

Psychometric assessment of the Arabic version of the Internalized Stigma of Mental Illness (ISMI) measure in a refugee population

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Abstract

The study explored the psychometric properties of the Arabic version of the ISMI measure on an Arab sub-sample ($N = 330$) in a health clinic that served mostly refugees in Michigan, USA. Study measures included the ISMI, PTSD, depression, anxiety, CTD (Cumulative Trauma Disorders), and traumatic stress measures. Data analysis included factor analysis, correlation, and multiple regression analysis. The Arabic form of the measure was found to have robust psychometric qualities, with high reliability construct and predictive validity. Factor analysis identified a general stigma factor and different levels of stigma resistance factors. General stigma was significantly associated with and predicted post-trauma symptoms of depression, anxiety, PTSD and CTD (complex PTSD), while tough stigma resistance was associated negatively with PTSD and depression and positively with positive appraisal of traumatic events.

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Introduction

According to the traumatology perspective, mental health stigma (MHS) is one form of discrimination and potential trauma that can have negative effects on mental health. The concept of *identity traumas* related to personal, social, and role identities has been proposed in earlier work, which also identified public stigma as a cause of deleterious effects on personal, role, and social identities (Kira, 2001; Kira, 2010; Kira, Ashby, et al., 2013; Kira et al., 2008; Kira, Lewandowski, Ashby, et al. 2014). These studies termed MHS as “type III” trauma, that is, an ongoing *trauma without a foreseeable end* and that has potential of cumulative effects when added to other traumas. One example of type III trauma is discrimination due to color, race, gender, religion, or other specific attributes, and this is potentially the most serious kind, in terms of its negative effects, and its persistence (Kira et al., 2008, Kira, Omidy, Fawzi, et al., 2015). Type III trauma may be internalized by some affected individuals. Internalization of the comparative degraded status, demeaning public perceptions, and accepting discrimination as legitimate may have negative effects on identity and on self-concept. Endorsed rationalization and submission to inferior status creates a sense of violated self, degraded self-worth, and deficient self-efficacy and control which are keys to mental health (Corrigan, Watson & Barr, 2006). This involves conscious and unconscious processes, in which the person with mental illness accepts diminished expectations both for and by him or herself (Caltaux, 2003). Several studies and meta-analyses of studies on the effects of discrimination as a continuous intense stressor across the life course substantiate its association with negative health and mental health including post-trauma spectrum disorders such as depression, PTSD, and complex PTSD (e.g., Helms, Nicolas, & Green, 2010; Kira, Alawneh, Aboumediene, Lewandowski, & Laddis, 2014; Kira, Ashby, et al., 2013; Kira, Lewandowski, Chiodo, & Ibrahim, 2014; Kira, Smith, Lewandowski, & Templin, 2010; Kira et al., 2015; for meta-analysis see: Pascoe & Richman, 2009; Schmitt, Branscombe, Postmes, & Garcia, 2014). Further, discrimination may negatively affect performance through stereotype threat, among other dynamics (e.g., Steele & Aronson, 1995).

Mental illness is often highly *stigmatized* in Arab, Muslim, and many refugee communities (Erikson, & Al-Timimi, 2001; Kelly, Aridi, & Bakhtiar, 1996; Laffrey, Meleis, Lipson, Solomon, & Omidian, 1989; Nasser-McMillan & Hakim-Larson, 2003). In Arab cultures, individuals internalize the social and family prejudices around seeking help that may bring shame on oneself and disgrace to their family (Soheilian & Inman, 2009). As well, there is evidence that ideals of masculine dominance, which may be common in such cultures, are related to higher levels of self-stigma (Vogel, Heimerdinger-Edwards, Hammer, & Hubbard, 2011).

Stigmatization not only acts as a barrier to accessing safe housing, employment, community integration, and social opportunities, and seeking care and adhering to treatment, it may also lead to lowered self-esteem, self-efficacy, and functioning (Corrigan, Watson, Warpinski, & Gracia, 2004). There is some evidence for deleterious mental health effects of stigma in some Middle Eastern communities (Kira, Hammad, & Simman, 2005). Further, internalized stigma of mental illness was found to independently predict depression after controlling for other potential contributing variables (Simbayi et al., 2007).

Need for the current study

The goal of this paper is to validate a measure of internalized stigma on an Arabic-speaking sample to help advance research on the dynamics of stigma in Arabic-speaking communities. The Internalized Stigma of Mental illness (ISMI) measure (Ritsher, Otilingam, & Grajales, 2003) has been shown to have good psychometric properties in English-speaking patients (Brohan, Slade, Clement, & Thornicroft, 2010; Van Brakel, 2006; see also Link, Yang, Phelan, & Collins, 2004). The measure has been translated into 14 European languages, as well as Hebrew, Turkish, and Farsi (Erosy & Varan, 2007; Ghanean, Nojomi, & Jacobsson, 2011; Werner, Aviv, & Barak, 2008). The measure and its sub-scales proved to have adequate internal consistency except for the Stigma Resistance (SR) sub-scale (Brohan, Slade, Clement, & Thornicroft, 2010). We selected the ISMI to be translated into Arabic as part of a larger study on the stigma of mental illness among refugees in the USA. In addition to determining the reliability, construct, convergent and discriminant validity of the Arabic version of the ISMI, we sought to test two hypotheses:

Hypothesis 1. High scores on the ISMI will predict depression, anxiety, PTSD and cumulative trauma-related disorders (CTD), after controlling for cumulative trauma, poverty, religion, income, general health, education, marital status, age, and gender.

