Psychometric properties of the multigroup ethnic identity measure (MEIM) in a sample of young adults (#30282)

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Psychometric properties of the multigroup ethnic identity measure (MEIM) in a sample of young adults

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Background. This study examines the factor structure, reliability and test-retest validity of the Iranian student version of the Multigroup Ethnic Identity Measure (MEIM). The association between ethnic identity and subjective well-being were assessed in order to test the concurrent validity of the MEIM.

Method. The scale was translated into Persian language and was administered to 426 students (193 female) at a major public university in Tehran along with the Positive Affect Negative Affect Schedule, and the Satisfaction with Life Scale.

Results. The Confirmatory factor analysis upheld the two-factor first-order commitment, and exploration - consisting of 12 items, and second-order unidimensional factor structure- general ethnic identity, with evidence for the internal consistency, test re-test reliability, and concurrent validity.

Conclusion. The MEIM was found to be a valid and reliable measure to examine ethnic identity in this Iranian student population, for both males and females. These results support the utility of the Persian version of the MEIM for use in middle-eastern contexts. *Key words:* ethnic identity, youth, measurement model

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ABSTRACT

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INTRODUCTION

Identity is a very complex and dynamic concept in nature and hence it has been defined in various ways. Different scientific fields have conceptualized identity with specific origins, themes, aims, analyses and research methods. The foundations of this concept in psychology goes back to Erikson's Psychosocial Theory and his studies on different cultures including West Indies, Russians, Germans, and Americans (Breger, 1974). It is also partly based on his clinical experiences with veterans returning home after World War II (Kroger, 1990). Different aspects of life are included in the concept of identity; questions like: "what is the purpose of my life?" or "what is the aim of life in general?"(Kroger, 1996). Most people begin to develop the capacity to assess and evaluate abstract concepts like nationality, race and ethnicity during adolescence (Umana-Taylor, 2008). In fact, the dominance of ethnic identity is characteristic of this period (French, Seidman, Allenb & Aber, 2006) and it is a particularly important element of identity development for adolescents in minority groups (Phinney, 1992; Phinney & Rosenthal, 1992). Ethnic identity is a multidimensional, and ever evolving phenomenon that has been defined in various ways. Tajfel defines ethnic identity as part of one's individuality that comes from their understanding of their membership in an ethnic group with particular values and emotions. Holmes defines it as belonging to an ethnic group that has specific heritage, values and characteristics (Phinney & Ong, 2007).

Ethnic identity as a component of the question: "who am I?" is a powerful factor in the development and preservation of ethnic groups and their social bonds. It is in fact a constellation of an individual's ideas and attitudes about their own group members and their definition of other members` collection of ideas and attitudes. This definition includes an individual`s membership in an ethnic group with its respective values, behaviors and emotions. Ethnic identity is also an

important part of self-image and its formation is affected by the process of socialization and internal dynamics of individuals in an ethnic group (Bernal & Knight, 1993). It is a feature of a group whose members have a strong attachment to the group and have common behaviors, beliefs and values which make them an identified culture (Velez-Yelin, 2002). Different models and measures have been presented in order to assess ethnic identity within a group. Most of these models, like Phinney's model and Marcia and Yomana's four dimensional model, are based on the works of Erikson, Tajfel, and Phinney (Umana-Taylor, 2004). The practical aspect of the present research is based on Phinney`s perspective and her ethnic identity model.

Phinney (1992) holds that with the facilitation of parents and the society, youngsters belonging to different ethnic groups have the responsibility to develop ethnic identity, asserting that ethnic identity has a positive relationship with psychological competence. Phinney (1993) presented the Developmental Model of Identity for members of all ethnic groups based on Marcia's conceptualization of Erikson's theory of identity. This model is focused on identity development formed in the ego of adolescents. In subsequent studies, Phinney and others have found that the process of ethnic identity achievement leads to exploration and then affirmation of an individual's identity (Vedder & Phinney, 2014). With consideration of both confrontation and exploration, she reduced the model to three stages: (1) Unexamined ethnic identity; i.e. individuals do not have any interest to explore and discover their ethnic identity (Velez-Yelin, 2002) and to examine positive and negative aspects of their ethnic group; (2) Ethnic Identity search/ Moratorium; i.e. individuals begin to understand the meaning of membership in their ethnic group (French, Seidman, Allenb & Aber, 2006); and (3) Ethnic identity achievement; i.e. individuals achieve a clear understanding of their identity and accept it. These stages develop at different points in time and become integrated later (Velez-Yelin, 2002). If an individual complete the

89 stages of ethnic identity development and discovers her/his ethnic identity, she /he grows in self-
90 acceptance (Ivory, 2002). Self-acceptance is, for instance, an important factor in adolescents' well-
91 being (Cloninger, 2004; Garcia & Siddiqui, 2009; Garcia, Rosenberg, Arvidsson & Siddiqui, 2010;
92 Garcia & Archer, 2012).

