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Abstract

Objectives: Past research has established that the Multigroup Ethnic Identity Measure (MEIM) exhibits measurement invariance across diverse ethnic groups. However, relatively little research has evaluated whether this measure is invariant across generational status. Thus, the present study evaluates the invariance of the MEIM across foreign-born, second-generation, and later-generation respondents.

Method: A large, ethnically diverse sample of college students completed the MEIM as part of an online survey (N = 9,107; 72.8% women; mean age = 20.31 years; SD = 3.38).

Results: There is evidence of configural and metric invariance, but there is little evidence of scalar invariance across generational status groups.

Conclusions: This study suggests that the MEIM has an equivalent factor structure across generation groups, indicating it is appropriate to compare the magnitude of associations between the MEIM and other variables across foreign-born, second-generation, and later-generation individuals. However, the lack of scalar invariance suggests that mean-level differences across generational status should be interpreted with caution.

Keywords

generational status; measurement invariance; Multigroup Ethnic Identity Measure; MEIM; ethnic identity

Ethnic identity has been characterized as a person's subjective evaluation of her or his own ethnic group membership, thoughts, and feelings toward one's ethnic group membership and the importance of one's ethnic group membership to the self (Phinney, 1989). The Multigroup Ethnic Identity Measure (MEIM; Phinney, 1992; Roberts et al., 1999) is the most widely used measure of ethnic identity in the research literature (Phinney & Ong, 2007). The MEIM is intended to be administrable to members of any ethnic group because it was designed to assess aspects of ethnic identity that generalize across ethnic groups. This means the MEIM can facilitate both mean-level comparisons of ethnic identity across group as well as comparisons of the associations between ethnic identity and other variables across ethnic groups.

To make such comparisons across groups, however, it is necessary to establish that the MEIM demonstrates adequate measurement invariance across the groups being compared (Chen, Sousa, & West, 2005). Recent research evaluating the measurement invariance of the MEIM across diverse ethnic groups suggests that the MEIM displays configural and metric invariance across White, Black, Hispanic, East Asian, and South Asian college students in the United States (Yap et al., 2014). Similarly, other research suggests that a revised, six-

item version of the MEIM (i.e., Phinney & Ong, 2007) displays evidence of configural, metric, and scalar invariance across White, Black, Hispanic, and Asian adult women (Brown et al., 2014). These findings suggest that prior studies may have been justified in administering the MEIM to multiple ethnic groups. An open question is whether the MEIM exhibits equivalence across *generational status*. This is an important issue given that previous studies have administered the MEIM to individuals of varying *generational status*—that is, foreign born, second generation, and later generation (e.g., Berry, Phinney, Sam, & Vedder, 2006)—without considering invariance across this demographic category.

Generational status is an important social category in that it often serves as a proxy for the relative amount of exposure a person has to one's receiving culture and one's heritage culture (Abraído-Lanza, Armbrister, Flórez, & Aguirre, 2006). First-generation immigrants were born outside their country of residence and may have had considerable immersion in their heritage culture. Second-generation individuals were born in their country of residence but were reared by at least one foreign-born parent. Both first- and second-generation individuals balance their heritage and receiving cultural streams, given that the heritage culture is present in the home and the person must interact with his or her receiving country's culture in the school or workplace (Benet-Martínez & Haritatos, 2005). Nonetheless, second-generation individuals may have much different connections to their receiving and heritage cultures than first-generation individuals. Third- and later-generation individuals (referred to simply as *later generation* in this article) were born in their country of residence to native-born parents. The presence of native-born parents may diminish conflicts between heritage and receiving cultures given that the primary socializing agents in the family were immersed in the receiving culture.

