Testing the Validity of the Multigroup Ethnic Identity Measure (MEIM) on a Nigerian Sample

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Abstract

Phinney (1992) developed the Multigroup Ethnic Identity Measure (MEIM) aimed at measuring the components of ethnic identity in diverse or plural societies, with a number of studies conducted to test its validity. Some of these studies spanning over a decade have been done within a variety of contexts and continents including Africa, but there is very little research on the MEIM within the Nigerian context. Using a sample comprising of 817 undergraduates from three major ethnic groups in Nigeria, a confirmatory factor analysis (CFA) using an adapted and slightly modified MEIM was used to test its validity. Results indicated that the model fit indices were mediocre and a number of inconsistences were observed in the factor structure of MEIM. Although the ethnic identity measure showed promising predictive validity when regressed on the Other Group Behavior scale, it is proposed that there is need for further reassessment of the measuring instrument in view of findings.

Keywords: Nigeria, MEIM, CFA

Introduction

The question, "Who are we?" or "Who are they?" has the potential to elicit a considerable range of responses from people. A person's self-concept is not a monolithic construct; it is multifaceted and dynamic especially as it burgeons in adolescence (Erikson, 1968). Among these many facets, Tajfel (1981) emphasised the importance of social identity and suggested that ethnic identity is a constituent of this construct. Ethnic identity like other forms of identity is composed of cognitive, affective and behavioural components. Tajfel's definition encapsulates this in his submission that ethnic identity is:

> "That part of an individual's self-concept which derives from [his] knowledge of [his] membership of a social group (or groups) together with the value and emotional significance attached to that membership" (Tajfel, 1981; p. 255)

Several researchers (Pahl & Way, 2006; Whitesell, Mitchell, Kaufman, & Spicer, 2006) agree that this focus on social identity is a stepping stone in the development of ethnic identity. Phinney (1990) further submitted that ethnic identity is meaningless in homogenous societies and therefore a multi-ethnic society would be more ideal for understanding the nature of ethnic identity. This suggests that it would be of research significance to test this assertion in a multi-ethnic country like Nigeria. Ethnic identity has risen to prominence due to its tumultuous nature among different social groups and the attendant social malaise it has constituted in the ethnically diverse country of Nigeria. As the salience of ethnic group membership increases, the potential for tenuous and combustible intergroup relationships looms large and menacing especially among those with high ethnic identity. (Yip & Fuligni, 2002). Cross (1995) and Helms (1995) independently arrived at the conclusion that discrimination and racism could serve as triggers for individuals to engage in a search for true ethnic identity. Implicit in their submission was the significant overlap of racial and ethnic identity in common usage. A naïve and puerile view of the world where people maintain the presumption of fair and equitable interracial interactions is eventually abandoned when the individual engages in ethnic perspective-taking; this occurs when these same people adopt the perspective of their ethnic group (Quintana, 1998). The current study therefore seeks a better understanding of how ethnic identity is implicated in these scenarios in the Nigerian context.

Strong ethnic identity, though potentially divisive in heterogeneous societies, could be very beneficial to the individual. Phinney (1989) affirmed that young people who are proud of their ethnic extraction and who favour affiliations with their ethnic group are better adjusted in the ethnically diverse societies in which they live. Other researchers have corroborated this by reiterating the need for people of minority or stigmatised ethnicities to develop positive orientations

Author note: This article is a revised version of a paper presented at the APA conference in Toronto August 6-9, 2015. Special acknowledgement to the University of Lagos, Nigeria research fund for the support provided towards the attendance of the conference. Address correspondence to: Alex Igundunasse, email: aigundunasse@gmail.com

towards their groups, as this facilitates their general development and enhances their self-esteem and overall psychological health while possibly protecting against depression (Seaton, Scottham & Sellers, 2006; Whitesell, Mitchell, Kaufman & Spicer, 2006). There are other gains to be gleaned from developing a strong ethnic identity. Ong, Phinney and Dennis (2006) found that higher scores on ethnic identity were associated with better academic achievement and higher college grade point averages (GPA). Ethnic identity has been identified as a buffer against daily stress. The verdict of the study by Kiang, Yip, Gonzales-Backlen, Witkow, and Fuligni (2006) was that ethnic identity reduced the negative effects of stress on the well-being of individuals a day after exposure to the stressor. Those whose ethnic identities were more distinct reported feeling less stressed a day after encountering the stressor. It is thus conclusive that the impact of ethnic identity on general well-being justifies the attention of these researchers and merits further inquiry in other social contexts.