Hypothesis 2. High scores on the ISMI will be associated with greater negative appraisal of traumatic events and less positive appraisal of traumatic events. Further, ISMI as an indicator of type III trauma (severe stressors that are enduring) will be associated with other type III traumas, for example, poverty, discrimination, and other social structural violence.

Method

Participants

Participants were Arab American mental health clients ($N=330$) from Iraq, Lebanon, and Yemen who identified themselves as having poor mental health and included predominantly lower income individuals (see Table 1). The age of participants ranged from 18 to 76, with a mean of 39.66 and SD of 11.45. More than 37%

Table 1. Demographic information.

	N	%
Male	176	53.5
Married	231	70.1
Earning between \$5000-\$25000	310	94.0
Middle to high school education	176	53.5
Muslim	280	84.9
Tortured in country of origin	63	19.0
National origin		
Iraq	92	27.8
Lebanon	92	27.8
Yemen	71	21.6
Other Arab countries	75	22.8
Primary mental health diagnosis		
Major depression	150	45.4
PTSD	140	42.3
Other diagnostic categories	40	12.3
Participants with a secondary diagnosis	122	37.0
Very poor general health (self-reported)	246	74.5

had one or more secondary diagnosis on axis I (10.8% major depression, 9.2% PTSD, 11.5% generalized anxiety disorder, 3.1% psychotic disorder, and 2.3% bipolar disorder). Among participants, 13.3% had some level of criminal justice involvement. Their mean GAF score was 48.85 with *SD* of 4.18. The average stay in treatment was 2 years with 5% of participants being treated for over 5 years.

Measures

Basic demographic information was collected as part of the standard clinic questionnaire. Diagnostic information according to the DSM-IV five axes, including diagnoses and global assessment of functioning (GAF) scores made by staff psychiatrists, were collected from clients' files.

Internalized Stigma of Mental Illness Inventory (ISMI). The ISMI measure is a 29-item scale that measures the subjective experience of stigma. Items in the scale are grouped thematically a priori into five sub-scales that measure: Alienation (A), Stereotype Endorsement (SE), Perceived Discrimination (PD), Social Withdrawal (SW), and Stigma Resistance (SR). Each statement is rated on a 4-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree). The 29-item ISMI measure has good internal consistency ($\alpha = .90$, $N = 127$). The test-retest reliability coefficient was $r = .92$ ($p < .05$, $N = 16$). Reliability of

the sub-scales was as follows: Alienation ($\alpha = .79$), Stereotype Endorsement ($\alpha = .72$), Discrimination Experience ($\alpha = .75$), Social Withdrawal ($\alpha = .80$), and Stigma Resistance ($\alpha = .58$) (Ritsher et al., 2003). Items 4, 7, 24, 26, and 27 (stigma resistance items) were reverse coded by subtracting each item's score from 5.

Cumulative Trauma Scale (CTS). The *Cumulative Trauma Scale* is a measure that includes 61 items and is derived from a development-based taxonomy of traumas (Kira, 2001; Kira, Lewandowski, et al., 2008). Each item describes an extremely stressful event that belongs to one of six different domains: Attachment (e.g., abandonment by mother); personal identity (e.g., rape, sexual abuse); collective identity (e.g., discrimination, oppression, and genocide); secondary (e.g., witnessing killing); survival; and achievement/self-actualization (e.g., failed business, get fired). The participant is asked to report whether or not he/she has experienced each event, how many times he/she has experienced the event, the age of onset, and how much the event affected him or her positively or negatively on a scale from 1–7, with 1 indicating “extremely positive” and 7, “extremely negative.” In the analysis, the appraisal scale was divided into two sub-scales: positive appraisal (1–4) and negative appraisal (5–7). The measure provides two general scales: (1) occurrence (number of exposures to different traumas); and (2) frequency of events (total number of exposures to the same and different traumas); as well as two appraisal sub-scales: negative and positive appraisal. The CTS includes four sub-scales for each trauma type. The measure has been used previously with different clinical and community populations of adults and children, and proved to have adequate reliability (α ranged from .80–.88) and good construct validity as the dimensions and constructed sub-scales were found to fit the data. The measure was also found to have predictive validity as it correlated with severe mental health syndromes and comorbidity (Kira, Lewandowski, et al., 2008; Kira, Templin, Lewandowski, et al., 2011). For the purpose of this study we focused on cumulative trauma occurrence and its appraisal for the general scale and for the 6 trauma types (14 sub-scales).

Clinician-Administered PTSD Scale (CAPS-2). This measure was developed by Blake et al. (1990) and is widely used to assess PTSD. It is a structured clinical interview that assesses 17 symptoms rated on frequency and severity on a 5-point scale. The CAPS has demonstrated high reliability with a range from .92–.99 and showed good convergent and discriminant validity (Weathers, Keane, & Davidson, 2001). In this study, we used the frequency sub-scale of CAPS-2 that is currently widely used in psychiatric literature. The scale has four factor sub-scales: re-experiencing; avoidance; arousal; and emotional numbness, detachment or dissociation (Palmieri, Weathers, Difede, & King, 2007). We will use the term dissociation interchangeably with emotional numbness for the last sub-scale.