93 According to Phinney (1992), the aforementioned three-stage model can be used in order
94 to understand the processes involved in ethnic identity development in adolescents. She also
95 proposed that the concept of ethnic identity is composed of three key factors that are the product
96 of the three-stage process. These include: 1) self-identification or the title that the individual uses
97 referring to him or herself. 2) A sense of national pride that determines positive feelings about
98 ethnic background and a sense of belonging and attachment to a group and 3) Attitudes towards
99 one's group. Individuals with high ethnic identity explore their commitments towards their ethnic
100 group (Ontai-Grzebik & Raffaelli, 2004). Therefore, they recognize their group members, certify
101 positive evaluations of their group, have good feelings about membership in the group and perform
102 certain ethnic rituals. On the other hand, individuals with weak ethnic identity pay little attention
103 to their group members, certify negative evaluations of the group to which they belong, do not
104 have a good feeling about membership in the group and do not have information about
105 commitments and adversities of their group (Phinney, 1991).

106 **The Multigroup Ethnic Identity Measure (MEIM)**

107 For the measurement of ethnic identity, Phinney has constructed the 12-item Multigroup Ethnic
108 Identity Measure (Phinney, 1992). This measure has been used in dozens of studies and has
109 consistently shown good reliability, typically with alphas above 0.80 across a wide range of ethnic
110 groups and ages. The reported reliability for high school students is 0.81 and that of college
111 students is 0.90. Based on recent work, including a factor analysis of a large sample of adolescents,

it appears that the measure can best be thought of as comprising of two factors: 1) ethnic identity search (a developmental and cognitive component) and 2) affirmation, belonging, and commitment (an affective component) (Roberts, Phinney, Masse, Chen, Roberts & Romero, 1999). So far, no published study has tested the construct validity of the Multigroup Ethnic Identity Measure in a sample drawn from a Middle Eastern population.

Research findings related to ethnic identity and gender suggest mixed results, some show that the mean rate of ethnic identity seen in males is higher than that of females (Chau Vo, 2008; Go & Le, 2005), while others show that the rate for females is higher than that of males (Cislo, 2008; Creagh-kaiser, 2003). Yet other studies (e.g., Yin lum, 2008; Swenson & Prelow, 2005; Ontai-Grzebik & Raffaelli, 2004; Phinney, Cantu & Kurtz, 1997) did not show any significant difference between genders in ethnic identity achievement. Moreover, academic years at university seem to be critical for identity development (Marcia, 1980). Smith et al (2009), demonstrated that ethnic identity has a positive relationship with academic, social, physical and behavioral self-esteem and academic functioning.

Ethnic identity and subjective well-being have been found to have a positive relationship in different ethnic populations (Syed et al, 2013; Smith & Silva, 2011; Krieger, 2010; Iwamoto & Liu, 2010; Umana-Taylor, 2004). Subjective well-being involves a positive feeling and a general sense of satisfaction with different areas of life (Myers & Diner, 1995). According to Pavot and Diner (2004), subjective well-being consists of two distinct, but related components: 1- Emotional Components (positive and negative affect) and 2- Cognitive Components (satisfaction with life). Positive affect reflects the occurrence of positive emotional states such as pleasure, interest, arousal, desire, trust and consciousness. In contrast, negative affect involves negative emotional states such as anger, fear, sadness, guilt, humiliation, hatred and mental stress. (Pavot, 2004). The

135 cognitive component of subjective well-being refers to the general feeling of satisfaction with life
136 and cognitive assessment of individuals about the quality of different aspects of their lives (Gilman
137 et al, 2000). Studies that examine subjective well-being evaluate each of its aforementioned
138 components individually, instead of examining them as an integrated entity. Lucas, Diner and Sue
139 (1996) also showed that life satisfaction, positive affect and lack of negative affect are somewhat
140 independent of each other. This means that each of the components of subjective well-being must
141 be studied and measured individually. Taking into consideration the importance of well-being, it
142 is very essential to explain the components that affect the well-being of individuals.