Against the backdrop of the foregoing, it is apparent that attempts to measure ethnic identity could be well approached with a positivist mindset to knowledge. A measure suitable for use within disparate and unique cultures must take more cognizance of cultural universals across ethnic groups (Igundunasse, 2015). Some cross-cultural psychologists have warned that the uniqueness of each ethnicity should not be discounted even as they acknowledged the necessity of ethnic commonalities in aiding measurement (Poortinga & Malpass, 1986). To this end, Phinney's model has proven invaluable. In her original formulation, Phinney proposed several areas in which ethnic identity can best be measured. They are Self-identification, Ethnic behaviour and practices, Ethnic identity achievement, and Affirmation and belonging. Another area was also suggested which assessed the individual's attitudes to other groups (Phinney, 1990). Each of these will now be considered in turn.

Self-identification is concerned with the label a person uses to describe themselves in ethnic terms. It should be noted that this self-identification differs from objective ethnicity as a result of one's parents. Some people could be of certain ethnicities but may identify with other ethnic groups different from their culture of origin (Singh, 1977). Ethnic behaviour and practices considers how involved a person is in social activities with members of their ethnic group and how favourably disposed the person is toward cultural traditions. Although some people believe that language should be included under ethnic behaviours, the empirical evidence has not supported such an inclusion since this is not universal to most cultures (Phinney, 1990; 1992). Affirmation of one's ethnic identity and a feeling of belongingness and attachment to the group can also be an index of a robust ethnic identity. When a person is proud of their ethnicity and identifies strongly with their ethnic group, it could indicate that identity achievement progressed optimally in adolescence (Phinney, 1990; 1992). Ethnic identity achievement is also an aspect of the general course of identity development. It involves full exploration of the traditions, history and origins of one's roots and eventually results in clarity and commitment to one's ethnic group as well as full personal endorsement of one's membership (Phinney & Alipuria, 1990). An individual's attitudes toward other ethnic groups could be instructive about the person's ethnic identity albeit indirectly. Although not particularly related to ethnic identity, attitudes to other groups reveal the individual's orientation to majority ethnic groups especially if they belong to a minority; this is an important aspect of social identity in the larger society. On the basis of these aspects of ethnic identity, Phinney (1992) proceeded to develop the Multigroup Ethnic Identity Measure (MEIM).

The MEIM was not the first attempt by researchers to develop a measure of ethnic identity since previous work by some researchers had focused entirely on particular ethnic groups such that the measures were group specific (Suinn, Ahuna, & Khoo, 1992). The goal of the development of the MEIM was to put together a measure amenable to the measurement of ethnic identity among a wide range of ethnicities. As such, no values or beliefs are included in the measure since such would be unique to each ethnicity. The scale contained 14 items which measured ethnic behaviour and practices, ethnic identity achievement, and affirmation and belonging. Six items were later added to the measure to assess the attitude of respondents to other groups but they were not included in the score for ethnic identity. After exploratory analyses by Phinney (1992) with an ethnically diverse sample of students, two factors emerged: exploration and commitment. These factors are identical to Marcia's (1980) formulation about the nature of identity which proposed that the twin influences of crisis and commitment determined whether a person was identity diffuse, had foreclosed on or experienced a moratorium in their identity. Identity achievement was said to be realised after an active search and eventual commitment to a particular identity (Marcia, 1980). Phinney, DuPont, Espinosa, Revill and Sanders (1994) later discovered that all the items in the measure actually loaded on the factor of ethnic identity even though ethnic behaviour and affirmation were conceptually different. Other researchers followed on the heels of Phinney's study with their exploratory factor analyses of the scale. For example, Spencer, Icard, Harachi, Catalano, and Oxford (2000) investigated how well the factor structure of the measure held up in samples of White and Black early adolescents and they found the same two factor structure emerging. A minor difference emerged from the work of Lee and Yoo (2004) who studied a large sample of Asians American college students and reported a three factor structure. One factor was a fair match with exploration while the other two (clarity and pride) were both implied in the earlier identified factor of commitment. Phinney however remarked that there seemed to be a profusion of exploratory factor analyses of the measure which could result in many different factor structures emerging for it (Phinney & Ong, 2007). She advocated the use of more confirmatory factor analyses to help in comparing the relative fit of competing models. These attempts to evaluate structural validity of the instrument have been a rarity among cognate studies of this