The Center for Epidemiologic Studies Depression Scale (CES-D). The CES-D is a 20-item scale that measures key symptoms of depression (Radloff, 1977). Each item is

assessed on a 4-point scale and reflects the frequency that each symptom is experienced (0 = *none of the time*, 3 = *all of the time*). Adequate reliability and validity have been reported for the CES-D (Orme, Reis, & Herz, 1986) and a cut-off score of ≥ 16 is commonly used to indicate a need for further assessment of the presence of MDD (Radloff, 1977). High internal consistency has been found for the CES-D among various age, sex, geographic, and racial-ethnic subgroups (ranging from .85 to .92). Validation studies have found that the CES-D has good convergent and discriminant validity (Himmelfarb & Murrell, 1983), and sensitivity and specificity (Mulrow et al., 1995).

The Depression Anxiety Stress Scales (DASS-A). The DASS-A is a 42-item scale developed by Lovibond and Lovibond (1995), and includes three sub-scales that measure depression, anxiety, and stress. According to Antony, Bieling, Cox, Enns, and Swinson (1998), the DASS-A may hold promise for distinguishing between anxiety and depression as well as between physical arousal and symptoms of generalized anxiety. DASS-A sub-scale measure for anxiety is increasingly used in different clinical and research settings. Several studies suggest that DASS-A has adequate convergent validity, with a reliability of .84 in non-clinical samples and .89, and .91 in clinical samples (Crawford & Henry, 2003; Lovibond & Lovibond, 1995).

Annihilation Anxiety Scale (AA). The AA scale is based on the assumption that there are two main sources of the emergence of annihilation anxiety; personal identity and collective identity survival threats (traumas). The 3-item scale has been used before on Iraqi refugees in Michigan and Palestinians adolescents in West Bank and Gaza, and found to have good reliability ($\alpha = .93$), divergent and predictive validity (Kira, Templin, Lewandowski, Ramaswamy, et al., 2012; Templin et al., 2006).

Cumulative Trauma Disorders Measure (CTD) (Kira, Templin, Lewandowski, Ashby, et al. 2012). The CTD is a 15-item measure of trauma-related symptoms developed on five community and clinic samples of adults, adolescent Iraqi refugees, Arab Americans, and African Americans. It covers 13 different symptoms: depression, anxiety, somatization, dissociation, auditory and visual hallucinations, avoidance of being with people, paranoid ideations, concentration and memory deficits, loss of self-control, feeling too harsh with family and with people in general, feeling suicidal, and feeling like hurting self. Exploratory factor analysis found four factors: executive function deficits; suicidality; dissociation/psychosis; and depression/anxiety comorbidity. Confirmatory factor analysis confirmed these four dimensions. The CTD has good internal reliability (Cronbach alphas from .85 and .98) Test-retest reliability over a 6-week interval was .76. Several studies also support the CTD's predictive validity (Kira, Smith, et al., 2010; Kira, Templin, et al., 2006; Kira, Hammad, Lewandowski, et al. 2007; Kira, Templin, Lewandowski, et al. 2011). In a clinical sample ($N = 399$), the CTD was correlated with PTSD, DASS-A anxiety, and CES-D depression measures and inversely correlated with futuristic orientation, socio-cultural adjustment, and post-traumatic growth,

offering support for the measure's convergent and divergent validity. The measure has good predictive validity (Kira, Clifford, & Al-Haider, 2003; Kira, Clifford, Wiencek, & Al-Haider, 2001) and was found to be highly correlated with PTSD, DASS-A, and CES-D measures in the current study, supporting its convergent validity. The CTD has also been found to be highly negatively correlated with futuristic orientation, socio-cultural adjustment, and post-traumatic growth.

Procedure

Participants in this study were 330 Arabic-speaking mental health patients. Participants were recruited from mental health clients in a clinic in Dearborn, Michigan. They constituted all active clients that came for a psychiatrist, therapist, or case manager visit during the 6 months from August 2004 to February 2005, and who accepted and consented to participate (95%). Participants were interviewed by licensed bilingual therapists or certified experienced bilingual clinical case managers. Because 14.2% of participants were illiterate, interviews were conducted face to face in Arabic for all. Duration of the interview ranged between 45 to 60 minutes. The current study was part of a larger study to evaluate the effectiveness of an anti-stigma campaign at a mental health clinic that serves Arab Americans and to explore the dynamics of recovery from stigma in this population. The study was approved by the respective research and IRB committees in the Office of Refugee and Resettlement (ORR) (the federal funding agency), the State of Michigan, and the Research Center that undertook oversight of the study. Informed consents were obtained from participants. No identifying information, linking subjects to the data, was recorded and the disclosure of the data could not reasonably place the subjects at any risk for any liability.

All measures used in this study except for the ISMI have previously been shown to have adequate reliability and validity on Iraqi and Arab populations and in both Arabic and English languages (Kira, Clifford, et al., 2001; Kira, Lewandowski, et al., 2008; Kira, Templin, et al., 2006). The ISMI was translated from English into Arabic by three bilingual mental health professionals. Each individual translated the measure and then met together to establish a consensus on the final version based on the criteria of adequate cultural sensitivity, linguistic accuracy, and appropriateness in measuring the construct. A fourth mental health professional did the reverse translation. The ISMI was pilot tested in two focus groups: one focus group included five bilingual professionals and the other included 10 clients. The final version was approved by both clients and professionals.

Data analysis

Cronbach's alpha was calculated for the sample to determine the internal reliability of the measure and its sub-scales. Bivariate correlations were computed between the ISMI and other mental health measures to test for convergent and discriminant validity. To explore the dimensionality of ISMI, we utilized the

Kaiser–Meyer–Olkin measure of sampling adequacy to determine if item bivariate correlations were adequate for factorability (Worthington & Whittaker, 2006).

We used Principal Component factor analysis, followed by orthogonal rotation with Kaiser normalization (Child, 1970/1990). The number of factors retained was determined by examining the scree plot, and including only factors with at least three items with loadings >0.30 , and an eigenvalue >1 . Multiple regression analyses were conducted to test the predictive validity of ISMI. We further conducted curve estimation regression analysis to clarify the relationships between stigma resistance variables. Additionally, using previously published data we compared Arab Americans (our data) with Europeans and Iranians on the ISMI and its sub-scales. Data analysis was conducted using SPSS-18.

Results

Descriptive statistics

The mean score on the ISMI was 61.74 (SD 16.08, range 0–116). The ANOVA found no significant differences between males and females, or between married, divorced, or single Arabic clients on the ISMI. With regard to mental health symptoms, in this clinical sample, 82% scored 16 or higher on the CES-D scale (the recommended cut-off for clinical depression); 83.8% scored higher than the cut-off point on the CAPS-2 for PTSD. On the DASS-A 74% scored 10 or higher, the cut-off score for moderate to severe anxiety. For CTD items, 84.8% of patients reported depression which is comparable to CES-D scale results, 82% reported moderate to high anxiety, 75.6% reported feeling sick most of the time, 42.8% reported that a lot of times they felt like two different persons (dissociation), over 38% reported that sometimes they heard voices and/or saw things that others do not, 44.8% believed that they have enemies that follow them anywhere they go, 75% reported that they have decreased memory and concentration, 57.4% felt they do not have enough control of their responses, 17.1% had experienced suicidal ideation, and 64.8% believed they were not functioning on at least one area of their life.

Reliability of the measures

In the current data, the CTS had an alpha of .83, its main sub-scales, CNTA and CPTA, had alphas of .81 and .65, respectively. PTSD-CAPS-2 had an alpha of .97. Alphas of its sub-scales: re-experiencing, avoidance, arousal, and emotional numbness, detachment or dissociation, were found to be adequate to high (alphas are .96, .92, .89, and .85, respectively). Reliability for CES-D, DASS-A, and AA was .91, .95, and .94, respectively. Reliability for the CTD scale was high (alpha = .98); as well as for its four sub-scales: executive function deficits, suicidality, dissociation/psychosis, and depression/anxiety comorbidity, alphas were high (.95, .97, .98, and .96, respectively).

Psychometric characteristics of the ISMI

Reliability. The ISMI had good alpha reliability for the sample (.94) and among all sub-groups included in the sample alpha coefficients ranged between .93 and .98 for all sub-groups (males, females, refugees, American citizens, Muslims, and Christians). Alpha reliability coefficients for the five a priori thematic sub-scales were adequate except for the stigma resistance (SR) sub-scale as follows: Alienation = .86, Stereotype endorsement = .79, Discrimination experience = .81, Social withdrawal = .86, Stigma resistance = .61.

Construct validity. The Kaiser–Meyer–Olkin measure of sampling adequacy (.94) provided evidence that item bivariate correlations were adequate for factor analysis. Principal component analysis of the Arabic sub-sample ($N = 330$), indicated that five factors (general factor, negative self-concept factor, and three factors for mild, moderate, and tough levels of stigma resistance) should be retained for rotation. The five factors accounted for 54.78% of the variance.

The first factor was identified as a *General internalized stigma* factor that included 17 items (6 items from “social withdrawal” sub-scale, 6 items from alienation sub-scale, 3 items from stereotype endorsement sub-scale, and 2 items from discrimination experience sub-scale). The second factor was identified as *Positive (moderate) stigma resistance* and included three items from the stigma resistance sub-scale measuring positive self-image and self-efficacy. The third factor, identified as *Diminished self-efficacy (resulting from stigma)*, included 2 items from discrimination experience sub-scale and 1 item from stereotype endorsement sub-scale. The three items focused on the belief that the person is not respected or expected to achieve or contribute because of his/her mental illness. The fourth factor, termed *Tough stigma resistance*, included three items, one from stigma resistance and 2 from stereotype endorsement sub-scales. This factor seemed to express different levels of stigma and public stereotype resistance that include endorsing the stereotype of the patient as being violent, and stating that experience of stigma made the individual a “tough survivor.” The fifth factor was identified as *Mild stigma resistance* and included 3 items: 1 from stigma resistance, 1 from stereotype endorsement and 1 from discrimination experience sub-scales.

Most of the factor analysis-based sub-scales had good alpha reliabilities as follows: General internalized stigma factor (17 items), $\alpha = .96$, factor 2 positive (moderate) stigma resistance (3 items), $\alpha = .72$, factor 3 diminished self-efficacy resulted from stigma (3 items), $\alpha = .88$. However, two factors had reliabilities below the accepted cut-off of .70: factor 4 tough stigma (resistance) (3 items), with $\alpha = .66$, and factor 5, mild stigma resistance (3 items), with $\alpha = .68$. This may be related to the small number of items in each of these sub-scales. We decided to retain these factors because of their theoretical importance. In the original study of the scale, the stigma resistance (SR) sub-scale was retained even though it had even lower reliability than ours (Ritsher et al., 2003), and some later studies found

it to have better reliability (e.g., Ghanean et al., 2011). Table 2 includes means, standard deviations, rotated factor loadings, and commonalities for the ISMI items.

Validity of the ISMI

Using the results of factor analysis, we constructed sub-scales summing the scores on the identified factor items. The descriptive statistics for the sub-scales are provided in Table 3.

As predicted, the ISMI, its general sub-scale, and negative self-concept sub-scales were found to be significantly correlated with anxiety, annihilation anxiety (AA), depression, PTSD (CAPS-2), with all four sub-scales, CTD and all four sub-scales. These results provide initial evidence of the *predictive validity* of the ISMI. Further, PTSD, CTD, AA, anxiety, and depression were also found to be correlated significantly with discrimination/oppression, collective identity traumas, secondary trauma, personal identity traumas, poverty, and with negative appraisal of traumatic events. These results provide evidence for the *convergent validity* of the ISMI and its general sub-scale.

Moderate and mild stigma resistance did not correlate significantly with most mental health variables; however, tough stigma resistance was negatively correlated with PTSD and depression. The ISMI correlated negatively with general level of functioning (GAF score). Additionally, the ISMI, its general factor, and negative self-concept sub-scales were found to be negatively correlated with positive appraisal of traumatic events, as well as with general level of functioning (GAF) scores. The ISMI was negatively correlated with attachment and achievement traumas. Tables 4 and 5 describe these correlations.

Tough SR was associated with suicidality. This association was found to be consistent across gender, religion, and immigration status. Even mild SR was found to be significantly associated with suicidality in some sub-groups. Extreme resistance may put the affected individual on the edge of rejecting his/her own self and failure to accept his/her own condition in addition to feeling the threat of social exclusion. Tough SR is probably associated with extreme anger toward self and other. However, we should take these unexpected controversial findings with caution, which need replication in future studies.

In further analysis to clarify the relationships between stigma resistance variables and suicidality we found that these relationships are mostly non-linear. Using curve estimation regression, mild stigma resistance was a negative predictor of suicidality linearly ($\beta = .20$, $p < .001$), but lost significance when we tested for cubic and quadratic relationships; moderate stigma resistance was a linearly negative predictor of suicidality ($\beta = -.15$, $p < .01$, but also was significant for quadratic ($\beta = -.14$, $p < .01$) and cubic ($\beta = -.21$, $p < .01$) relationships; tough stigma resistance was linearly predictive of suicidality ($\beta = .31$, $p < .001$), however, its cubic and quadratic relationships were also significant toward negative association with suicidality on the other end of the non-linear relationships.

Table 2. Means, standard deviations, commonalities and rotated factor loadings, for ISMI Items ($N = 330$).

ISMI Items	<i>M</i>	<i>SD</i>	h^2	Factors				
				1	2	3	4	5
9. I don't socialize as much as I used to because my mental illness might make me look or behave "weird."	2.52	1.20	.62	.75	.07	.10	.03	.12
12. Negative stereotypes about mental illness keep me isolated from the "normal" world.	2.49	1.18	.65	.75	.12	-.04	.12	.14
19. Because I have a mental illness, I need others to make most decisions for me.	2.14	1.3	.62	.75	.11	.23	.07	.04
8. I feel inferior to others who don't have a mental illness.	2.44	1.19	.60	.73	.12	-.04	.06	.12
21. People without mental illness could not possibly understand me.	2.29	1.19	.58	.72	.09	.25	.05	-.05
18. People can tell that I have a mental illness by the way I look.	2.01	1.27	.53	.68	.23	.10	.12	.03
16. I am disappointed in myself for having a mental illness.	2.36	1.31	.53	.68	.01	.03	-.01	.18
20. I stay away from social situations in order to protect my family or friends from embarrassment.	2.23	1.31	.54	.67	.06	.23	.02	.16
5. I am embarrassed or ashamed that I have a mental illness.	2.22	1.41	.52	.67	-.002	.17	-.01	.19
22. People ignore me or take me less seriously just because I have a mental illness.	2.21	1.21	.61	.67	.06	.39	.04	.04

(continued)

Table 2. Continued.