Past research suggests that ethnic identity plays an important role in the lives of both first- and second-generation individuals (e.g., Berry, 1997). However, it is important to consider that ethnic identity may carry different meanings across generational status groups (e.g., Rumbaut, 1994). For first-generation immigrants, ethnic identity may reflect feelings toward one's nation of birth. Second-generation individuals may identify with their family's culture of origin (i.e., their heritage culture) as well as their receiving culture. This complexity is further compounded by the fact that second-generation individuals may not have had much direct contact with their heritage culture. Later-generation individuals are likely even further removed from their heritage cultural and may even more strongly identify with their receiving culture. For native-born individuals, ethnic identity may be less tied to one's country of ancestry and may be a more direct reflection of one's broader ethnic group membership, particularly if he or she is part of a visible minority group. In short, ethnic group membership may hold different meanings for members of different generations. This makes issues of measurement invariance relevant. Indeed, when a researcher or practitioner is interested in assessing ethnic identity in individuals from different generational backgrounds using the same measure, it is important to evaluate whether this measure is functionally equivalent across these generational groups.

Determining whether measures such as the MEIM are invariant across generational status is also important for the interpretation of future research and past research findings. For example, prior research indicates that generational status does not affect the association

between ethnic identity and well-being (e.g., Yip & Fuligni, 2002), suggesting that the implications of ethnic identity for various psychological outcomes are similar across foreign-born, second-generation, and later-generation families. However, this conclusion is justified only if one demonstrates that the measures used to assess study variables (e.g., ethnic identity) are invariant across generational status.

We know of only one study that has evaluated the invariance of a measure of ethnic identity across generational status (Homma, Zumbo, Saewyc, & Wong, 2014). This study evaluated the invariance of the revised version of the MEIM (Phinney & Ong, 2007) in a relatively large sample of East Asian adolescents. The results revealed evidence for the strictest forms of invariance across native-born and foreign-born East Asian adolescents. The current study extends the work by Homma et al. (2014) in theoretically important ways. For instance, this study is the first to evaluate whether the MEIM is invariant across generational status in multiethnic samples and in adult samples. Given the high theoretical value of the MEIM as a multigroup measure that can be used to assess ethnic identity in any respondent, empirically verifying that the MEIM is equivalent across generational status groups in a sample that is maximally representative of the population that the MEIM was intended to assess is vitally important. The results by Homma et al. show promise for the MEIM in this regard, but it is theoretically necessary to show that equivalence across generational status is not unique to East Asian adolescents residing in Canada in order to justify the MEIM's continued use in individuals of varying generational status. This is an important concern because both research and theory suggest that the implications of ethnic identity and its development extend into adulthood, and researchers already are using the MEIM widely in ethnically diverse adult populations comprising multiple generational status groups (Phinney & Ong, 2007). To be sure, the question of whether the MEIM is invariant across these groups is vital to interpreting this ongoing research. Thus, the aim of the present study was to empirically evaluate this question by testing the measurement invariance of the MEIM across foreign-born, second-generation, and later-generation college-attending emerging adults.

Method

Participants

This study included 9,107 college students (72.8% women) with a mean age of 20.31 years (*SD* = 3.38). Participants' generational status was derived from three demographic questions assessing whether the respondent was born in the United States, the respondent's mother was born in the United States, and the respondent's father was born in the United States. Respondents who indicated they were born outside of the United States were coded as *first generation* (*n* = 1,156).[1] Respondents who indicated they were born in the United States and at least one parent was born outside of the United States were coded as *second generation* (*n* = 2,217). Respondents who indicated they and both their parents were born in the United States were coded as *later generation* (*n* = 5,734). The ethnic breakdown of our sample is shown in Table 1.

[1]Data on age of immigration were not collected from respondents, and thus analyses that take into account age at immigration were not possible.

Data for the present analyses were taken from a large, multisite research study of identity and culture. Data were collected from 30 colleges and universities across the United States. Participants were recruited via institutional subject pools, email invitations, and print advertisements. All participants completed all questionnaires online between September 2008 and October 2009.

Measure

MEIM.—Participants responded to the 12-item version of the MEIM (Roberts et al., 1999) using a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Item content is presented in Table 2.