measure and were suggested as a future direction of research in this area (Phinney & Ong, 2007). The present study is an attempt to fill this gap.

Until recently, studies dealing with ethnic identity such as those mentioned in the foregoing were conducted with a Western perspective although it is obvious that ethnic heterogeneity is also a reality in other climes. This inspired Worrell, Conyers, Mpofu and Vandiver (2006) to investigate the use of the MEIM in Africa. Worrell and colleagues used the measure in Zimbabwe as they sought to establish its structural validity within a sample of 196 students. At the end of analyses, two factors were identified namely, Ethnic identity and Other group orientation. It later emerged that all 14 items of the ethnic identity measured resulted in a single factor just as a few previous studies had reported. The researchers justified their use of exploratory factor analysis by underscoring the fact that the MEIM had never been used in Zimbabwe previously. They however conceded that their sample size did not meet the rule of thumb for the conduction of exploratory factor analyses since the practice is to have a minimum sample size of 200 for 20 items. They further recommended the use of confirmatory factor analyses to verify the models which have emerged from extant research on this measure.

The present study is aimed at the Nigerian social context and the unique ethnic blend of Nigerian society necessitates this inquiry. Historically, the nation was cobbled together in 1914 to expedite the administrative efficiency of the British colonial masters. As such, the ethnic patchwork became even more complex after the amalgamation of the North and South in that year. The ethnic groups which coexist within the entity called Nigeria are more than 250 in number (Britannica, 2013) but since independence in 1960, the political and economic landscape has been largely dominated by just three ethnic groups, the Yoruba in the South-West, the Igbo in the South-East and the Hausa/Fulani in the North. Nigeria, a nation with a long history of ethnic strife and jostling, is a good example of the ethnic context within which the salience of ethnic identity may best be observed. Ting-Toomey, Yee-Jung, Shapiro, Wright, Garcia and Oetzel (2000) investigated the construct of identity salience and stated that it is "the extent to which a person holds their ethnicity to be important" (p. 50). They also proposed that ethnic identity salience is more likely to be a composite construct in a pluralistic society consisting of in-group and out-group attitudes as well as how they relate to the larger social identity. The ethnic heterogeneity of the Nigerian society poses interesting questions about the nature of ethnic identity within it. This recommends the use of the MEIM as the measure in a study which could identify the factor structure of ethnic identity in Nigeria. This decision is spurred on by the fact that there is very little evidence of studies of this nature within the Nigerian context.

In sum, although the MEIM has experienced varying fortunes in different cultural contexts due to the disparate factor structures which emerged from the various analyses, the present study provides an ideal background for the identification of the factors which underpin ethnic identity within the ethnic amalgam of Nigeria.

Method

Participants

In the present study, a total of 817 undergraduate students (71% female and near 29% Male) participated. Participants were recruited through a convenience sampling approach from designated universities campuses located in the North, East and Western parts of the Nigeria from the Hausa, Ibo and Yoruba ethnic groups respectively. Although there is no clear consensus in sample sizes for factor analytical studies (see, MacCallum, Widaman, Zhang & Hong, 1999; Wolf, Harrington, Clark & Miller, 2013), the recommendation by MacCallum et al., to specify simple models using reliable measures even with a small sample was followed in the present study. Sample comprised Hausa = 267 (70% female and 30% male), Ibo = 295 (86% female and male 14%), Yoruba = 205 (53% female and 47% male) and others 50 (56% female and 44% male). The mean age of the total sample was 24 years.

