Vijver, 2017). As well, identity formation for Black South African youth must involve a pathway of belonging, worth, and hope for the future. Therefore, because scholars postulate that ethnic identity has its greatest value for ethnic groups that experience marginalization (e.g., García Coll et al., 1996; Spencer, 2008), we focus on understanding ethnic identity among Black South African youth who also represent several diverse ethnic groups in this study.

Ethnic identity

Culturally informed theories on risk and resilience in human development emphasize the importance of cultural assets, such as ethnic identity, for ethnically minoritized youth's healthy development (García Coll et al., 1996; Spencer, 2008). We consider ethnic identity a multidimensional psychological construct that represents one aspect of a person's overall identity that is associated with ethnicity (Rivas-Drake et al., 2014a). As a multidimensional construct, it involves the aspects of one's identity derived from identification with an ethnic group; the extent to which one explores, consolidates thoughts about, and participates with one's ethnic group; and feelings associated with membership in the group (Umaña-Taylor et al., 2014).

Developmental research indicates that early to middle adolescence (approximately ages 10–16) is a notable period in the life-span for the development of ethnic identity (e.g., French, Seidman, Allen, & Aber, 2006). As a cultural asset, several studies support the notion that ethnic identity plays both a protective (e.g., against discrimination and prejudice associated with minority status) and a promotional (e.g., related to higher self-esteem, better academic achievement, and mental health) role in youth's development (e.g., Brittian et al., 2015; Umaña-Taylor, 2011), although most of this research has been done in Western contexts. Very little research to date has been done on adolescent ethnic identity in South Africa (du Plessis & Naudé, 2017).

Similar to findings from U.S. studies, South Africans classify themselves based on a number of demographic, political, and sociocultural characteristics, including race, ethnicity, family, clan, language, and/or traditional and cultural group practices (Adams et al., 2012; Barbarin & Khomo, 1997; Barbarin & Richter, 2001; Bornman, 2010). Indeed, researchers have observed the importance of group identity for many individuals in South Africa (Burgess, Harris, & Mattes, 2002). Thus, South Africa represents another context within which to examine the relevance of ethnic identity among diverse racial and ethnic groups.

Scholars assert that cultural factors, such as traditional family values and ethnic group identity promote resilience among Black South African children and adolescents by bolstering social,

financial, and psychological support networks (Barbarin & Richter, 2001). Norris et al. (2008) observed that Black South African adolescents (a group comprising several different ethnic groups) placed more importance on race and language than on other demographic characteristics (i.e., age, gender, and national identity) compared with White, Coloured, and Asian South African adolescents. In an innovative mixed methods study, du Plessis and Naudé (2017) examined ethnic identity exploration and commitment among Black South African adolescents from primarily three ethnic groups (i.e., Sotho, Tswana, and Xhosa). Findings suggested that overall, Black South African adolescents were highly engaged in ethnic identity exploration and commitment. However, researchers found that Tswanas in this study reported lower ethnic identity exploration and commitment compared to Sothos and Xhosas, indicating potential ethnic group differences and highlighting the importance of comparative ethnic group investigation.

We posit that Black South African youth are indeed constructing their ideas about ethnicity in this dynamic social and political climate. Therefore, it is essential to understand the role that ethnic identity serves in their development. Black South African youth live in a time when the meanings of race and ethnicity have undergone marked changes in the past several decades. However, previous studies have not clearly ascertained how Black South African youth who come from diverse ethnic groups and who also live in an emerging democratic society categorize themselves with regard to ethnicity or the implications that ethnic identity has for their health and well-being. To contribute to this area of inquiry, we begin with measurement of ethnic identity.

Measurement of ethnic identity

Several paper-and-pencil measures have been developed to assess ethnic identity (Schwartz et al., 2014). To date, the MEIM (Phinney, 1992) is perhaps the most widely used measure among existing ethnic identity assessments. Based on Marcia's (1980) conceptualization of personal and ideological identity statuses, the MEIM was designed to capture four ethnic identity statuses (diffuse, moratorium, foreclosed, and achieved) based on the presence or absence of two developmental processes: search (a developmental and cognitive dimension) and affirmation, belonging, and commitment (an affective dimension).

Although a great deal of evidence has been presented for the psychometric properties of this measure across several U.S. populations (e.g., Avery, Tonidandel, Thomas, Johnson, & Mack, 2007; Brown et al., 2014), there have been debates over the dimensional structure of the MEIM. Phinney (1992) initially conceptualized the MEIM to capture three dimensions, reflecting ethnic identity achievement, affirmation and belonging, and ethnic behaviors. Roberts et al. (1999) found a two-dimensional structure, where the dimensions reflected ethnic identity affirmation/belonging/commitment and exploration of and active involvement in group identity. Ponterotto, Gretchen, Utsey, Stracuzzi, and Saya (2003) examined the psychometric strengths and limitations of the MEIM among U.S. adolescents and found that the MEIM's two dimensions (affirmation/belonging, search) are distinct, exhibit satisfactory levels of internal consistency, and display moderate degrees of construct and criterion-related validity. However, Lee and Yoo (2004) found a three-dimensional structure using the MEIM, reflecting clarity, pride, and engagement with one's ethnic group. However, in an African context, Worrell et al. (2006) found that the MEIM represented a single dimension of ethnic identity (rather than multiple dimensions) in a sample of Zimbabwean youth. The authors hypothesized that this difference may be attributed to sampling (participants were the racial majority in their respective country), differences in statistical analytic techniques, or differences in cultural understandings around the MEIM in other societies. Collectively, these findings underscore that ethnic identity should be examined in a variety of cultural and national contexts, as further investigation can deepen our understanding of ethnic identity assessments and this complex psychological construct.