143 There have been studies indicating that strong ethnic identity can lead to reduced negative
144 emotions (Williams, Chapman, Wong & Turkheimer, 2012; Yip & Fuligni, 2002; Roberts et al,
145 1999) and that successful formation of ethnic identity is related to psychological well-being
146 (Vleioras & Bosma, 2005; Waterman, 2007; Hejazi, Shahraray, Farsinejad & Asgary, 2008). The
147 few studies conducted in Iran demonstrated significant relationship between identity development
148 and wellbeing (Musavi, Rushan & Akbari , 2010; Alijani, 2006; Ghazanfari, 2003). Nevertheless,
149 most studies in this field were conducted in western cultures. Therefore, the generalizability of
150 these findings to other cultures, such as Iran as an Islamic eastern and multiethnic culture, is
151 limited.

152 That being said, many Iranian researchers have studied identity in different Iranian
153 ethnicities. For instance, Moghaddas Jafari et al. (1999) showed that Kurdish students are to a large
154 extent committed to all components of ethnic and national identity. They also showed that levels
155 of perceived social inequality has the highest share in explaining and predicting commitment to
156 ethnic and national identity. Similarly Hajiani (2008) has demonstrated that both ethnic and
157 national identity are strong and prominent among different Iranian ethnic groups and that they are

158 not irreconcilable in any way. They also revealed that there is a strong positive relationship
159 between the sociocultural dimensions of ethnic identity and the cultural and somewhat social
160 dimensions of national identity. Despite the importance of these studies, a major problem with
161 them is that a majority, if not all, have not used standard models and measures when assessing
162 ethnic identity, which makes comparisons across and within cultures impossible. Standard
163 measures for ethnic identity assessment, such as the MEIM, are under attention in other countries;
164 making research findings comparable.

165 The study of ethnic identity is important from many perspectives. Different studies in Iran,
166 indicate that a distinctive sense of ethnic identity is present in all Iranian ethnicities and that
167 Iranians in general have high levels of responsibility and devotion to their own ethnic group
168 (Chalabi, 2000; Hajiyani, 2009). What is more, the role of culture in identity
169 achievement/development has been a question ever since Erikson's grounding research (e.g., Graf,
170 Mullis & Mullis, 2008; Solomontos-Kountouri & Hurry, 2008; Kroger, 1993; 2007; Cote &
171 Levine, 2002; Yoder, 2000; Cross & Markus, 1999; Adams & Marshall, 1989; Triandis, 1989;
172 Baumeister, 1986). Indeed, one dimension of any group identity is its cultural one (Brewer & Yuki,
173 2007). Due to values considered as the main roots of culture and also the importance of the
174 relationship between ethnic identity and mental wellbeing, variables of human values and mental
175 wellbeing should be studied along with ethnic identity. For example, research suggest that there
176 are cultural differences in the interpretation of life events and situations, that is, some cultures
177 explain the world as good and controllable and others emphasize negative emotions as normal
178 (Myers & Diener, 1995). Hence, validated measures of ethnic identity are of great importance to
179 consolidate research from different parts of the world.

180 Therefore, the present paper has three main objectives:

(1) To evaluate the construct validity and test-retest reliability of the MEIM among a sample of Iranian students.

(2) To examine ethnic identity, as measured by the MEIM, in relation to subjective wellbeing: positive affect, negative affect and life satisfaction in order to test the concurrent validity of the MEIM.

(3) To examine possible gender differences in ethnic identity.

METHOD

Participants

Participants included 426 students; 91.8% were single and 54.7% male. Out of the 450 ~~number of~~ students invited to take part in the study, 24 students dropped out. The percentages of participants in different ethnic groups were as follows: Turks (33.1%), Kurds (16.7%), Lors (21.4%), and Farses (28.9%). The average age was 21.98 years and ranged from 18 to 31 years. Students were 60.3% undergraduates and 39.7% ~~graduates~~, recruited from four faculties at a university in social sciences (45.1%), engineering (21.6%) and foundational sciences (33.3%). Most of the participants lived in dormitory (70.7%) and the remaining lived with their parents or spouse. All participants were offered the option to take the MEIM on one or two occasions. Those who wanted to take the test twice were considered to be part of a test-retest subsample and took the test for the second time after a four-week interval. The test-retest sub-sample (n = 50; 25 male) had a mean age of 23 years (age range 18-30 years).

Measures

Multigroup Ethnic Identity Measure. The MEIM (Phinney, 1998) contains 12 items that can be divided into two subscales: 1) exploration and 2) commitment. The items are rated on a four-point Likert-type scale that range from 1 indicating “strongly disagree” to 4 indicating “strongly agree”.