Procedure

All data obtained in this study were based on the questionnaire completed by respondents. Three institutions of higher learning located in the North, East and Western parts of Nigeria were selected for this study. These institutions were chosen because of their central locations and ease of accessibility to students on these campuses. Moreover, selected institutions had a reasonably high number of prospective participants desired for the study. Appropriate permissions were sought and obtained in view of APA guidelines at the various institutions. The process of administering the questionnaire required going to open lecture halls and explaining briefly the purpose of research and soliciting for volunteers. To be eligible to participate in the research, a prospective participant was required to be above the age of 18 and belong to an ethnic group in Nigeria. The first author of the present study administered the questionnaire in the institution in the west but enlisted the help of research assistants in the northern and eastern institutions of the country to administer the questionnaire. The researchers explained that participation was voluntary, anonymous and that participants were free to withdraw at any stage. Those who accepted to participate in the study completed their questionnaire in the lecture halls using the paper-pencil format. The English language was used in the design of questionnaire and communication with participants.

Measure

The Multigroup Ethnic Identity Measure (MEIM) developed by Phinney (1992) was slightly modified and adapted for use in this study. These consisted of 14 items that measured Sense of affirmation and belonging (5 items);

Ethnic identity achievement (7 items) and Ethnic behaviour practices (2 items) and all specifically assessed ethnic identity. The Other group behaviour scale (6-items) was also included to assess for attitude towards others because, "these items are also included to provide contrast items to balance the ethnic identity item" (Phinney, 1992, p.164). In other words, the other group behaviour scale could be seen as an outcome variable where the scales of ethnic identity can be used to predict other group behaviour.

Unlike the Phinney (1992) scale, participants in the present study responded on a 5 point scale from strongly agree- neutral – strongly disagree. Negatively worded items were reverse- coded. The measure of ethnicity of parents and self-identification was also included on the scale but not scored. Missing data were imputed in SPSS 18 and treated as missing at random (MAR) because the differences between respondents with missing and fully completed responses on the questionnaire were not significant. Imputation was done by use of Expected Maximization algorithm (EM) (See, Bunting, Adamson & Mulhall, 2002). The model strategy used in the study was the strictly confirmatory factor approach to see how data fits the model.

Results

Model testing strategy

The alternative model strategy was adopted (Hoyle, 1995) in an attempt to understand how the variation of MEIM models best fitted the data in a substantive sense but consistent with the theory. This approach is not an Exploratory Factor Analysis (EFA) but a Confirmatory Factor Analysis (CFA). This is because in this approach, a number of multiple models are used to see which best fit the data. Apart from this, CFA was preferable to an EFA because the MEIM is an already established scale. In addition, it may be more meaningful when models are tested so as to understand previous research and other competing theoretical positions that best fit a set of data (MacCallum & Austin, 2000). AMOS 18.0 was used for the CFA. A first step to working out the model strategy involves testing the reliability and correlation of factors. Results are shown in Table 1.

As indicated in Table 1, the total scale reliability was within acceptable range. However, the scale reliabilities for Affirmation and Belonging, and Other group behaviour were questionable. The rule of thumb suggests that a reliable instrument should be equal or above .70 (Devellis, 2012). The Ethnic behavior scale reliability (α = .41) was unacceptable. The pattern of inconsistency of the measuring instrument was repeated in the individual ethnic group samples (see, Tables 1A, 1B & 1C). These were early signs that the level of reliability of the scale may affect the models under consideration (Cheung & Rensvold, 2000). The correlations between all the ethnic identity measures was positive and this was expected because they were theoretical related. In contrast, the correlation between the ethnic identity measures and other group behaviour scale ranged between mediocre positive to negative.