The MEIM was designed for cross-group comparisons (i.e., the language in the measure is not group-specific). As such, with regard to cross-cultural research, Yap et al. (2014) assessed the factor structure of the MEIM and tested whether measurement invariance exists across several U.S. ethnic/

racial groups (White, Black, Hispanic, East Asian, and South Asian). Findings from this research indicated that the MEIM captures a bifactor conceptualization of ethnic identity, and the factor structure was found to be similar across the five groups. Avery et al. (2007) examined two components of the MEIM across different U.S. ethnic/racial groups (African American, White, Hispanic, and Asian American), also finding evidence of measurement equivalence across groups. Phinney and Ong (2007) developed a revised version of the MEIM by dropping the behavioral items and focusing on exploration and commitment (MEIM-R). Subsequently, Brown et al. (2014) examined the psychometric properties of the MEIM-R, including factor structure, measurement invariance, and internal consistency reliability, and explored levels of and differences in ethnic identity. Findings supported that the MEIM-R can be used to measure and compare ethnic identity across multiple racial and ethnic groups in the United States.

Cross-national comparison and ethnic identity

With the exception of Ponterotto et al. (2003), most cross-national research involving ethnic identity has been conducted on college-aged or adult samples. In addition, findings from prior research have been gleaned from primarily U.S. populations. Furthermore, most measures have been developed in North America. To our knowledge, only one unpublished measure has been developed in South Africa to assess ethnic identity, focusing on aspects of ethnic group loyalty, commitment, pride, and ingroup respect (Bornman, 1988). Therefore, there are several reasons a cross-national comparison between Black South Africans and U.S. African Americans can be informative for understanding ethnic identity.

Both the United States and South Africa have a shared history around disenfranchisement of and institutional discrimination toward Black individuals (Barbarin, 1999; Boswell, 2014). Scholars hypothesize that ethnic identity is an important aspect of youth's development in societies where individuals must position themselves as members of a minority group within the mainstream culture (Schwartz, Zamboanga, Meca, & Ritchie, 2012). In this case, Black South Africans are not considered a numerical minority but have been marginalized with regard to race, ethnicity, and language (Hocoy, 1999; Marx, 1998; Maylam, 2001). In addition, ethnic identity is a well-established construct among African American adolescents (e.g., French et al., 2006; Phinney, Cantu, & Kurtz, 1997; Umaña-Taylor, 2011), and thus a cross-national comparison offers us another opportunity to elucidate and understand ethnic identity among racially similar but ethnically different groups. Consequently, in this study, we compare issues of ethnic identity in a sample of ethnically diverse Black South African youth with African American youth in order to assess whether the measure captures similar dimensions in both populations.

Current study

The aims of this study were to evaluate the dimensionality and psychometric properties of the MEIM among Black South African youth representing several diverse ethnic groups as well as differential item functioning (DIF) for youth representing primarily four ethnic groups (Sotho, Tswana, Xhosa, and Zulu). Then, we planned to compare these results to a sample of African American youth who had also completed the MEIM. Our core research questions were as follows:

- (1) How many dimensions does the MEIM capture among diverse Black South African ethnic groups?
- (2) Do the items work similarly across South African ethnic groups?
- (3) Does the MEIM capture similar dimensions in Black South Africans and U.S. African Americans?

Method

Participants and procedure

South African sample

Data were selected from a cohort longitudinal study of South African children's mental and physical development, Birth to Twenty Plus (Bt20+; Barbarin & Richter, 2001). The initial Bt20+ cohort included 3,273 children and families, more than 72% of whom had been followed for more than 18 years (Norris, Richter, & Fleetwood, 2007). The pilot studies, research goals, and enrollment methods of Bt20+ have been documented in several publications (e.g., Richter, Norris, & De Wet, 2004; Richter, Norris, Pettifor, Yach, & Cameron, 2007). The parent study encompassed children and families residing in Johannesburg and Soweto but also the majority of the Gauteng province (many participants migrated throughout the course of the study). Located in the Gauteng province, Johannesburg is the largest city in South Africa, with an estimated 4.4 million residents, of whom 76.4% are classified as Black/African, 12.3% are classified as White, 5.6% are classified as Coloured, and 4.9% are classified as Indian/Asian. English and isiZulu are the predominant languages spoken in this region (Statistics South Africa, 2011). Soweto, a neighboring township, contains approximately 1.2 million residents. Initially created by the South African government to separate Whites from Blacks (Bonner & Segal, 1998), it is still largely inhabited predominately by South Africans who are classified as Black and speak primarily isiZulu, Sesotho, Setswana, and Xitsonga (Statistics South Africa, 2011).