Using the MEIM, Ong, Phinney, and Dennis (2006) studied the effect of family and other psychological factors on academic achievement in a sample of 123 Latino college students with diverse ethnic background and found a .91 internal consistency reliability rate for the MEIM. Kiang and Fuligni (2009) also used the MEIM to examine the relationship between ethnic identity and family attitudes and relationships in an ethnically diverse sample of the ninth graders. The sample consisted of individuals with Latin American, Asian, and European backgrounds. Internal consistencies were high among all ethnic groups .68 - .78 for belonging and .85 - .88 for exploration. In addition, Gaylord-Harden et al. (2006) used a sample of 227 African American youths with a mean age of 12.55 to examine the effects of social support in reducing internalizing symptoms with the possible mediating effects of self-esteem and ethnic identity. They found an internal consistency of .81 as shown by Cronbach's alpha coefficient. Roberts and colleagues (1999) tested the construct and structure validity of the MEIM in a sample of ethnically diverse young adolescents in the six to eight grades (N= 5,423) and found a reliability of .84, as measured by Cronbach's alpha. Findings of this study also suggested that ethnic identity had a positive correlation with measures of psychological well-being. Yip and Fuligni (2002) studied Chinese American adolescents' global ethnic identity and its relationship to their ethnic behaviors, ethnic identity salience, and psychological well-being. The Cronbach's alpha for the belonging and affirmation subscale was .84 and that for the role of one's ethnicity as part of their self-construal was found to be .78. In a study by Yoo and Lee (2005), the MEIM was completed by a sample of Asian American college students in order to study if ethnic identity had any moderating effects in the role that perceived racial discrimination plays in their well-being. The internal reliability of MEIM in this study was found to be .87.

Positive and Negative Affect Schedule (PANAS). An instrument in which participants are instructed to rate to what extent they generally have experienced 20 different emotions (10 positive emotions and 10 negative emotions) for the last four weeks, using a 5-point Likert scale (1 = *very slightly*, 5 = *extremely*) (Watson, Clark & Tellegen, 1988). The 10-item positive affect scale includes adjectives such as strong, proud, and interested. The 10-item negative affect scale includes adjectives such as afraid, ashamed, and nervous. The PANAS is usually used to operationalize the emotional component of subjective well-being and it has an excellent internal consistency ranging from .84 to .90 as indicated by Conbrach's alpha coefficients (Cloninger & Garcia, 2015). Yoo and Lee (2005) used the PANAS to investigate the effects of perceived racial discrimination on well-being. The internal reliability for the PA scale was .80 and that for the NA scale was .87. The PANAS was also used by Vera et al. (2008) to measure subjective well-being in a sample of 151 urban adolescents aged 12 to 15 years from diverse ethnic backgrounds. The found estimated internal consistency reliability was .72. *Cronbach's alpha* for these scales was .81 for positive affect and .83 for negative affect. The PANAS seems to be a considerably reliable instrument to be used with urban adolescents.

Satisfaction with Life Scale (SWLS). This scale is a report measure that assesses the cognitive component of subjective well-being (i.e., life satisfaction) and consists of 5 items (e.g., "In most ways my life is close to my ideal") that require a response on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree) (Pavot & Diener, 1993). Yoo and Lee (2005) used the SWLS and found a .83 internal reliability estimation. In addition, Edward and Lopez (2006) studied perceived family support, acculturation, and life satisfaction and found an internal reliability of .86 for the Global subscale. In another study, the SWLS was used by Vera et al. (2008) to study life satisfaction in a sample of ethnically and racially diverse adolescents in the 12 to 15 age group.

249 The estimated internal consistency reliability in this study was .82. The Persian version of this
250 instrument has also been previously used (e.g., Kjell, Nima, Sikström, Archer & Garcia, 2013) and
251 has been found to have a *Cronbach's alpha* of.89.

252 **Procedures**

253 With permission from its author (personal communication, 2013), the MEIM was translated into
254 Persian and back-translated to English by a research team fluent in both Persian and English
255 languages (Guillemin, Bombardier, & Beaton, 1993; Morales, 2001; Villagran, & Lucke, 2005).
256 A primary Persian version of the MEIM was prepared. Its lucidity was evaluated through a pilot
257 study on 30 students who were asked to rate the fluency of items from 0 (*Not Understandable*) to
258 5 (*Completely Understandable*). This was to check clarity of the Persian language version of the
259 MEIM, and to see to what extent it is understandable by students. Back translation was done by
260 two other mental health and a linguistic professionals. The back translation followed by experts`
261 judgments revealed that the translated version reflected the original version. Finally, apart from a
262 few minor adjustments made to the wording and layout, the Persian version of MEIM was judged
263 as similar to its original version.