Table 1

Internal Scale Reliabilities and Correlations of MEIM scale for full sample

Scale		1	2	3	4	Total
1. ABL (Affirmation & Belonging)	5	—	.55**	.50**	-.02	.74**
2. EIA (Ethnic Identity achievement)	7		—	43**	.05	.80**
3. EBH (Ethnic Behaviour)	2			—	-.16**	.53**
4. OBO (Other group orientation)	6				—	.45**
Total	20					—
M (SD)		20.16(3.74)	23.07(4.78)	6.57(2.06)	20.36(4.69)	70.17(9.89)
α		.78	.65	.41	.67	.76

Table1. A

Internal Scale Reliabilities and Correlations Yoruba group

Scale	No of item On scale	1	2	3	4	5.Total
1. ABL (Affirmation & Belonging)	5	—	.49**	.36**	.33**	.81**
2. EIA (Ethnic Identity achievement)	7		—	42**	.18**	.86**
3. EBH (Ethnic Behaviour)	2			-—	.27**	.62**
4. OBO (Other group orientation)	6				—	.40**
5. Total	20					—
M (SD)		19.24 (3.63)	22.01(4.52)	5.85(1.75)	21.93(4.00)	69.03(10.07)
α		.78	.67	.33	.61	.81

Note: **$p < .01$ * $p<.05$

Table 1. B

Internal Scale Reliabilities and Correlations Ibo group

Scale	No of item On scale	1	2	3	4	5.Total
1. ABL (Affirmation & Belonging)	5	—	.51**	.50**	-.07**	.81**
2. EIA (Ethnic Identity achievement)	7		—	32**	.18**	.87**
3. EBH (Ethnic Behaviour)	2			-—	-.17**	.61**
4. OBO (Other group orientation)	6				—	.18**
5. Total	20					—
M (SD)		21.43(3.23)	24.45(4.54)	7.36(2.00)	18.83(4.90)	72(9.46)
α	20	.78	.67	.33	.61	.81

Note: **$p< .01$ * $p<.05$

Table 1. C

Internal Scale Reliabilities and Correlations for Hausa group

Scale	No of item On scale	1	2	3	4	5.Total
1. ABL (Affirmation & Belonging)	5		.54**	.46**	.03	.84**
2. EIA (Ethnic Identity achievement)	7			40**	.02	.87**
3. EBH (Ethnic Behaviour)	2			.	-.13	.63**
4. OBO (Other group orientation)	6					.18**
5. Total M (SD)	20	19.77(3.85)	22.94(4.67)	6.46(1.99)	20.60(4.48)	69.99(9.73)
α	20	.79	.64	.42	.64	.76

Note: $^{**}p < .01$ $^{*}p<.05$

Parameter estimates and model determination

Similar to the pattern observed in the reliabilities and correlation of the measuring instrument in this study, a number of strains were observed in the standardized and unstandardized factor loadings for some of the scales. For example, while the Belonging & Affirmation and Ethnic behaviour scales had between average to good factor loadings; the Ethnic Identity Achievement and Other Group Behaviour scales had two or more questionnaire item that were non-significant (see, Appendix A, B, C & D). It is not very clear why these measuring instruments had strains but measurement error or model misspecifications and participant characteristics could account for these (Aish & Jőreskőg, 1990).

To determine the suitability of models consistent with MEIM scale in this study; a one, two, three and four factor models were tested to see which best explained the data. It was found that only the three factor model consisting of Belonging & Affirmation, Ethnic Identity Achievement and Ethnic Behaviour made substantive sense. Although the 3 factor model appeared promising it nonetheless had some model indices that were mediocre and problematic. It was therefore important to further test the models in each of the groups to understand the baseline model because the essence of this kind of analysis is measurement invariance. The recommended cut off was based on Hu and Bentler's (1999) index. The analysis is shown in Table 2.