Analytic Approach

The data used in the present study also were used in a previous study by Yap et al. (2014) to evaluate measurement invariance of the MEIM across ethnic groups. We used Yap et al.'s same bifactor model to evaluate whether the MEIM is invariant across generational status in the current study.[2]

Multigroup confirmatory factor analysis was used to evaluate the invariance of the MEIM across three generational status groups in this sample. This procedure involves testing three increasingly restrictive models, where each model reflects a stronger level of measurement invariance. The first level of invariance, referred to as *configural invariance*, evaluates whether the general factor structure of a measure is equivalent across groups. Configural invariance is evaluated by examining the fit of a multigroup model where the same pattern of relations between latent factors and indicator items is specified across groups. The second model evaluates *metric invariance* and tests whether item loadings are equivalent across groups. Metric invariance is evaluated by comparing the fit of a model with equality constraints placed on corresponding item loadings across groups to the fit of the unconstrained configural invariance model. A meaningful decrement in fit between these models would suggest a lack of metric invariance. *Scalar invariance* is evaluated in the third model and tests the additional equivalence of item intercepts across groups. To find evidence of scalar invariance, one must demonstrate that equality constraints on corresponding item intercepts (as well as on the factor loadings as established under metric invariance) across groups do not lead to a meaningful decrement in model fit compared to the metric invariance model.

Following the recommendations of Cheung and Rensvold (2002),[3] we evaluated meaningful change in fit across invariance models by assessing change in the comparative fit index

[2]Yap et al. initially tested the overall fit of four potential factor structures (e.g., a one-factor, two-factor, three-factor, and bifactor model) using confirmatory factor analysis to empirically identify the best baseline model for their overall sample. Their analyses suggested that the bifactor and three-factor models provided the best fit to the data. Given the relative advantages of the bifactor model (see Yap et al., 2014), these authors retained the bifactor model for all subsequent invariance tests. Fit indices for each of these models in the current data set are included in Table 2 of Yap et al.'s (2014) original article.

[3]It is worth noting that there is debate as to the change in fit criteria that would indicate a meaningful decrement in fit between different models. For instance, Meade, Johnson, and Braddy (2008) recommend using much stricter criteria for evaluating decrement in fit (i.e., ΔCFI = .002) among invariance models. However, we chose to adopt the more liberal criteria given the early stage of this research. Indeed, by Meade et al.'s criteria, the results of this study and other past studies evaluating the invariance of the MEIM (e.g., Avery, Tonidandel, Thomas, Johnson, & Mack, 2007) would indicate a lack of measurement invariance.

(CFI) and McDonald's Noncentrality Index (Mc). We used the criteria that a change in CFI (i.e., ΔCFI) greater than .01 and a change in Mc (i.e., ΔMc) greater than .02 reflect a meaningful decrement in fit between nested invariance models.

Results

Descriptive statistics and correlations among items are provided in Table 2. All analyses were performed using Mplus 5.0 (Muthén & Muthén, 2007) with MLR estimation.[4] Model fit indices for each invariance model across the three structural models are shown in Table 3.

Invariance of the Bifactor Model

Generally speaking, our results suggest that the absolute fit of the bifactor configural model is relatively poor (other than the result provided by the standardized root mean square residual [SRMR] value; see Hu & Bentler, 1999). Usually, this would be interpreted as evidence for lack of invariance across generational status groups. However, the fit of the multigroup configural model in this case is acceptable given that it was similar to the initial fit of the bifactor model in the overall sample, $\chi^2(42) = 3{,}623.30$, CFI = .92, root mean square error of approximation = .10, SRMR = .04 (Yap et al., 2014). Because of this similarity in fit, these results can be interpreted as evidence of configural invariance. Comparisons of the metric and configural invariance models yielded ΔCFI = −.015 and ΔMc = −.030, suggesting that there was no decrement in fit when item loading constraints across groups were added to the model. In fact, the model fit was slightly better after these constraints were included in the model (i.e., the fit indices improved). These results suggest that there is evidence of metric invariance across generational status groups. However, comparisons of scalar and metric invariance models yielded ΔCFI = .015 and ΔMc = .030, indicating there was a decrement in fit when item intercept constraints across groups were added to the model. In other words, scalar invariance did not emerge across generational status groups.[5]