264 To carry out the sampling process, research assistants at the University of Shahid Beheshti
265 invited students to participate in the study using ~~convenient~~ sampling. 450 completed
266 questionnaires were received, but only 426 of them were analyzed in the study. Twenty-four forms
267 were excluded due to evident random responses to the items.

268 Data collection was conducted after receiving ethics approval from University of Shahid
269 Beheshti's ethics board. In addition, the participants were provided with a written consent form
270 and they were told that they could discontinue participating in the study whenever they intended
271 to.

Statistical Analyses

A confirmatory factor analysis using LISREL, version 8.72 (Joreskog & Sorbom, 2005) was applied to examine the two-factor structure of the MEIM (Phinny, 1992, 1998). Confirmatory factor analysis offers a variety of statistical tests and indices designed to assess the "goodness-of-fit" of identified models (Cole, 1987, Breckler, 1990; Mulaik, James, Van Alstine, Bennett, Lind, Stilwell, 1989). For this purpose, in the present study, the goodness-of-fit was evaluated using the following statistics: the goodness-of-fit index (GFI > .9), the adjusted goodness-of-fit index (AGFI > .90), the non-normal fit index (NNFI > .90), the comparative fit index (CFI > .90), the root mean square residual (RMSR < .08), the normal chi-square ($3 > \chi^2/df < 2$) and the root mean square error of approximation (RMSEA) and its 90% confidence interval (< .05: Cole, 1987; Breckler, 1990; Mulaik, James, Van Alstine, Bennett, Lind, Stilwell, 1989). The concurrent validity was investigated by correlations between the MEIM scores and self-rated well-being scores. To evaluate the test-retest reliability of the MEIM, Intra-class correlation coefficients were calculated on two occasions over four weeks for the total scale and two sub-scales. Cronbach's alpha and mean inter-item correlation coefficients were calculated for the total MEIM score and its sub-scales.

The extent to which data collected from the sample was compatible with the four models was examined using LISREL, version 8.72 (Joreskog & Sorbom, 2005). [illegible]pecifies a one-factor model (M_1) in which all 12 items were forced to load on a single ~~factor of~~ global factor (i.e., Reese et al., 1998); the second model presents a two-factor orthogonal model (M_2); the third examines a two-factor oblique model (M_3) as reported in the EFA procedure by Phinney (1992, 1998), the forth examines a two-factor oblique first-order and single-factor second-order model (M_4). Preliminary analysis of data showed that normality was violated. The Z score for the univariate

skewness values ranged from -4.40 *[*Item 9*, "I have a lot of pride in my ethnic group"]* to -.76 [Item 1, *"I have spent time trying to find out more about my ethnic group, such as its history, traditions, and customs."]* (Table 1), and Relative Multivariate Kurtosis was 1.16 and test of multivariate normality for skewness and kurtosis confirmed χ^2=255.29, p< .001. Regarding the non-normality of data, the generalized weighted least squares estimation method was applied as distribution of the data was less sensitive to normality (Bentler & Bonett, 1980).

RESULTS

Aim 1: Construct Validity and Test-Retest Reliability of the MEIM

Table 1 presents the results of the fit estimates for all models. The one-factor model and the two-factor orthogonal model did not meet the previously specified fit criteria and the two factors oblique model showed inadequate fit to the data (M_1 to M_3). Although modification by correcting errors in the two-factor model, revealed some improvement, it still did not meet all the criteria ($M_{3b;}$ RMSEA > .05). The chi-square test results were significant for all models, but that is to be expected with models with large degrees of freedom and relatively large sample sizes (Bentler, 1995). An examination of the remaining fit indices suggested that the Satorra-Bentler scaled difference chi-square test statistic (Satorra and Bentler, 2001) test among the nested models and, importantly, the best fitting model (M_4 in table 1) was significantly better than the two factors oblique and correlated errors model ($D\chi^2$ = 19.86; *df*= 3, *P*< .001). In a comparison of the nested models, the $D\chi^2$ (Jöreskog and Sörbom, 1993) showed that the two-factor oblique, correlated errors and single-factor second-order model provided a better fit [S-B χ^2/df = 1.90; *CFI*= .93; *NNFI*= .90; and *RMSEA* = .046 ([*CI*] 90% = .031, .061]. The correlation between exploration and commitment latent variables was .88 (*p*< .001). Because of strong correlations between the three latent factors

317 the possibility of a second-order Ethnic Identity factor was tested. The correlation between
318 exploration and commitment first-order latent variables with ethnic identity factors was .94 and
319 .92 (p< .001).