As shown in Table 2, the Yoruba and Ibo groups had a number of correlated errors but the Hausa group had no correlated error. It can be seen that despite the attempts to improve on the model indices for the groups, the model did not fit and the results of the models could best be described as mediocre which was a clear indication that there was greater need to improve on the MEIM scale. However, it is pertinent to note that Ethnic identity scales fairly predicted Other Group Behaviour. This is shown in Table 3.

Multiple regression with three factors $R^2 = .04$ F (3, 813) = 12.32 $p < .001$ indicated that some of the measure ethnic identity were predictors of Other Group Behavior.

Table 2

Goodness-of-Fit Statistics to Establish Baseline Models for Groups

Model description	χ^2	*df*	χ^2/df	*p* Value	*CFI*	*RMSEA*	*GFI*	*PCLOSE*
Yoruba								
1. Hypothesised three factor model	269.00	74	3.63	.000	.74	.11	.85	.000
2. Model 1 with one error covariance specified (items 3 & 5)	252.18	73	3.45	.000	.76	.11	.86	.000
3. Model 2 with two error covariances specified (items 3 & 5; 9 &10)	231.75	72	3.21	.000	79	10	.87	.000
Ibo								
1. Hypothesised three factor model	217.01	74	2.93	.000	.81	.08	.91	.000
2. Model 1 with one error covariance specified (items 1 & 3)	199.91	73	2.72	.000	.84	.07	.91	.000
3. Model 2 with two covariance specified (items 1& 3) (items 4 & 5).	174.76	72	2.42	.000	.87	.07	.93	.008
4. Model 3 with two covariance specified (items 1& 3) (items 4 & 5). (6 & 12)	158.70	71	2.23	.000	.90	.06	.95	.036
Hausa								
1. Hypothesised three factor model	140.19	74	1.89	.000	.92	.05	.92	.175

Note: χ^2 = Chi-Square, df = degree of freedom, GFI = Goodness of fit index CFI = Comparative fit index, RMSEA = Root mean square Error of approximation.

Table 3

Summary statistics, correlations and regression analysis for full sample

Variable	*Mean*	*SD*	*Multiple B*	*Regression*	*weights β*
ABL (Affirmation & Belonging)	20.16	3.37	.012		.010
EIA (Ethnic Identity Achievement)	23.07	4.78	.141**		.144
EBH (Ethnic Behaviour)	6.57	2.06	-517**		-227
OBO (Other Group Orientation)	4.69	4.69			

Note: Mean is based on five-point scale. *SD*= Standard deviation. **$p < .01$

Discussion

The aim of this study was to validate the Multigroup Ethnic Identity Measure (MEIM), Phinney (1992) in a Nigerian sample. A confirmatory factor analysis using the alternative model strategy was used to understand which of the models under consideration best explained the data. Results showed that a three factor model consisting of Affirmation & Belonging (5 items), Ethnic Identity Achievement (7 items) and Ethnic Behavior made substantive sense but the model indices were mediocre (see, Hu & Bentler, 1999). The measures of absolute fit, comparative fit and parsimony correction were relatively poor despite the correlated errors and attempts made on the models based on the data.

An examination of the scale's reliabilities and correlation showed that there were some inconsistencies in the scales. In addition, there was no correlation between Affirmation and Belonging (ABL) and Ethnic Behaviour (EBH), and between Ethnic Identity Achievement (EIA) and Ethnic Behaviour (EBH). This pattern of inconsistency in the full sample was also indicated in subgroups in relation to the entire sample. The Affirmation & Belonging scale reliability was within acceptable range but the Ethnic Identity Achievement scale reliability was questionable. However, the Ethnic Behaviour scale as an instrument was within an unacceptable range. This development did cast some doubts on the scales even though the overall scale reliability of MEIM was within acceptable range. It must be added that the scale reliability for the Other Group Behavior was also questionable. It is not very clear why this outcome was recorded, but often time issues related to measurement error or probably lack of understanding of the true meaning of the questionnaire items could be probable reasons (Chen, 2009). In such scenarios, where it is evident that participants had problems comprehending a questionnaire, it may be imperative to translate or rather modify the questionnaire to fit the local context so that participants make full meaning of questionnaire items (Behling & Law, 2000). In addition, problems related to sampling error and issues attributed to extreme response style in ethnic or cross cultural related studies (Cheung & Rensvold, 2000) may have given rise to these inconsistencies in reliabilities of scale. This scenario was also reflected in the strains observed in the factor loadings. For example, both the Other Group Behavior and Ethnic Identity Achievement scale had a number of non-significant items which reduced the viability of the models under consideration in the study. It is also plausible that model misspecification may have given rise to these problems in the models (Aish & Jőreskőg, 1990).