Next, we evaluated evidence for partial scalar invariance. These analyses involve systematically placing equality constraints on each item intercept while letting other item intercepts vary across groups. The fit of each of these models (where intercepts are constrained singly) is then compared to the fit of the metric invariance model (where all intercepts are free to vary across groups), allowing us to identify which items might be responsible for the lack of scalar invariance. These analyses revealed that the decrement in fit found in the overall test of scalar invariance is not attributable to any specific items—that is, the decrement in fit associated with individual item intercept constraints did not reach Cheung and Rensvold's (2002) critical value of ΔCFI > .01. Instead, it appears that the lack of overall scalar invariance in the MEIM is explained by small decrements in fit across several items, rather than to a particular subset of MEIM items.

[4]Given that the default null model used to compute CFI in Mplus is not nested within the scalar invariance model (Widaman & Thompson, 2003), all CFI values reported in these analyses were manually computed using the appropriate null model. In this null model, item intercepts are constrained to equality across groups. The standard null model used to compute CFI in Mplus allows intercepts to be freely estimated across groups, which is not nested within the scalar invariance model (Widaman & Thompson, 2003).

[5]We also evaluated whether invariance across generational status varied across ethnic groups. These additional analyses revealed that there were no differences in the pattern of invariance across the four largest ethnic groups in this sample (White, Black, Hispanic, and Asian). Thus, it does not appear that ethnic group moderates these effects.

Discussion

The present study provides the first empirical evidence that the MEIM produces scores with configural and metric invariance across first-, second-, and later-generation college students living in the United States. However, we did not find evidence of overall scalar invariance across generational status in these analyses, nor did we find clear evidence of partial scalar invariance in these data.[6]

Overall, this study contributes essential information to our knowledge about the use of the MEIM and its interpretation and makes a unique contribution to the literature on ethnic identity, immigration, and acculturation. This study goes beyond the past literature (e.g., Yap et al., 2014) to demonstrate that it is seemingly appropriate to simultaneously administer the 12-item MEIM (Roberts et al., 1999) to individuals of varying generational status in diverse populations to study ethnic identity. Indeed, it appears that the MEIM assesses the construct of ethnic identity similarly across foreign-born respondents, native-born respondents reared by at least one foreign-born parent, and native-born respondents whose families have lived in a country for multiple generations. This finding has clear implications for the interpretation of past literature that has undoubtedly administered this instrument to respondents of varying generational status—and fortunately, it appears that this practice was psychometrically sound. However, the lack of evidence for scalar invariance in our study suggests that the interpretation of mean differences in ethnic identity among first-, second-, and later-generation individuals may not be entirely appropriate with the MEIM.

Taken together, the results of this study and those of the prior study by Yap et al. (2014) showing that the 12-item MEIM (Roberts et al., 1999) displays invariance across multiple ethnic groups suggest that the MEIM is a robust tool to study ethnic identity and its implications within multiethnic samples across different generations. These and other findings about the MEIM provide additional evidence for the validity of the instrument as a useful tool for studying ethnic identity in diverse samples. Specifically, the current study suggests that continued use of the MEIM with both immigrants and native-born respondents is warranted.

Limitations and Future Directions

The present results should be interpreted in light of some important limitations. Indeed, it is possible that important differences between college students and other demographic groups could limit the generalizability to other demographic groups (see, e.g., Gordon, Slade, & Schmitt, 1986). For example, although we found evidence for configural and metric invariance across generational status, it is possible that the relative homogeneity of college students (particularly along important demographic characteristics such as age, educational level, or their familiarity with survey research) may have inflated the degree of similarity among generational status groups in this study. In turn, this increased similarity may have exaggerated the degree of invariance in MEIM scores among these groups compared to the

[6]We also conducted additional analyses (not reported here) to evaluate invariance using the two-factor and three-factor models. These analyses indicated the same pattern of results as the shown in the bifactor model, namely, evidence for configural and metric invariance but not for scalar invariance. Further details regarding these analyses are available from the first author.

levels of invariance one would observe in a more educationally heterogeneous sample. Nonetheless, our work represents an important first step toward assessing the utility of the MEIM across generations, in a demographic that is commonly of interest to researchers and for whom questions of ethnic identity may be particularly important.