320 The internal reliability coefficients and the mean inter-item correlation for the MEIM are
321 presented for the total sample and separately for males and females in table 3. These findings
322 suggest that the scale has acceptable internal consistency. For test-retest reliability of the MEIM,
323 50 Students (15 males) completed the scale four weeks later. Intra-class correlation coefficients
324 between the total and subscale scores at time 1 and 2 ranged from .82 to .91 (table 2).

325 **Aim 2: Concurrent Validity of the MEIM**

326 Table 4 presents the Pearson correlation coefficients between MEIM and its subscales and positive
327 affect, negative affect, and Life satisfaction. The results indicate that the MEIM and its subscales
328 have a positive relationship with positive affect and Life satisfaction and a negative relationship
329 with negative affect. The shared variance for the total score of the MEIM indicate weak
330 relationships between ethnic identity and subjective well-being measures.

331 **Aim 3: Gender Differences and Ethnic Identity**

332 A noticeable different pattern of results was found for males and females (table 3). Female students
333 scored significantly higher than males on the total scores of the MEIM (t (424) =2.71, p= .007).
334 A multivariate analysis of variance (MANOVA) was conducted to evaluate the effects of gender
335 on MEIM scales. The MANOVA results showed a significant effect: Hotelling's Trace = .02, F (3,
336 1158) = 4.33, p = .014, $\square^2$= .02 (Table 3). Subsequent examination of between-subject effects
337 showed that the female group scored significantly higher on exploration (F (1, 424) =8.66, p=
338 .003, $\square^2$= .02) and commitment (F (1, 424) =4.99, p= .026, $\square^2$= .01). Generally, the scale was
339 found to be reliable and valid for both genders of young adults.

DISCUSSION

The purpose of this study was to confirm the factor structure, the test-retest and concurrent validity, and gender differences using the Persian version of the MEIM in a sample of young adults. In previous factor analysis studies on the MEIM, there ~~have~~ been an inconsistency in the proposed components and factor structure of ethnic identity as measured by the MEIM. This may be due to the fact that the studies had different target populations in terms of age and/or ethnic compositions (Lee & Yoo, 2004; Worrell, Conyers, Mpofu, & Vandiver, 2006) or dissimilar methodological approaches (Phinney & Ong, 2007). Some of these factor analyses indicate a single-factor structure (Bracey, Bamaca, & Umana-Taylor, 2004; Phinney, 1992; Ponterotto, Gretchen, Utsey, Stracuzzi, & Saya Jr, 2003; Worrell et al., 2006), whereas others suggest that a two-factor model could be the best fit model for the MEIM (Dandy, Durkin, McEvoy, Barber, & Houghton, 2008; Pegg & Plybon, 2005; Phinney & Ong, 2007; Roberts et al., 1999; Spencer, Icard, Harachi, Catalano, & Oxford, 2000; Yancey, Aneshensel, & Driscoll, 2001). The results of the present study indicate that a hierarchical two-factor oblique fist-order and one-factor second-order model (M_4) fit the data better than the three other models (M_1 to M_3). All 12 items were loaded on their respective factors, and factor loadings ranged from .54 to.78 for the exploration factor, and from.71 to.90 for the commitment factor. These data suggest that the best way to interpret the MEIM scores would be to consider one general score and two sub-scores (exploration and commitment). Relatedly, a similar hierarchical model had been suggested by Phinney and Ong (2007), as a model with generally acceptable (not the best) fit criteria for the revised version of the MEIM (MEIM-R).

The psychometric properties of the Persian version of MEIM were also examined. Cronbach's alpha coefficients (.75 -.92), mean inter-item correlations (.38 -.59), and intra-class coefficients

362 between two time points with a four-week interval (.82 -.91), all support the reliability of the
363 Persian version of the MEIM across genders. These findings are consistent with previous
364 researches indicating good internal reliability for the MEIM (Cuellar, Nyberg, Maldonado, &
365 Roberts, 1997; Dandy et al., 2008; Lee, Falbo, Doh, & Park, 2001; Phinney, 1992; Ponterotto et
366 al., 2003; Spencer et al., 2000; Yip & Fuligni, 2002). Construct validity of the MEIM is supported
367 by relatively modest, albeit statistically significant correlations between its total and subscales
368 scores, and measures of related constructs such as subjective well-being (e.g. positive affect,
369 negative affect and life satisfaction), all in the expected directions (Beiser & Hou, 2006; Dandy et
370 al., 2008; Juang & Syed, 2010; Kiang, Yip, Gonzales-Backen, Witkow, & Fuligni, 2006; Martinez
371 & Dukes, 1997; Phinney & Ong, 2007; Roberts et al., 1999). Consistent with previous findings,
372 convergent validity was demonstrated through positive relationships between ethnic identity (both
373 total and subscales scores), positive affect (Dimitrova, Bender, Chasiotis, & van de Vijver, 2013;
374 Juang & Syed, 2010) and life satisfaction (Dimitrova et al., 2013; Dimitrova, Ferrer-Wreder, &
375 Trost, 2015; Dimitrova, Johnson, & van de Vijver, 2017; Juang & Syed, 2010; Williams,
376 Chapman, Wong, & Turkheimer, 2012). Moreover, a negative relationship between ethnic identity
377 (both total and subscales scores) and negative affect indicate the divergent validity of the MEIM
378 (Abu-Rayya, 2006; Beiser & Hou, 2006; Dimitrova et al., 2013; Juang & Syed, 2010). Given that
379 ethnic identity is only one of the many correlates of subjective well-being, the relative small effect
380 size in these correlations seems rational. However, regarding the construct validity issue, the
381 directions of the relations are of particular significance.
382 Regarding the comparison between genders, significant higher scores were found in ethnic identity
383 and its two components (exploration and commitment) in women compared to men. This finding
384 is in line with previous researches (Dion & Dion, 2001; Juang & Syed, 2010; Suárez-Orozco &

Qin, 2006), which can be due to the greater expectation for females to preserve cultural and ethnic values (Juang & Syed, 2010; Yip & Fuligni, 2002).

CONCLUSIONS

In conclusion, results from this study provide support for the validity, reliability and factor structure of the Persian version of the MEIM in a young adult sample. Since the MEIM, as a widely used instrument, was designed to be utilized across different ethnic groups (Phinney, 1992), it would be especially suitable for research on ethnic identity in Iran, as a multiethnic country. It is also very useful for comparing changes in ethnic identity and well-being among people from different countries that, for one reason or another, live in another country as immigrants. In this context, the MEIM, as an instrument with acceptable psychometric properties and suitable for use in diverse ethnic groups and multicultural settings, can also facilitate comparison of findings in the research literature. Due to the limitations in the present study and the fact that ethnic identity gradually develops during adolescence and young adulthood through the processes of exploration and commitment (Roberts et al., 1999), there is a need for futures studies that replicate the factorial analyses in a sample of adolescents.

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Table 1(on next page)

Parameter estimates and goodness-of-fit indexes for CFA of the MEIM

Table 1

Parameter estimates and goodness-of-fit indexes for CFA of the *MEIM*

Items	Z	$P.E_1$	$P.E_2$
commitment			
3- I have a clear sense of my ethnic background and what it means for me.	-	.64	.71
5- I am happy that I am a member of the group I belong to.	-	.64	.81
6- I have a strong sense of belonging to my own ethnic group.	-	.76	.90
7- I understand pretty well what my ethnic group membership means to me.	-	.66	.80
9- I have a lot of pride in my ethnic group.	-	.68	.84
11- I feel a strong attachment towards my own ethnic group.	-	.74	.89
12- I feel good about my cultural or ethnic background.	-	.55	.77
exploration			
1- I have spent time trying to find out more about my ethnic group, such as its	-	.56	.64
2- I am active in organizations or social groups that include mostly members of	1.1	.48	.54
4- I think a lot about how my life will be affected by my ethnic group	-	.54	.55
8- In order to learn more about my ethnic background, I have often talked to	-	.69	.78
10- I participate in cultural practices of my own group, such as special food, music, or customs.	-	.60	.76

Model	NN	RMSEA	CFI	χ^2 (df)	Δ
$M_{1=}$ one-factor model	.65	.087(.076-	.71	229.99(	
$M_{2=}$ two-factor orthogonal model	.67	.124(.071-	.75	407.06(	
$M_{3a=}$ two-factor oblique model	.69	.082(.070-	.75	302.46(	
$M_{3b=}$ two-factor oblique model and correlated errors	.87	.053(.039-	.90	107.62(	
$M_{4=}$ two-factor oblique model, correlated errors and second order general factor	.90	.046(.031-.061)	.93	87.76(46)	

Notes- $P.E_1$ =Parameter estimation for two-factor oblique model, $P.E_2$ = Parameter estimation for the two-factor oblique model, correlated errors and second order total score and Z = Z score for tests of univariate normality.