However, the results did indicate that the identity measures in the present study partially predicted Other Group Behavior. Although this was not particularly convincing, it did indicate that there was some potential in the predictive validity in the Other Group Behaviour with respect to MEIM. What may now be required is a comprehensive re-assessment of MEIM in an exploratory context in the first instance (Spencer et al., 2000). This is with the view to understanding which of the scale items best supports the essence of the Multigroup Ethnic Identity Measure in a substantive sense and adaptable application of the scale.

A careful look at the baseline models for the groups indicates that the Hausa group had fair model properties compared to the Ibo and Yoruba groups. The Hausa group model had no correlated errors, but the other groups recorded significant correlated errors. It is not clear why this may be but these were clear indications of measurement non-invariance. One way researchers confront such problems in conducting factor analysis is to move from the confirmatory back to the exploratory level of the analysis. This is necessary when data do not fit a confirmatory pattern, thus prompting a move back to the use of exploratory factor analysis (Hoyle, 1995). In view of this emerging issue, an exploratory approach to this study would be the most plausible means of achieving such an objective.

Limitations & Areas for further research

As with most studies, there are often limitations with the present study being no exception. A notable limitation of the present study was the inconstancies in the measuring instrument. It is likely that the inconsistencies in the reliability of the instrument gave rise to unstable model indices and factor loadings. These scenario cast doubts on whether the scale properties were good enough or if the participants understood the content of the questionnaire. In view of these circumstances, it may be fair to suggest that the results in this study should be viewed with caution.

The results in this study suggest that there is a considerable need to improve on the measures and consequently models for a numbers reasons. For example, the extent of non-invariance may have been caused by the probable inadequacies in understanding basic English. This is because it was obvious that there were some 'emic' and 'etic' issues related to the questionnaire items. Therefore, it makes more sense if an exploratory factor analysis were conducted before a confirmatory factor analysis. The exploratory process would have provided room for the adequate adapting and modification of the scale to fit the local context. Although the MEIM scale is a well-established measure, it was a little hasty to conduct CFA in a different cultural context. It is therefore advisable that further research on this subject matter in the Nigerian context should apply the use of EFA in the first instance. It is hoped that this study will draw much needed attention to the need to re-examine the MEIM in the context of ever-growing body of knowledge on this subject. Moreover, researchers may utilize qualitative methods to explore ethnic identity of various groups in Nigeria that allow participants to describe their identities in their own words. Data from such qualitative studies can then be used to adapt MEIM or create a new measure as needed.

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Appendix A
Unstandardized and Standardized factor loadings for Affirmation & Belonging (ABL)

Observed Variable item	Full Sample	Yoruba	Ibo	Hausa
I am happy that I am a member of the ethnic group I belong to	β = 0.60 B = 1.00	β = 0.67 B = 1.00	β = 0.57 B = 1.00	β = 0.66 B = 1.00
I have a strong sense of belonging to my own ethnic group	β = 0.69 B = 0.75	β = 0.69 B = 0.93	β = 0.65 B = 1.25	β = 0.51 B = 1.01
I have a lot of pride in my ethnic group and its accomplishments	β = 0.64 B = 0.86	β = 0.58 B = 0.99	β = 0.55 B = 1.09	β = 0.56 B = 1.10
I feel strong attachment towards my own ethnic group	β = 0.64 B = 0.79	β = 0.61 B = 0.93	β = 0.56 B = 1.16	β = 0.60 B = 1.00
I feel good about my cultural or ethnic background	β = 0.65 B = 1.00	β = 0.64 B = 0.90	β = 0.57 B = 0.92	β = 0.62 B = 0.96