Data for the current study were collected in the 2005–2006 twice-yearly data collection cycle. Adolescents completed an interviewer-based questionnaire on South African-ness and Cultural Identity in the participant's language of choice (e.g., English, Sesotho, isiZulu) with trained, full-time research assistants (see too Norris et al., 2008). Youth were informed that "In South Africa, people come from many different countries and cultures, and there are many different words to describe the different cultures that people come from, such as Zulu, Sotho, Xhosa, Venda, Pedi, Tsonga, Tswana, Swati, Ndebele, English South African, Afrikaans, Jewish, Greek, Portuguese, and many others." Following this prompt, youth responded to the following open-ended question, "In terms of culture, I consider myself to be ..." Following their response to this open-ended item, South African participants completed the MEIM.

Given our focus on cross-national equivalence, only data from Black South African adolescents ($n = 1,243$; ages = 13–14; 52% female) were included in the present analyses. We first selected participants who were categorized as Black in prior waves of data collection. We then categorized participants based on their response to the open-ended ethnic group question. Among Black South African youth who identified as a member of an ethnic group, four subgroups had analytic samples that were large enough for any required invariance analyses (i.e., DIF): Sotho ($n = 216$; 50% female), Tswana ($n = 200$; 54% female), Xhosa ($n = 110$; 56% female), and Zulu ($n = 458$; 50% female). Two hundred fifty-nine Black South African adolescents belonged to ethnic groups that did not produce a sample size large enough for analysis regarding our questions about measurement invariance across groups and, therefore, were excluded from any required DIF analyses and the cross-national comparison. However, these 259 adolescents were included in the overall dimensionality evaluation of the MEIM. These groups included: Ndebele ($n = 14$; 86% female), Pedi ($n = 83$; 49% female), Swati ($n = 42$; 57% female), Tsonga ($n = 69$; 49% female), and Venda ($n = 51$; 59% female). Ethics for this research were approved by the University of the Witwatersrand Committee for Research on Human Subjects, and all participants (adolescents and their caregivers) provided written consent forms in their language of choice at each wave of data collection.

U.S. African American sample

Data for the U.S. comparison sample were taken from a larger study on ethnic identity development. Participants for the larger study were recruited from three public schools in a large Southwest city.

The methods and procedure of the larger study are described in prior publications (Umaña-Taylor, Bhanot, & Shin, 2006; Umaña-Taylor & Fine, 2004). The sample included data from 250 self-identified African American adolescents ($M_{age} = 15.57$ years; $SD = 1.22$; 51% female) who participated in the larger study and completed the MEIM.

Measure

Ethnic identity

The MEIM (Phinney, 1992) is designed to capture two dimensions of ethnic identity: ethnic identity achievement (exploration and commitment to an ethnic/racial group) and affirmation/pride (feeling positively about being a member of an ethnic/racial group). The MEIM has shown good reliability across diverse participants from the United States (Roberts et al., 1999). The response format ranged from 1 (*strongly disagree*) to 4 (*strongly agree*) in both the South Africa and U.S. samples.

Since our study was among first to use the MEIM with a sample of South African adolescents, we first conducted exploratory focus groups with BT20+ participants to assess their understanding of concepts used in the measure. Findings from the focus groups indicated that participants understood the term “ethnic” to mean racial and political classifications commonly associated with apartheid racial stratification (Black, White, etc.). This finding is consistent with use of the term ethnic in other South African research (Adams, van de Vijver, De Bruin, & Bueno Torres, 2014; du Plessis & Naudé, 2017). Therefore, based on the findings from focus group interviews, the research team decided that the term “culture” would more appropriately capture the MEIM’s intended meaning in this context (e.g., commonalities related to cultural values, traditions, language, heritage, and practices as described by Phinney, 1992; Phinney & Ong, 2007). Accordingly, a version of the MEIM was adapted for use in a South African context (replacing the term *ethnic* with *cultural* to best reflect the adolescents’ conceptual understanding of ethnic identity).

Analytic plan

Analyses for this study were conducted in three steps, following recommendations from previous literature (e.g., Ewing, Salzberger, & Sinkovics, 2005; Randall & Engelhard, 2010). To address research question 1, we used multidimensional Rasch models for the comparison of possible multiple dimensionality structures found in the literature (e.g., Phinney, 1992; Roberts et al., 1999; Worrell et al., 2006) to identify underlying dimensions among the South African sample, and we used various versions of multidimensional Rasch models to explore possible item misfit. In step 1, we planned to use the rating scale model for the initial analyses of the 12 items from the MEIM. The unidimensional version of the rating scale model is given by:

$$\pi_{nix} = \frac{\exp \sum_{j=0}^x (\beta_n - (\delta_i + \tau_j))}{\sum_{k=0}^m \exp \sum_{j=0}^k (\beta_n - (\delta_i + \tau_j))}$$

where the probability π_{nix} represents respondent n , with trait level β_n on the underlying construct, responding with a rating of x to item i of difficulty δ_i (with the response scale ordered from 0 to m). The τ_j represent the thresholds, or transition points, between categories. These transition points represent the location on the underlying continuum where adjacent categories are equally probable. This model provides estimates of item locations (difficulty), the transition points between adjacent categories (thresholds), and youth’s ability along a common logit (log-odds) continuum. Being on a common scale would mean that youth’s ability can be directly related to the specific content contained in the MEIM assessment. If the data fit the model requirements, this logit continuum is on an interval scale, making the estimates appropriate for parametric statistical analysis. Greater logit

values for items indicate increasing item difficulty; youth with higher logit values have more ability (we use the term “ability” generically to represent a latent construct, in this case the level of ethnic identity) than youth at lower levels. Standard errors associated with each estimate quantify the precision of the estimate.

We used a multidimensional version of the Rasch rating scale model (Adams, Wilson, & Wang, 1997) to evaluate competing theoretical models. Additional analyses used the multidimensional Rasch partial credit model, which allows each item to have its own threshold structure (i.e., the τ are estimated for each item rather than one set of τ that are applied to all items), to investigate whether the differences in rating scale functioning (the τ) between the rating and partial credit models could explain levels of item misfit. In addition, we compared two- and three-dimensional models, as well as a unidimensional model, using Conquest (Wu, Adams, & Wilson, 1998), which can fit multidimensional extensions of most basic unidimensional Rasch models using the multidimensional random coefficient multinomial logit model (Adams et al., 1997; Briggs & Wilson, 2003). Specifically, all models were estimated and compared for relative model fit using parsimony fit indices that account for model complexity (e.g., number of parameters and/or number of observations). The four parsimony fit indices that were employed for the dimensionality assessment were Akaike’s information criterion (Akaike, 1981), the sample corrected Akaike information criterion (Burnham & Anderson, 2002), the Bayesian information criterion (Kass & Raftery, 1995; Raftery, 1995; Schwarz, 1978), and the consistent Akaike information criterion (Bozdogan, 1987). Lower values for these fit indices indicate the best trade-off between model fit and generalizability.

Given debates over the dimensional structure of the MEIM, we planned to use Rasch modeling to examine four potential MEIM configurations. We first tested a one-dimensional model with all 12 items, similar to that found by Worrell et al. (2006). In the two-dimensional model, items were specified to reflect search/exploration (items 1, 2, 4, 8, and 10) and commitment (items 3, 5, 6, 7, 9, 11, and 12) following recommendations by Roberts et al. (1999). In addition, we tested two different three-dimension models reflecting achieved (items 1, 3, 4, 7, and 8), affirmation (items 5, 6, 9, 11 and 12), and behaviors (items 2 and 10) as recommended by Phinney (1992) and clarity (3, 6, and 7), pride (5, 9, 11, and 12), and engagement (1, 2, 4, 8, 10, and 11) following recommendations by Lee and Yoo (2004).

With regard to research question 2, we examined DIF across four South African ethnic subgroups that had samples large enough for comparison (e.g., Sotho, Tswana, Xhosa, and Zulu), if item misfit was not explained by comparing various versions of multidimensional Rasch models. In step 2, we planned to evaluate the fit of individual items to the Rasch model. Item fit statistics are used to identify items that may not be contributing to useful measurement (i.e., violating Rasch model requirements). Those items identified as not fitting the model would then need to be examined for potential reasons for the misfit and either retained, revised, or eliminated, if a plausible conceptual reason for the misfit is determined. Conquest provides two types of item fit statistics: Infit, which is less sensitive to surprising responses to items far from a youth’s ability, and Outfit, which is sensitive to atypical behavior on items far from a youth’s ability. When reported as mean-square statistics, the Infit and Outfit values are simply chi-square statistics divided by the degrees of freedom. This results in an expected value of 1 and a range from 0 to ∞ (Wright & Linacre, 1994). Values less than 1 suggest a lack of stochasticity in the data, potentially due to a violation of local independence. Values greater than 1 are indicative of excessive variability, which may signify a departure from unidimensionality. For survey-based rating data, values ranging from 0.6 to 1.4 are indicative of good fit (Wright & Linacre, 1994), although Smith (2005) has demonstrated that significant amounts of predictability (i. e., lack of stochasticity) are needed to adversely impact the measurement of children. As our study is exploratory in nature, we will primarily focus on item fit statistics beyond 1.4. If item misfit was found, we first evaluated whether using a partial credit model would alleviate the misfit. If found, this would imply the original misfit was due to forcing a common threshold structure across all items rather than any issue with the item being used differently across subgroups. If the use of the partial credit model did not alleviate the misfit, we then evaluated the item for DIF

to explore for potential reasons underlying the misfit using the DIF methodology implemented using Winsteps (Linacre, 2018). DIF means that after conditioning on the latent trait, the item difficulties should be invariant over the groups under investigation (i.e., DIF assesses the degree to which item calibrations maintain their meaning and interpretability across various contexts). If the null hypothesis that the two item calibrations could be estimates of a common parametric value is rejected, it can be concluded that the item has statistically different difficulty estimates between the two groups in question. For our purpose, the groups under investigation in Step 2 included groups with samples large enough for comparison: Sotho ($n = 216$), Tswana ($n = 200$), Xhosa ($n = 110$), and Zulu ($n = 458$).