ISMI Items	<i>M</i>	<i>SD</i>	<i>h</i> ²	Factors				
				1	2	3	4	5
13. Being around people who don't have a mental illness makes me feel out of place or inadequate.	2.32	1.25	.57	.66	.03	.14	.17	.30
3. People discriminate against me because I have a mental illness.	2.19	1.30	.55	.64	.04	.36	.19	.01
17. Having a mental illness has spoiled my life.	2.22	1.32	.48	.61	-.08	.15	.18	.07
1. I feel out of place in the world because I have a mental illness.	2.61	1.34	.47	.59	-.11	.19	-.10	.16
29. Stereotypes about the mentally ill apply to me.	2.32	1.17	.58	.56	-.03	.44	-.09	.18
4. I avoid getting close to people who don't have a mental illness to avoid rejection.	2.30	1.22	.47	.54	-.06	.39	.12	.05
11. I don't talk about myself much because I don't want to burden others with my mental illness.	2.44	1.17	.58	.46	.27	-.31	.21	.40
27. I can have a good, fulfilling life, despite my mental illness.	2.00	1.22	.69	-.03	.80	.09	.09	.12
26. In general, I am able to live my life the way I want to.	1.95	1.19	.64	-.01	.77	.12	.01	.18
7. People with mental illness make important contributions to society.	2.05	1.11	.30	.24	.55	-.14	.15	-.42
25. Nobody would be interested in getting close to me because I have a mental illness.	1.93	1.25	.58	.26	.31	.62	-.01	-.04
23. I can't contribute anything to society	2.00	1.26	.53	.36	-.14	.53	.23	.17

(continued)

Table 2. Continued.

ISMI Items	M	SD	h^2	Factors				
				1	2	3	4	5
because I have a mental illness.								
28. Others think that I can't achieve much in life because I have a mental illness.	2.18	1.12	.57	.29	.39	.50	-.12	.13
6. Mentally ill people shouldn't get married.	1.28	1.23	.61	.07	-.07	.07	.74	.08
2. Mentally ill people tend to be violent.	1.40	1.19	.50	.32	.03	-.05	.67	-.05
24. Living with mental illness has made me a tough survivor.	1.33	1.13	.48	-.13	.23	.03	.63	.13
10. People with mental illness cannot live a good, rewarding life.	2.18	1.29	.39	.34	.05	-.11	.25	.58
14. I feel comfortable being seen in public with an obviously mentally ill person.	1.78	1.18	.35	.28	.24	.29	.01	.54
15. People often patronize me, or treat me like a child, just because I have a mental illness.	1.98	1.28	.47	.41	.24	.28	.06	.47

Note. The highest loadings in each factors are bolded.

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

Multiple regression

We conducted further analysis using linear multiple regression models with PTSD, depression, anxiety, or CTD as dependent variables, and independent variables of gender, age, marital status, education, income, general health, cumulative trauma, self-reported poverty level, and the ISMI. To control for their effects, we added cumulative trauma CT (which included discrimination for reasons other than mental illness) and poverty. We controlled for CT and poverty because of our assumptions that ISMI measures another form of type III traumatic stressors. For all regression analyses, we tested for multicollinearity. The Variance Inflation Factor (VIF) for all predictor variables ranged between

Table 3. Descriptive statistics for sub-scales identified by factor analysis and for the five sub-scales identified in the original study.

Sub-scales	Mean	Standard deviation	Percentage scoring above the mean
General stigma scale	39.14	12.56	76.3
Diminished Self-efficacy sub-scale	6.12	2.60	61.0
Positive Stigma Resistant sub-scale	6.12	2.54	54.9
Mild Stigma Resistant sub-scale	5.92	2.82	35.6
Tough/violent Stigma Resistant factor	4.04	2.48	35.6
Alienation sub-scale	14.06	5.43	73.4
Stereotype Endorsement sub-scale	13.30	4.87	62.7
Discrimination sub-scale	10.53	4.13	73.2
Social Withdrawal sub-scale	14.26	5.02	76.4
Stigma Resistance sub-scale	9.16	3.27	45.4
Total ISMI Scale	62.73	20.93	74.7

Table 4. Pearson correlation between stigma factors and mental health variables.

	Stigma general factor	Diminished Self-efficacy factor	Stigma moderate resistance factor	Tough stigmas resistance factor	Mild stigma resistance factor
Anxiety scale	.42**	.19**	-.02	-.09+	.10
Depression scale	.39**	.24**	.06	-.11*	.07
Cumulative trauma disorders scale (CTD)	.51**	.19**	.11*	-.01	.10
CTD dissociation and psychosis	.49**	.11*	.04	.07	.10
CTD executive function deficits	.46**	.19**	.08	-.08	.10
CTD suicidality	.19**	.11*	-.09+	.25**	.09
CTD depression/ anxiety and comorbidity	.40**	.14**	.03	-.11*	-.02
PTSD scale	.49**	.23**	.12*	-.11*	.06
PTSD Dissociation	.48**	.23**	.13*	-.05	.10+
PTSD Arousal	.48**	.22**	.11*	-.12*	.11*
PTSD Avoidance	.39**	.20**	.09+	-.09+	.01
PTSD re-experiencing	.44**	.18**	.11*	-.12*	.03
GAF score	-.14*	-.19*	.15*	-.15*	.03

+ $p < .10$ (close to significance).* $p < .05$.** $p < .01$.

Table 5. Pearson correlations between stigma of mental illness and mental health and trauma variables.

Variables	Stigma of mental illness scale
DASS-A anxiety	.48**
Cumulative trauma related disorders scale	.66**
PTSD scale	.59**
CES-Depression	.35**
Annihilation Anxiety	.38**
Secondary Traumas Occurrence	.25**
Survival traumas	.11*
Personal identity traumas negative appraisal	.17**
Collective identity trauma/Discrimination and oppression	.47**
Discrimination sub-scale	.46**
Negative appraisal of the traumatic events	.22**
Positive appraisal of traumatic events	-.11*
Achievement/self-actualization trauma	-.10*
Attachment trauma	-.10*
General level of functioning (GAF score)	-.18*
Experienced family poverty with many hardships.	.29**

* $p < .05$.** $p < .01$.

Note. Bold figures indicated the highest correlations in the table.

1.00 and 1.27, which indicated that the regression models were “low noise” and statistically robust. The recommended cut-off score for multicollinearity is 10.0 (O’Brien, 2007). For all the dependent variables, ISMI was the strongest predictor after controlling for all demographics, health and mental health variables, as well for poverty. ISMI followed by Cumulative trauma, Age, and Poverty were *significant predictors of depression*. ISMI followed by Cumulative trauma, Poverty, Religious affiliation, age, and poor Health, were significant predictors of PTSD. For CTD, ISMI followed by Cumulative trauma, Poverty, Religious affiliation, and poor Health, were significant predictors. ISMI followed by Cumulative trauma, Religious affiliation, Age, and poor Health, were significant predictors of anxiety. Tables 6 and 7 present these regression results.

It is worth noting that in regression models, religious affiliation was found to be a negative predictor of PTSD, CTD, and anxiety. Further, religious affiliation in the current data was found to be significantly negatively correlated with the ISMI general factor ($r = -.170$, $p < .01$) and with social withdrawal ($r = -.145$, $p < .01$), and positively correlated with stigma resistance ($r = .11$, $p < .05$).

Table 6. Multiple regression for the effects of internalized stigma of mental illness on depression and PTSD.^a

Predictor variables	Dependent variables									
	Depression ($R^2 = .249^{***}$)					PTSD ($R^2 = .359^{***}$)				
	<i>B</i>	<i>SE B</i>	β	<i>T</i>	<i>p</i>	<i>B</i>	<i>SE B</i>	<i>B</i>	<i>T</i>	<i>p</i>
Gender	1.73	1.10	.08	1.58	.116	3.52	2.26	.074	1.56	.120
Age	.13	.05	.14	2.64	.009	.22	.10	.103	2.14	.033
Marital status	.43	.53	.04	.82	.411	-.07	1.08	-.003	-.06	.952
Education	.29	.45	.04	.64	.525	.16	.93	.009	.17	.865
Health	.59	.78	.04	.76	.451	3.16	1.61	.100	1.96	.050
Income	-.34	.33	-.06	-1.05	.294	-.25	.67	-.018	-.37	.715
Religion	.30	1.06	.02	.28	.777	-5.67	2.18	-.126	-2.61	.010
Poverty	2.15	1.20	.10	1.79	.075	9.13	2.47	.180	3.69	<.001
Cumulative Trauma	.28	.09	.17	3.19	.002	.73	.18	.20	4.12	<.001
ISMI	.24	.03	.37	7.18	<.001	.55	.069	.38	7.90	<.001

^aControlling for cumulative trauma, poverty, religion, income, general health, education, marital status, age and gender.

***= $p < .001$.

Table 7. Multiple regression for the effects of internalized stigma of mental illness on CTD and Anxiety.^a

Predictor variables	Dependent variables									
	CTD ($R^2 = .390^{***}$)					Anxiety ($R^2 = .279^{***}$)				
	<i>B</i>	<i>SE B</i>	β	<i>T</i>	<i>p</i>	<i>B</i>	<i>SE B</i>	<i>B</i>	<i>t</i>	<i>p</i>
Gender	-.88	1.04	-.04	-.84	.400	.25	1.10	.011	.23	.821
Age	.05	.05	.05	1.08	.282	.10	.05	.105	2.06	.041
Marital status	.58	.50	.05	1.17	.242	-.25	.526	-.02	-.48	.630
Education	.20	.43	.02	.46	.644	-.27	.454	-.03	-.58	.560
Health	1.40	.74	.09	1.89	.060	1.80	.783	.12	2.30	.022
Income	-.10	.31	-.02	-.33	.744	-.30	.327	-.05	-.93	.356
Religion	-2.74	1.00	-.13	-2.73	.007	-2.31	1.059	-.11	-2.18	.030
Poverty	2.32	1.14	.10	2.03	.043	.94	1.205	.04	.78	.438
Cumulative Trauma	.42	.08	.24	5.06	<.001	.30	.086	.18	3.47	.001
ISMI	.31	.03	.44	9.54	<.001	.24	.034	.36	7.02	<.001

^aControlling for cumulative trauma, poverty, religion, income, general health, education, marital status, age and gender.

***= $p < .001$.

Table 8. Comparison of internalized stigma of mental illness sub-scales in Tehran, Europe, and the current Arab American samples.

ISMI sub-scales	Tehran sample (N = 138) Mean (SD)	Europe sample (N = 1211)* Mean (SD)	Arab American sample (N = 330) Mean (SD)
• Alienation	2.33 (0.73)	2.53 (0.70)	2.34(.91)
• Stereotype endorsement	2.30 (0.60)	2.19 (0.53)	1.94(.69)
• Discrimination	2.32 (0.67)	2.43 (0.61)	2.13(.82)
• Social withdrawal	2.64 (0.83)	2.48 (0.66)	2.44(.84)
• Resistance	2.46 (0.39)	2.47 (0.51)	1.89(.65)
Level of stigma (%)			
Minimal (< 2)	40	23.0	37.1
• Mild (2–2.49)	21	34.0	22.2
• Moderate (2.5–3)	27	29.4	37.1
• Severe (> 3)	12	12.3	3.6

Note. *Data adapted from Brohan, Elgie, et al. (2010) and Ghanean et al. (2011).

Comparison between Arab Americans (AA), Europeans, and Iranians in ISMI results

Considering the level of severity of ISMI in Arab Americans (AA) compared to other samples, we used the suggested criteria that a score of 2 or less is considered “minimal stigma”, scores greater than 2 but less than 2.5 are considered “mild stigma”, scores greater than 2.5 but less than 3 are considered “moderate stigma”, and scores greater than 3 are considered “severe stigma” (Lysaker, Roe, & Yanos, 2007). In the AA sample, this would mean that minimal stigma was reported by 37.1%, mild stigma by 22.2%, moderate stigma by 37.1%, and severe stigma by 3.6%. This suggests that 40.1% of the AA sample experienced moderate to high stigma while 59.3% experienced minimal to mild stigma (Table 8). Comparing the AA sample results to those of the European (Brohan, Elgie, Sartorius, Thornicroft, & GAMIAN-Europe Study Group, 2010) and Iranian (Ghanean et al., 2011) samples (Table 8), we note that high stigma rates are similar in the three population samples with approximately 40% of respondents reporting moderate-to-severe stigma. However, participants in the AA sample had more moderate (37.1%) than high stigma (3.6%) compared to the other two samples. Additionally, 37.1% of the AA sample and 40% of the Iranian sample reported mild stigma compared to 23% for the European sample. Further, the means of Stigma sub-scales are almost comparable between the three studies except for stigma resistance, which was lower in the Arab American (AA) sample; however, the *SDs* of all sub-scales were much higher in the AA sample, which indicates greater variability in their participants’ scores.

Discussion

This study examined the psychometric properties of the Arabic version of ISMI scale in a sample of Arab Americans, and compared them with the results of previous studies. The original standardization study of the ISMI scale (Ritscher et al., 2003) used a small sample ($N=127$) that limited the validity of its factor analytic results. In the present study, factor analysis of the Arabic version with a larger sample ($N=330$), found a structure of the ISMI that departed somewhat from the original structure. We found a strong general stigma factor that included items from four of the original components: discrimination experience, alienation, withdrawal, and stereotype endorsement. The original authors suggested “it is most parsimonious to conceptualize the ISMI as measuring a single construct” (Ritscher et al., 2003, p. 16). Another recent study of the ISMI obtained factorial results similar to ours (Sibitz, Unger, Woppmann, Zidek, & Amering, 2011). However, we found another factor focused on the negative self-concept and diminished self-efficacy resulting from stigma. The relationship between stigma and self-concepts (self-esteem and self-efficacy) has been the focus of theoretical and empirical studies (Berge & Ranney, 2005; Crocker & Major, 1994). The stigma of mental illness has the potential to undermine positive constructions of identity (Rusch, Angermeyer, & Corrigan, 2005), and this seemed to be more evident in the Arab sample.

The factor analysis suggested that stigma resistance (SR) can be re-conceptualized in terms of different levels or types of coping either by positive ways that accept the condition and find a positive life with mental illness or by rejecting stigma (cf., e.g., Link, Mirotznik, & Cullen, 1991). We found different levels of this coping strategy, which we termed “mild”, “moderate,” and “tough” stigma resistance. A recent study in patients with schizophrenia or schizoaffective disorder found that stigma resistance was correlated positively with self-esteem, empowerment, and quality of life and negatively correlated with depression (Sibitz et al., 2011). However, our data suggest that the level of resistance that matters most in freeing the individual from stigma, is the tough level of resistance which was significantly associated with lower levels of PTSD and depression. Challenging distorted beliefs using cognitive behavioral approaches and activating stigma-resisting and stigma survival coping schemas may help recovery and increase the patients’ hopes of finding a fulfilling life.

The original authors of the ISMI found that the Stigma Resistance sub-scale had weaker psychometric properties than the other four sub-scales (Ritscher et al., 2003). However, another study found adequate psychometric properties for the SR sub-scale (Ghanean et al., 2011). Stigma resistance has important theoretical implications and appears to have its own distinct structure that we suggest should be developed further and measured separately from the overall ISMI in future studies.

Conclusion

The current study indicates that the Arabic version of the ISMI scale seems to be a robust measure with sound psychometric properties that can be used with Arabic-speaking psychiatric patients to study the dynamics of stigma in such cultures. However, replications and further studies that test its structure and test-retest reliability are recommended.

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