Note: β = Standardised factor loading, B = Unstandardized factor loading

Appendix B
Unstandardized and Standardized factor loadings for Ethnic Identity Achievement (EAI)

Observed Variable item	Full Sample	Yoruba	Ibo	Hausa
I have spent time trying to find out more about my own ethnic group, such as its history, traditions, and customs	β = 0.55 B = 1.00	β = 0.66 B = 1.00	β = 0.41 B = 1.00	β = 0.66 B = 1.00
I have a clear sense of my ethnic background and what it means to me	β = 0.66 B = 0.96	β = 0.68 B = 0.99	β = 0.62 B = 1.03	β = 0.60 B = 1.10
I think a lot about how my life will be affected by my ethnic group membership	β = 0.19* B = 0.34	β = 0.26* B = 0.40	β = 0.16* B = 0.39	β = 0.15* B = 0.38
I am not very clear about the role of my ethnicity in my life (R)	β = 0.26* B = 0.48	β = 0.27* B = 0.40	β = 0.22* B = 0.50	β = 0.31* B = 0.51
I really have not spent much time trying to learn more about the culture and history of my ethnic group (R)	β = 0.60 B = 0.98	β = 0.25* B = 0.40	β = 0.31* B = 0.51	β = 0.29* B = 0.47
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.	β = 0.61 B = 0.99	β = 0.65 B = 0.79	β = 0.66 B = 0.96	β = 0.58 B = 0.80
In order to learn more about my ethnic group my ethnic group, I have often talked to other people about my ethnic group	β = 0.61 B = 0.99	β = 0.56 B = 0.80	β = 0.50 B = 0.91	β = 0.54 B = 0.79

Note: * Non-Significant factor items, β = Standardised factor loading, B = Unstandardized factor loading, R = Reverse coded

Appendix C

Unstandardized and Standardized factor loadings for Ethnic behaviour (EBH)

Observed Variable item	Full sample	Yoruba	Ibo	Hausa
I am active in organisations or social groups that include mostly members of my own ethnic group	β = 0.78 B = 1.00	β = 0.42 B = 1.00	β = 0.45 B = 1.00	β = 0.66 B = 1.00
I participate in cultural practices of my own group, such as special foods, music or customs	β = 0.68 B = 0.78	β = 0.47 B = 0.96	β = 0.48 B = 1.06	β = 0.51 B = 1.10

Note: β = Standardised factor loading, B = Unstandardized factor loading

Appendix D

Standardised and Unstandardized factor loadings for Other group orientation (OBO)

Observed Variable item	Full Sample	Yoruba	Ibo	Hausa
I like meeting and getting to know people from ethnic group other than my own	β = 0.68 B = 1.00	β = 0.69 B = 1.00	β = 0.67 B = 1.00	β = 0.67 B = 1.00
I sometimes feel it would be better if different ethnic groups didn't try to mix together (R)	β = 0.23* B = 0.30	β = 0.15* B = 0.21	β = 0.26* B = 0.32	β = 0.51 B = 0.77
I often spend time with people from other ethnic groups other than my own.	β = 0.68 B = 0.92	β = 0.58 B = 0.92	β = 0.64 B = 0.88	β = 0.71 B = 0.95
I do not try to become friends with people from other ethnic groups (R)	β = 0.26* B = 0.33	β = 0.14* B = 0.23	β = 0.39 B = 0.45	β = 0.23* B = 0.30
I am involved in activities with people from other ethnic groups	β = 0.49 B = 0.69	β = 0.55 B = 0.85	β = 0.51 B = 0.76	β = 0.66 B = 0.80
I enjoy being around people from ethnic groups other than my own	β = 0.65 B = 0.93	β = 0.57 B = 0.75	β = 0.62 B = 0.90	β = 0.51 B = 0.73

Note: * Non-Significant factor items, β = Standardised factor loading, B = Unstandardized factor loading. R = Reverse coded