For the final retained model, internal consistency was estimated for each dimension. As with traditional True Score Theory estimates (i.e., KR20 and alpha), the Rasch reliability refers to the extent to which the scores are reproducible under repeated administrations (see Smith, 2001 for the advantages of using Rasch estimates of internal consistency versus KR20 and alpha). It can also be viewed as the degree of measurement error present in scores or, more from the Rasch perspective, it can also be viewed as the degree to which youth are spread out along the construct being measured.

To address research question 3, we used confirmatory factor analyses to assess measurement invariance among the four South African groups from Step 2 and the U.S. African American sample. In step 3, we used confirmatory factor analysis to test measurement equivalence of the MEIM across four South African ethnic groups (i.e., Sotho, Tswana, Xhosa, and Zulu) and a group of U.S. African American adolescents, which would indicate whether the measure functioned similarly across national samples. In this step of our analyses, we removed three items prior to testing factorial invariance because the items were worded differently for the South African sample compared to the wording that was used in the MEIM for the African American sample. The following items were removed: item 4—*“I think a lot about how my life will be affected by belonging to my culture”* (MEIM used with South African adolescents)/*“I think a lot about how my life will be affected by my ethnic group membership”* (MEIM used with African American adolescents); item 7—*“I understand pretty well what my cultural group membership means to me”* (MEIM used with South African adolescents)/*“I understand pretty well what my ethnic group membership means to me, in terms of how to relate to my own group and other groups”* (MEIM used with African American adolescents); and item 9—*“I have a lot of pride in my cultural group”* (MEIM used with South African adolescents)/*“I have a lot of pride in my ethnic group and its accomplishments”* (MEIM used with African American adolescents).

Factorial invariance was tested with a series of nested multigroup confirmatory factor analyses that included ethnic group as the grouping variable (i.e., the model is tested separately for youth in each of the four South African groups and the U.S. African American group). At each level of factorial invariance (i.e., configural, loading, intercept), the tenability of adding constraints to each multigroup nested model was tested using a chi-square difference test, in which a nonsignificant statistical change in the chi-square value indicated that the constraints were tenable (i.e., the measure is equivalent across the South African groups and the U.S. group; Little, Preacher, Selig, & Card, 2007). Configural invariance exists if the items within the measure form a similar factor structure across ethnic groups. Such invariance is indicated by all items having statistically significant loadings above .40 across all groups. Loading invariance exists if factor loadings can be constrained across groups, and intercept invariance exists if the factor loadings and intercepts can be constrained across groups (Little et al., 2007).

Results

Results of step 1 revealed that all four parsimony fit indices indicated that Phinney's (1992) three-dimension model (achieved, affirmation, and behaviors) had the best combination of fit and generalizability (Table 1).

Table 1. Competing models using the multidimensional rating and partial credit models and final model testing with items 2 and 10 removed.

Multidimensional rating scale model	Deviance	AIC-C	AIC	BIC	CAIC
1 dimension (Worrell et al., 2006)	31,045.24	31,075.63	31,075.24	31,152.12	31,167.12
2 dimensions (Roberts et al., 1999)	30,931.88	30,966.38	30,965.88	31,053.01	31,070.01
3 dimensions (Phinney, 1992)	30,768.48	30,809.17	30,808.48	30,910.99	30,930.99
3 dimensions (Lee & Yoo, 2004)	30,841.46	30,875.95	30,875.46	30,962.58	30,979.58
Partial credit model					
3 dimensions (Phinney, 1992)	30,066.16	30,153.17	30,150.16	30,365.42	30,407.42
Removing Items 2 and 10					
2 dimensions (Phinney, 1992)	24,521.76	24,589.62	24,587.76	24,756.89	24,789.89

Note: AIC-C = bias-corrected Akaike information criterion; AIC = Akaike information criterion; BIC = Bayesian information criterion; CAIC = consistent Akaike information criterion.

Examination of the individual Infit and Outfit statistics for this model revealed that item 4 had misfit model expectation with Outfit > 1.40. This value could be the result of specifying a model for which the data do not support, or the result of forcing a common threshold structure on all the items (a characteristic of the rating scale model). Since all models have prior research supporting their theoretical underpinnings, we elected to examine whether using a partial credit model would resolve the misfit at the item level as the partial credit model allows each item to have a unique threshold structure.

The partial credit model applied to Phinney's (1992) three-dimension model (achieved, affirmation, and behaviors) resulted in better overall fit than the corresponding rating scale model, including alleviating the misfit of item 4 under the rating scale model. This finding indicates that the slight misfit of item 4 was likely due to forcing a common threshold structure on all the items (Table 1). As the misfit of item 4 under the rating scale model was explained by use of the partial credit model, we did not explore DIF for this item to explain the misfit. Examination of the results revealed that the Rasch estimate of internal consistency for dimension 3 was only .25 under the partial credit model 3, which is not sufficiently high to make group-level inferences. As such, we removed the items for Dimension 3 (items 2 and 10) and reevaluated the data to model fit. This final model (Dimension 1 = 1, 3, 4, 7, and 8; Dimension 2 = 5, 6, 9, 11, and 12) produced the most acceptable values for all four parsimony fit statistics and was retained as our final model.

Therefore, with regard to our first research question, Dimension 1 captured items related to ethnic identity *search and clarity*, and Dimension 2 reflected items related to *ethnic group affirmations*. Search/clarity (Rasch internal consistency of .62; traditional estimate via alpha of .60) and affirmations (Rasch internal consistency of .61; traditional estimate via alpha of .66) were correlated at .49 (corrected for attenuation). The final item difficulty estimates, standard error for these estimates, and the mean-square Infit and Outfit statistics are presented in Table 2.

With regard to research question 2, the two-dimension model worked well for four South African ethnic groups (Sotho, Tswana, Xhosa, and Zulu). No item fit statistics were greater than 1.4,

Table 2. Item difficulty estimates, standard error estimates, and the mean-square Infit and Outfit statistics for the Multigroup Ethnic Identity Measure.

Item	Difficulty	Standard error	Infit	Outfit
1	-0.107	0.027	0.96	0.97
3	0.001	0.028	0.94	0.96
4	0.871	0.026	1.22	1.27
5	-0.554	0.041	1.08	1.08
6	0.121	0.039	0.99	0.97
7	-0.349	0.028	0.93	0.92
8	-0.416	0.055	0.98	0.98
9	0.086	0.038	1.03	1.09
11	0.492	0.038	0.99	1.01
12	-0.145	0.078	0.94	0.90

indicating reasonable fit with the Rasch partial credit model. Within Dimension 1 (search/clarity), item 8 (“*In order to learn more about my cultural group, I have often talked to other people about my culture*”) was the easiest item for youth to endorse (give higher ratings to), while item 4 (“*I think a lot about how my life will be affected by belonging to my culture*”) was the most difficult item for youth to endorse. For Dimension 2 (affirmation), item 5 (“*I am happy I am a member of the culture I belong to*”) was the easiest item for youth to endorse, while item 11 (“*I feel a strong attachment towards my culture*”) was the most difficult for youth to endorse.

Cross-national comparison

Research question 3 focused on understanding similarities among youth from South African ethnic groups and U.S. African Americans. As aforementioned, items 4, 7, and 9 were differently worded in the South African and U.S. studies. Therefore, we removed those items for the cross-national comparison. Subsequently, factorial invariance with the U.S. sample was tested using the two-dimension structure (Dimension 1 = items 1, 3, and 8; Dimension 2 = items 5, 6, 11, and 12) of the MEIM that we identified in step 1. During the configural invariance testing of the MEIM, all items had statistically significant loadings above .40 on both factors for all five groups. The chi-square difference test examining loading invariance was not statistically significant, $\Delta \chi^2 (\Delta df) = 28.73 (20)$, $p = .09$; however, the chi-square difference test examining intercept invariance was statistically significant, $\Delta \chi^2 (\Delta df) = 180.62 (48)$, $p < .001$, indicating that the constraints on item intercepts were not tenable (Table 3).

In examining the intercepts across all five groups (four South African ethnic groups and U.S. African Americans), the estimates for the African American group were different from the estimates for the four South African ethnic groups. Therefore, we sequentially constrained intercepts across the four South African groups and left the intercepts freely estimated for the African American group. This approach was to test statistically whether the reason that intercept invariance was not achieved across all five groups could be attributed to the U.S. African American group. As each item intercept was constrained one at a time across the four South African ethnic groups, we used the chi-square difference test to

Table 3. Step-by-step invariance testing for South Africa and U.S. African American samples.

Intercept invariance one at a time across all groups				
Item	$\chi^2 (df)$	$\Delta \chi^2 (\Delta df)$	p	Constraint tenable
Loading	149.21 (85)	–	–	–
1	177.851 (89)	28.641 (4)	< .001	No
3	190.344 (89)	41.134 (4)	< .001	No
8	176.873 (89)	27.663 (4)	< .001	No
5	156.703 (89)	7.493 (4)	.11	Yes
6	159.366 (93)	2.663 (4)	.62	Yes
11	162.825 (97)	3.459 (4)	.48	Yes
12	206.454 (101)	43.629 (4)	< .001	No
Invariance testing for intercept invariance one at a time across four South African groups (African American group left freely estimated)				
Loading	149.21 (85)	–	–	–
1	151.416 (88)	2.206 (3)	.53	Yes
3	158.440 (91)	1.575 (3)	.67	Yes
8	160.015 (94)	6.542 (3)	.09	Yes
5	166.557 (97)	1.338 (3)	.72	Yes
6	167.895 (100)	2.663 (3)	.45	Yes
11	169.354 (103)	1.459 (3)	.69	Yes
12	174.283 (106)	4.929 (3)	.18	Yes

Test of Intercept Invariance

Loading 149.21 (85)

Intercept 174.283 (106)

Difference = 25.073 (21); $p = .24$

examine which item intercepts could be constrained to be equal across groups. This process indicated that the intercepts could be constrained to be equal for all items across the four South African ethnic groups. With the intercepts constrained to be equal across the four South African ethnic groups (and freely estimated for the African American group), the chi-square difference test examining intercept invariance was not statistically significant, $\Delta \chi^2 (\Delta df) = 25.073 (21), p = .25$; therefore, intercept invariance was achieved across the four South African groups (Table 3).

Discussion

The present study evaluated the dimensionality and psychometric properties as well as potential item misfit of the MEIM among ethnically diverse Black South African adolescents and DIF for youth primarily from four ethnic groups (Sotho, Tswana, Xhosa, and Zulu). In addition, we compared this configuration of the MEIM found among the South African groups to a sample of U.S. African Americans to establish measurement equivalence. Examining ethnic identity measures across ethnic and national samples will not only further our understanding of this psychological construct but will allow us to examine what function ethnic identity serves for health and development among adolescents in other diverse countries.

Contrary to unidimensional findings by Worrell et al. (2006) in Zimbabwe (a neighboring country to South Africa), we found two ethnic identity dimensions representing ethnic identity *search/clarity* and ethnic group *affirmations*. This finding may be due to the fact that South Africa is a racially, ethnically, and linguistically diverse country, representing several racial and ethnic groups with 11 officially recognized languages. In fact, most South Africans speak two or more languages. As well, Johannesburg-Soweto is an extremely diverse and densely populated urban context that provides potentially more opportunities for intergroup contact, making ethnic identity development more salient and complex in this context. In this regard, the two dimensions we identified are similar to those found in Lee and Yoo's (2004) study regarding clarity (a cognitive dimension) and pride (an affective dimension) among U.S. Asian Americans and other U.S. measurement studies (e.g., Ponterotto et al., 2003; Yap et al., 2014).

While du Plessis and Naudé (2017) revealed that ethnically diverse Black South African adolescents are engaged in ethnic identity exploration and commitment, findings from our study demonstrated that there is also an emotional-affective process occurring. Theories emphasizing the importance of group identification, such as social identity theory (Tajfel & Turner, 1986), posit that individuals maintain a positive identity through their levels of acceptance and group membership. Group identity can be protective for an individual's sense of self by reinforcing their sense of belonging (Tajfel, 1981; Tajfel & Turner, 1986). Given that prior research has shown that the benefits of group affiliation (e.g., ethnic identity) have their greatest impact on the health and well-being of marginalized individuals in heterogeneous societies where discrimination and negative stereotypes exist for one or more groups (Schwartz et al., 2012; Spencer, 2008; Worrell et al., 2006), we also think researchers should explore how Black South African youth from diverse ethnic groups might benefit psychologically from their ethnic group membership in this regard. This is especially true for the affective component of ethnic identity (Rivas-Drake et al., 2014b).

Similar to findings by Yap and colleagues (2014), the two- and three-dimension models both fit the data well in our study. In fact, the three-dimension model fit the data best, but the reliability estimate for the third dimension (i.e., ethnic behaviors) was low and only contained two items (i.e., items 2 and 10). Therefore, we retained a two-dimension model as our final model. Phinney and Ong (2007) and Syed et al. (2013) suggested the need for the development of more behavioral items. We agree that researchers should consider developing additional items that reflect participation or engagement in ethnic behaviors, perhaps separating the activities described in item 10 (e.g., eating cultural foods, listening to cultural music, and participating in religious customs) into a series of new items. In this case, we may find that youth engage in some ethnic behavior activities and not others. Specific to the South African context, qualitative research by du Plessis and Naudé (2017) indicated

that some youth consider attending initiation school and family meetings ethnic/cultural practices as well. As an additional point for consideration, some Black South African youth view religious and ethnic/cultural practices as intertwined (e.g., praying to ancestors) and for other youth they are distinct (Brittian et al., 2013).

Regarding our second research question, as no item misfit was detected after using the partial credit model to explain the slight misfit in item 4 using the rating scale model, we did not need to evaluate DIF as a source of misfit. In addition, no item fit statistics were greater than 1.4 for any of the four South African ethnic groups when analyzed separately, indicating reasonable fit. Given that this study is the first to examine potential DIF of the MEIM among different ethnic groups in South Africa, additional research is needed to assess replication.

Of interest, we found that within each dimension some items were easier for youth to endorse than others (i.e., give higher ratings to). This finding may be due to the fact that the South African youth in this study were 13 to 14 years old at the time of data collection. Adolescence is a period in the life-span that bridges childhood to early adulthood. Ethnic identity researchers suggest that adolescence is a particularly critical time in the life-span for exploration and internalization of cultural values (Umaña-Taylor et al., 2014). Moreover, adolescence is also an important time for the development of social-cognitive abilities. Advancements in cognitive abilities (e.g., perspective taking, future orientation) permit adolescents to engage in more symbolic thinking and to understand abstract concepts, such as how one's ethnic group fits into the broader social context (Kuhn, 2009; Steinberg, 2005). Therefore, it is not surprising that the concrete item related to search (e.g., talking to other people) within Dimension 1 was easier for youth in this study to endorse than the item related to less direct search (e.g., thinking about how one's life may be affected). These findings may be reflective of the youth's age and cognitive abilities. Alternatively, these variations could indicate that within this measure, some items measure "surface features" of search/clarity and affirmation and others appear to measure more abstract conceptual layers of these constructs. For example, Syed et al. (2013) noted that the exploration items in the MEIM related to search perhaps capture less concrete or ambivalent actions (e.g., thinking about how one's life will be affected by group membership) rather than direct experiences or events, which are captured in other ethnic identity assessments (e.g., Ethnic Identity Scale; Umaña-Taylor, Yazedjian, & Bámaca-Gómez, 2004). A third alternative is related to language. Many South African youth are multilingual and it is possible that some words are more easily translatable and understood than others (e.g., talking to people vs. thinking about how one is affected; being happy vs. feeling attached). Therefore, we urge researchers to consider exploratory focus groups prior to using this measure in other contexts in order to assess youth's understanding of the concepts discussed.

Regarding our third research question, little research has been done on the construct of ethnic identity in South Africa, for which reason we examined equivalence of measurement structure between the South African groups and a sample of U.S. African American adolescents among whom ethnic identity is a well-established construct. Our findings suggest that even with variation in wording (ethnic vs. cultural), the items represented the same constructs and had similar structure across the different national samples. Thus, adding to the broader literature on ethnic identity (e.g., Rivas-Drake et al., 2014a; Umaña-Taylor et al., 2014), we find that Black South African adolescents from diverse ethnic groups are engaged in multidimensional ethnic identity development. The only difference we noted was intercept-level differences between the South African groups and the African American group, which is consistent with U.S. research on the MEIM across racial and ethnic groups (e.g., Yap et al., 2014) and is not uncommon in cross-national studies (Meitinger, 2017). This finding may also be due to the fact that the South African sample was slightly younger than the U.S. sample. However, because we are among the first to conduct a cross-national equivalence study on ethnic identity with South African and African American adolescents, additional (potentially mixed methods) research is needed to explore similarities and differences between these two groups with regard to the meaning of ethnic identity.

Limitations and directions for future research

Although the results of this study further our understanding of ethnic identity among South African adolescents, there are several limitations to consider that also provide directions for future research. First, because data were collected at one time point, we are not able to make inferences about the development of ethnic identity over time. Identity formation is marked by continuity over time in awareness of one's values, attitudes, and ideology concerning the self and society (Erikson, 1950); therefore, only longitudinal studies can accurately assess the development of identity. Thus, future studies should consider longitudinal assessments of ethnic identity, as well as an examination of the antecedents of ethnic identity and its predictive validity for key dimensions of positive development among South African youth (e.g., health, well-being, educational attainments, job success, marital choice, cross-ethnic friendships).

Participants in the present study represented youth residing in a specific geographic region, mainly Johannesburg-Soweto, which is a diverse and densely populated urban setting (although several families migrated throughout the course of the parent study). Additional research is needed to determine whether these results are generalizable to youth living in other major cities in South Africa (e.g., Cape Town, Durban) and other diverse African countries. In addition, although the focus of this study was on Black South African youth, more work needs to be done with other racial groups in South Africa, including White (comprising English, Portuguese, Afrikaans), Coloured (people of mixed ancestry), and Asian (Chinese and Indian). An additional avenue for future lines of research would focus on furthering our understanding of how ethnic identity informs intergroup relations, which is a growing area of interest in South Africa (e.g., Finchilescu & Tredoux, 2010; Shutts, Kinzler, Katz, Tredoux, & Spelke, 2011). Finally, future studies should continue to explore how youth from different ethnic and racial groups in South Africa and other transitioning societies are integrating and negotiating multiple aspects of their identity, including ethnic identity, within dynamic social change and transition (e.g., Adams & van de Vijver, 2017; Dimitrova et al., 2017).

Conclusions

In summary, we examined the dimensionality and psychometric properties as well as potential item misfit of the MEIM among ethnically diverse Black South African adolescents and DIF for youth from primarily four ethnic groups (Sotho, Tswana, Xhosa, and Zulu). Subsequently, we evaluated the equivalence of the MEIM between the South African groups and a sample of U.S. African Americans. We found evidence of a two-dimension measurement structure, reflecting *ethnic search/clarity* and *ethnic affirmations*. We look forward to continued work on ethnic identity formation and positive development generally (e.g., Hinson et al., 2016; Schwartz, Theron, & Scales, 2017) among youth in the so-called “developing world”: those parts of the world outside the United States and Europe where most of the adolescents in the world live (Larson, Wilson, & Rickman, 2009). As international researchers have highlighted the importance of developing and utilizing measures that can be used with low- and middle-income countries, such as South Africa (e.g., Hinson et al., 2016), we propose that ethnic identity is one aspect of identity that can and should be examined in future studies. Through further investigation, we can begin to understand what role this aspect of identity serves in human development universally.

Acknowledgments

We gratefully acknowledge the youth and families who participated in the Birth to Twenty Plus study and Birth to Twenty Plus research team for their important contributions to the work.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This research was supported by the Wellcome Trust, the University of the Witwatersrand, the South African Medical Research Council, the South African Human Sciences Research Council, and the South Africa-Netherlands Research Programme on Alternatives in Development. The last author was supported by the Bennett Pierce Chair in Care and Compassion during the preparation of this manuscript.

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