7

Table 2(on next page)

Mean and standard deviation of time 1and 2 and test-retest reliability of MEIM and subscales

Table2

Mean and standard deviation of time 1and 2 and test-retest reliability of MEIM and subscales

Measures	Time1		Time 2		r
	M	SD	M	SD	
commitment	23.15	5.12	23.9	4.89	.91
exploration	13.89	3.2	14.45	3.4	.82
MEIM (Total Score)	35.89	6.15	36.15	7.01	.86

Note- ***intra-class correlation coefficient, all p values < .01***

Table 3(on next page)

Internal Consistency Coefficients, Mean Inter-Item Correlation, Means, and Standard Deviations for males, and females

Table3

Internal Consistency Coefficients, Mean Inter-Item Correlation, Means, and Standard Deviations for males, and females

Multigroup ethnic identity	α	Correlation	M	SD
Commitment	.91(.88)	.59(.51)	22.12(21.02)	4.61(4.34)
Exploration	.78(.75)	.41(.38)	13.68(12.75)	3.15(3.27)
MEIM	.92(.90)	.49(.42)	35.76(33.81)	7.29(7.03)

Note. p < .01 = **, MEIM = Multigroup Ethnic Identity Measure, Values for females are inside the parenthesis.

Table 4(on next page)

Correlations of the Ethnic identity and its subscale with subjective well-being including Positive affect, Negative affect, and Life satisfaction (n=205)

Table 4

Correlations of the Ethnic identity and its subscale with subjective well-being including Positive affect, Negative affect, and Life satisfaction (n=205)

Measures	Subjective well being	Positive affect	Negative affect	Life satisfaction
Ethnic identity	.21**	.28**	-.28**	.28**
commitment	.23**	.29**	-.26**	.32**
exploration	.15**	.23**	-.27**	.25**

Notes: ** P< .01 (two-tailed)

Figure 1 (on next page)

Graphical representation of the correlated two factor model of the MEIM, with second order ‘general’ factor ($Model_4$)

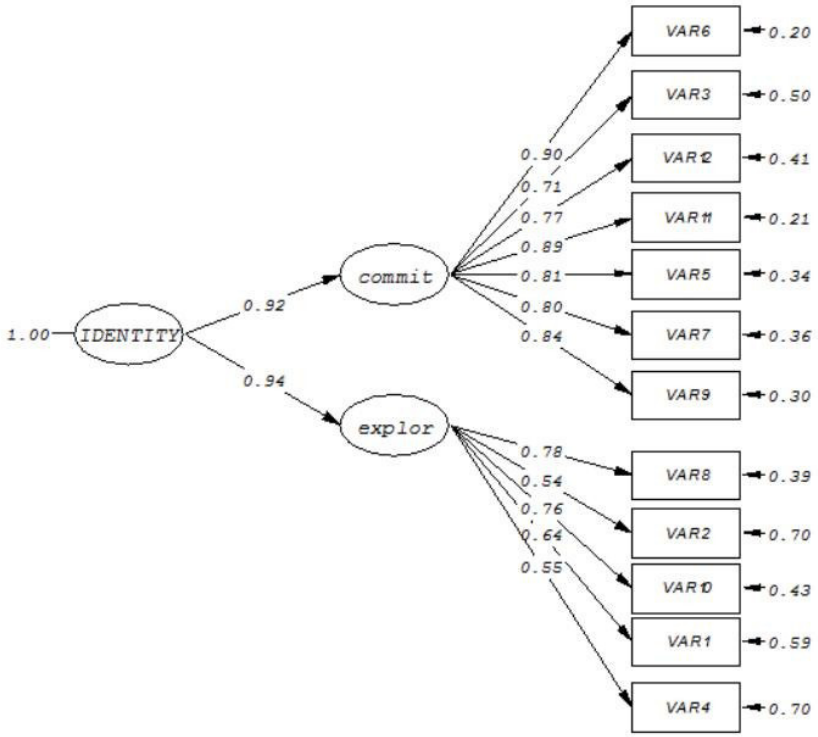

Fig. 1.

Graphical representation of the correlated two factor model of the MEIM, with second order 'general' factor (Model$_4$). Error correlations have been omitted in the interest of clarity, however error correlations only occur within factors and not between. Item numbers represent corresponding items on the questionnaire.