Second, our results suggest that there are clear strengths in using the MEIM. However, we echo Yap et al.'s (2014) position that further work needs to be done to clarify the structure of this measure. There is little consensus in the literature regarding what dimensional structure is the most appropriate in representing the MEIM (i.e., one, two, or three factor; see Yap et al., 2014, for a review). This lack of clarity serves as a clear barrier to progress in ethnic identity research. The MEIM is not the only measure of this construct, but it is arguably the most widely used. Thus, it is vitally important to the future of this field to clarify this measure's factor structure and the groups to which any particular factor structure is applicable. Doing so will enable researchers and practitioners to gain a better understanding of the construct of ethnic identity and how aspects of ethnic identity relate to important psychological and demographic variables. Indeed, further clarification of the MEIM may also guide theories surrounding the structure of ethnic identity and give researchers new insights into the nature of ethnic identity as a whole.

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Table 1

Ethnic Breakdown

	Black (%)	White (%)	Asian (%)	Hispanic (%)	Middle Eastern (%)	Colored–South African (%)
First generation	11.0	19.0	38.9	28.0	2.8	0.3
Second generation	9.3	18.3	34.5	34.1	3.7	0.0
Later generation	7.4	86.5	1.0	5.0	0.1	0.1
Total sample	8.3	60.9	13.7	14.8	1.3	0.1

Note. 0.9% did not report a group membership.

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Table 2

Bivariate Correlations and Descriptive Statistics for Multigroup Ethnic Identity Measure Items Across Full Sample

Item	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12
1. Spent time trying to find out more	3.19	1.21	—											
2. Active in organizations or social groups	3.07	1.33	0.32	—										
3. Clear sense of my ethnic background	3.64	1.16	0.48	0.42	—									
4. Think about ethnic group membership	2.89	1.29	0.43	0.36	0.45	—								
5. Happy to be a member	4.14	0.97	0.25	0.27	0.47	0.25	—							
6. Sense of belonging to ethnic group	3.78	1.14	0.33	0.41	0.58	0.37	0.66	—						
7. Understand what ethnic group membership means	3.74	1.12	0.37	0.38	0.66	0.41	0.60	0.75	—					
8. Talked to other people about ethnic group	3.09	1.28	0.55	0.30	0.48	0.53	0.32	0.45	0.50	—				
9. Pride in ethnic group	3.83	1.09	0.35	0.26	0.53	0.35	0.61	0.65	0.62	0.50	—			
10. Participate in cultural practices of group	3.53	1.25	0.43	0.34	0.52	0.41	0.41	0.52	0.53	0.53	0.55	—		
11. Attachment toward ethnic group	3.61	1.19	0.41	0.36	0.58	0.41	0.55	0.69	0.66	0.53	0.72	0.68	—	
12. Feel good about background	4.04	0.98	0.32	0.27	0.52	0.27	0.64	0.61	0.58	0.40	0.70	0.53	0.69	—

Note. All coefficients significant, $p < .01$. $N = 9{,}107$.

Table 3

Fit Indices Across Invariance Models for Bifactor Model

Model	χ^2 (*df*)	$\Delta\chi^2$ (Δdf)	CFI	ΔCFI	Mc	ΔMc	RMSEA	SRMR
Configural invariance	4,003.643 (126)		.911		.808		.101	.036
Metric invariance	3,387.370 (174)	−2,003.946 (48)	.926	−.015	.838	−.030	.078	.05
Scalar invariance	4,079.031 (192)	525.004 (18)	.911	.015	.808	.030	.082	.057

Note. All chi-square difference tests were Satorra-Bentler scaled chi-squared difference tests, and all were significant, $p < .001$. All CFI values were computed using the appropriate null model reflecting the constraints of the scalar invariance model. CFI = Comparative Fit Index; Mc = McDonald's Noncentrality Index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual.