Reliability and factor structure of a trait emotional intelligence measure in four Arab countries

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Abstract

Purpose – The purpose of this paper is to examine the reliability and factor structure of the Arabic translation of the Emotional Intelligence Scale (EIS-41-A), a popular trait-based emotional intelligence test in Arab countries.

Design/methodology/approach – A sample of 453 professionals from Egypt, Kuwait, Saudi Arabia and the UAE completed the EIS-41-A.

Findings – Findings show that the Arabic scale did have acceptable reliability and demonstrated the same factor structure as the original English language scale.

Research limitations/implications – Limitations of the study include the small sample size from some of the countries included.

Originality/value – This is the first paper to investigate the characteristics of an Arabic language emotional intelligence scale and opens the door to further research on emotional intelligence in the Arab world.

Keywords Egypt, Kuwait, Saudi Arabia, United Arab Emirates, Psychology, Behaviour, Intelligence, Factor structure, Emotional Intelligence Scale

Paper type Research paper

Since the concept of emotional intelligence (EI) was introduced by Goleman (1995) and Salovey and Meyer (1990) it has received a lot of attention from academicians and practitioners alike. As Goldenberg (2006) and her colleagues point out, attraction to EI is likely caused by the popular view that EI may be more important in determining life outcomes than mental intelligence. Scholars have been able to link EI to social adaptation (Huy, 1999), leadership effectiveness (Higgs and Aitken, 2003; Yung-Shui and Tung-Chun, 2009), job performance (Semadar *et al.*, 2006), conflict management (Rahim *et al.*, 2002; Salami, 2010), coping with stress (Jordan *et al.*, 2002; Ogińska-Bulik, 2005; Ramesar *et al.*, 2009), and general health (Jain and Sinha, 2005).

In spite of the importance of the EI construct, the number of international and cross cultural research on EI is small. Most of the EI studies have focused on the USA. Although these studies were useful in eliciting the construct, their results cannot be automatically generalized to the rest of the world. Emotions and intelligence are social constructs. Research has shown that emotions are influenced by a number of country

level variables. As such, it is possible that the content and consequences of EI may vary between nations.

One possible cause of the lack of international and cross cultural research on EI is that most measurement instrument were developed and validated either in North America or Western Europe. As such, they may not be useful for collecting data outside of these areas. To facilitate EI research in other areas of the world, scholars need to put in more efforts in developing new instruments or translating and validating the existing EI instruments in these parts of the world. We believe that adopting existing instruments is superior to creating new ones as it will allow for comparison of data and the ultimate accumulation of knowledge.

The purpose of this paper is twofold. First, we wish to examine the reliability and factor structure of the Arabic version of the Emotional Intelligence Scale (EIS-41) as developed by Austin and her colleagues (2004). Second, we wish to examine if EI scores differed by gender and nationality in four Arab countries; Egypt, Saudi Arabia, the UAE and Kuwait.

Conceptualization and measurement

Currently, there are two conceptualizations of the EI concept. The first, termed the "ability" model was developed by Mayer and Salovey (1997). According to this school, EI is a form of cognitive ability similar to Gardner's (1983) intrapersonal and interpersonal intelligences. Mayer and Salovey (1997) suggest that EI is composed of four factors:

(1) the ability to identify self emotions and to express them clearly to others;

(2) the ability to use emotions to facilitate decision making;

(3) the ability to understand complex emotions and how they change from one state to another; and

(4) the ability to control emotions including suppressing unhealthy ones.

Although each of these factors is considered independent, the existence of each dimension facilitates the existence of the others.

The most popular EI measurement pertaining to the conceptualization of EI as ability is the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) which assesses EI by the person's ability to select responses that have been deemed correct by the consensus of the population or experts (Mayer *et al.*, 2004). The test is composed of 141 items and takes about 45 min to complete. Research on the factor structure of the MSCEIT using confirmatory factor analysis (CFA) did not support the one, two or four factor model reported by the instrument's creators (Gignac, 2005; Keele and Bell, 2008).

The second conceptualization of EI, termed the trait or mixed model was developed by Bar-On (1996) and Goleman (1995). According to this school, EI is a collection of abilities and traits (Bar-On, 2000). McCrae (2000) has pointed out that it would be more sensible to recognize that the processing of emotions requires both abilities and specific personality traits. Under this model, EI is measured using self-report questionnaires similar to those used to assess personality.

One of the popular instruments that are used to measure trait EI is the Schutte Self Report Emotional Intelligence Scale (SSREI) (Schutte *et al.*, 1998). This is a 33 item test that takes about 10 min to complete. Schutte *et al.* initially reported that his scale

measured a single overall factor (unidimensional). However, Austin and her colleagues (2004) added eight more items (a total of 41) and reported that the scale has three dimensions:

(1) *Mood regulation.* This is the ability to control and manipulate ones emotions. This may allow the individual to show socially appropriate emotions and recover more rapidly from social distress.

(2) *Utilization of emotions.* This is ability to control emotions so as to facilitate cognition to achieve a specific objective. For example, individuals may reduce their anger to improve their thinking about a specific problem.

(3) *Appraisal of emotions.* This is the ability to accurately identify or sense the emotions of others. Knowing what others are feeling facilitates social interaction and reduces conflict.

EI and national culture

Much research has been conducted on the relationship between emotions and culture. In a recent literature review of the research in this area, Hemert *et al.* (2007) concluded that studies have shown that the economy, political system, values and religion had the greatest impact on cross-country variance in emotion levels and types.

The first dimension of EI, mood regulation, requires individuals to identify and control their emotions. Matsumoto and his colleagues (2009) have shown that international cultures vary on the degree of emotional differentiation that they require. Some cultures require members to show consistency (low differentiation) in emotions across situations, while other cultures may require members to display different emotions in different contexts. This indicates that individuals living in high differentiation cultures may require higher levels of emotion regulations than individuals from low differentiation cultures. Matsumoto and his colleagues have suggested that individuals from high differentiation cultures may be viewed as hypocrites in low differentiation societies. Haga also showed that national culture influenced the strategies (emotion suppression verses emotion reappraisal) that individuals used in regulating their emotions.

EI studies in the Arab world

Since, EI has been introduced in the USA, it is important to study the validity of the construct in other countries. Although some cross cultural studies covering several countries and regions have appeared (Rahim *et al.*, 2002; Shipper *et al.*, 2003; Siu, 2009), only four studies have examined the construct in an Arab context.

The first of these studies was done El Hassan and El Sader (2005). They translated the Bar-On youth version of the emotional bar inventory (Bar-On EQ-i: YV) from English to Arabic and administrated it to 433 Lebanese school children to measure its reliability and validity. The results indicated that the Arabic version of the test had an acceptable level of internal and test-retest reliability. Although the factor analysis produced 11 factors, they argued that these factors were all subcomponents of the original factors in Bar-On EQ-i: YV. The authors explained the low EI scores they obtained as compared to those reported by Bar-On, by arguing that Arabs in general are very emotional and impulsive.

The second EI study in the Arab region was done by Alkhadher (2007). He investigated the relationship between psychological health and EI in a sample

of Kuwaiti college students using two Arabic EI measures; one based on the ability model and the other based on trait model. The results indicated that that there was a significant relationship between health and the trait EI measure. The results also showed that while females scored higher than males on the ability test, there were no differences between the sexes on the trait questionnaire.

The third EI study examined the relationship between EI, gender, age and coping styles in Bahraini adolescents (Alumran and Punamaki, 2008). Findings indicated that EI was related to coping style and that females scored higher than males. No relationship between EI and age was found.

The fourth study was conducted by Suliman and Al Shaikh (2007) and it examined the effect of employee EI on their conflict and readiness to innovate in United Arab Emirates (UAE) financial service companies. Results showed that employees that reported higher levels of EI also reported lower levels of conflict and higher levels of readiness to innovate. Results also showed that EI was positively related to age and education but not to gender.

The above review indicates that there are no published Arab EI cross-country studies. Although, outsiders usually view the Arab world as a homogenous entity, closer examination reveals important cultural, political and economic differences. For example, the GLOBE cross cultural leadership study showed that Egyptians, Kuwaitis and Qataris scored differently on a number of cultural dimensions (Javidan *et al.*, 2006). Such differences may have a significant impact on EI.

Method
Sample
The data used in this study came from four different samples. Participants were middle and top level managers working in business and governmental organizations that attended an employer sponsored management development session conducted by one of the authors. The sessions were held in four Arab countries; Egypt, Kuwait, Saudi Arabia and the UAE. The total sample size was 453 subjects; 210 from Egypt, 115 from Kuwait, 94 from the UAE, and 34 from Saudi Arabia. 52 percent of the sample was male and 48 percent were female. The data was collected between January and December of 2007.

Instrument
In this study, EI was measured using an Arabic language translation of the EIS-41 (Austin *et al.*, 2004). This is a test that is based on the trait model and was originally developed by Schutte *et al.* (1998). The test is composed of 41 items and responses are recorded on a five-point Likert type scale. The EIS-41 was selected because of its acceptable reliability, validity and relative brevity. The overall internal reliability coefficient of the EIS-41 is 0.85 (Austin *et al.*, 2004). Previous exploratory factor analysis of the test results showed that it consisted of three factors; optimism/mood regulation, utilization of emotions, and appraisal of emotions (Austin *et al.*, 2004). The EIS-41 has been translated into Farsi and showed psychometric properties similar to the original measure (Besharat, 2007).

The EIS-41 was translated into the Arabic language (EIS-41-A) using forward and backward translation design. The translation was done by three experienced translators. Differences between the translators were discussed among them and a

final translation was agreed upon. The test was than pilot tested on 25 Egyptian
college students to make sure that all items are clear.

Procedures
Subjects attending a management development session were asked at the end of the
session to participate in a study on personality. All subjects were guaranteed
anonymity. Subjects agreeing to participate were given the paper and pencil instrument.
After completing the data gathering instrument, subjects were debriefed.

Analysis and results
Descriptive statistics
Table I presents the means and standard deviation for the EIS-41-A and its subscales
by nationality. Internal reliability coefficients as measured by Cronbach's α for the
different nationalities are all above 0.7 indicating acceptable internal consistency.

Confirmatory factor analysis
Since we wished to examine the conformance of the factor structure of the EIS-41-A to
the factor structure of the original English language version, we conducted CFA. The
maximum likelihood estimation method using the AMOS (Version 6.0) software was
used to carry out the analysis. The hypothesized model with a first-order general factor
and the three sub-factors; emotion regulation, emotion utilization and emotion
appraisal produced a $\chi^2 (453) = 10.335, p > 0.737$, indicating that the null hypothesize
of good fit is accepted. As such, the hypothesis that the data fits the model is accepted.
Additionally, the absolute measures of goodness of fit (e.g. GFI $= 0.975$ and
AGFI $= 0.935$) and the incremental measures of fit (e.g. TLI $= 1.03$ and CFI $= 1.0$)
indicated very good fit. The parameter estimates for the items on each of the three
factors is shown in Table II.

Nationality and gender
In addition to examining the psychometric properties of the EIS-41-A, the
cross-country sample, allowed us to test for differences between nationalities and
gender. ANOVA results (Table III) shows that there were no significant differences
among the four Arab countries in total EI scores, however there were differences on
scores of the Emotion Regulation and Emotion Utilization sub-scales. *Post hoc* analysis

EIS-41 descriptive statistics	Egypt	UAE	Kuwait	KSA
Optimism/mood regulation (mean)	47.28	46.84	48.94	48.02
Optimism/mood regulation (SD)	5.97	5.78	4.90	5.45
Utilization of emotions (mean)	19.09	20.10	20.01	19.65
Utilization of emotions (SD)	3.34	3.34	2.90	3.57
Appraisal of emotions (mean)	35.92	35.87	35.47	36.12
Appraisal of emotions (SD)	5.78	6.28	5.99	6.66
EI (mean)	102.30	102.81	104.43	103.80
EI (SD)	11.40	11.47	9.81	11.25
Cronbach's α	0.81	0.77	0.73	0.80

Table I.
EIS-41 descriptive
statistics across countries

Item	Estimate	SE	CR	p
Optimism/mood regulation				
29	0.591	0.047	12.696	0.0001
38	0.504	0.054	9.277	0.0001
18	0.375	0.048	7.795	0.0001
2	0.372	0.045	8.317	0.0001
21	0.413	0.052	7.879	0.0001
15	0.430	0.043	9.946	0.0001
30	0.377	0.041	9.173	0.0001
12	0.328	0.067	4.884	0.0001
33	0.231	0.052	4.482	0.0001
35	0.328	0.057	5.722	0.0001
7	0.348	0.050	6.907	0.0001
37	0.389	0.041	9.537	0.0001
Emotion utilization				
34	0.670	0.076	8.758	0.0001
10	1.092	0.105	10.352	0.0001
26	0.248	0.065	3.825	0.0001
4	0.160	0.061	2.636	0.008
9	0.296	0.056	5.254	0.0001
23	0.133	0.058	2.280	0.023
Emotion appraisal				
22	0.686	0.048	14.179	0.0001
6	0.714	0.054	13.106	0.0001
17	0.575	0.052	10.982	0.0001
31	0.377	0.046	8.263	0.0001
39	0.537	0.052	10.233	0.0001
40	0.638	0.054	11.765	0.0001
8	0.534	0.059	9.116	0.0001
41	0.457	0.058	7.871	0.0001
36	0.333	0.045	7.426	0.0001
28	0.388	0.058	6.710	0.0001

Table II.
The parameter estimates
for EIS-41 three factors

Note: SE – standard error, CR – critical ratio

indicated that on emotion regulation, Egypt and the UAE scored lower than Kuwait. On emotion utilization, Egypt scored lower than the UAE and Kuwait.

t-test was used to analyze the differences between genders (Table IV). As expected, females scored significantly higher than males on total I scores, emotion regulation and emotion utilization. Scores were not significant for the emotion appraisal sub-scale.

Discussion

In spite of the wide spread interest in research on EI, there are no published EI measurement instruments in the Arabic language. The purpose of this study is to report on the psychometric properties of the Arabic language version of the EIS-41. Our findings indicated that the previously established three factor structure determined in the study of Austin *et al.* (2004) and Besharat (2007) was replicated in a sample of Arab employees with the Arabic version of the instrument. Based on these results, we believe that the EI instrument measured three factors; emotion regulation, emotion utilization and emotion appraisal. This is an important finding because it

	Sum of squares	df	Mean square	F	Sig.
Optimism/mood regulation					
Between groups	291.445	3	97.148	3.069	0.028
Within groups	15,701.555	496	31.656		
Total	15,993.000	499			
Utilization of emotion					
Between groups	97.810	3	32.603	3.014	0.030
Within groups	5,365.318	496	10.817		
Total	5,463.128	499			
Appraisal of emotion					
Between groups	23.122	3	7.707	0.209	0.890
Within groups	18,310.710	496	36.917		
Total	18,333.832	499			
Emotional intelligence					
Between groups	386.162	3	128.721	1.055	0.368
Within groups	60,527.126	496	122.030		
Total	60,913.288	499			

Table III.
Cross-country
comparison in EIS-41 and
its subscales

	Males		Females			
Variable	M	SD	M	SD	t	Sig.
Optimism/mood regulation	47.12	5.93	48.16	5.39	−2.058	0.040
Utilization of emotion	18.88	3.38	20.15	3.13	−4.348	0.001
Appraisal of emotion	35.73	5.82	35.93	6.25	−0.359	0.720
Emotional intelligence	101.73	11.12	104.25	10.87	−2.542	0.011

Table IV.
Gender differences in
EIS-41 and its subscales

provides evidence of the cross cultural validity of EI in general, and the EIS-41-A in particular. It should be clear that this does not imply that the EIS-41-A will predict work and life outcomes in the Arab world the same way it does in other parts of the world. The relationship between EI and outcomes is probably moderated by national cultural (Shipper *et al.*, 2003).

This study also examined the relationship between EI, nationality and gender. With regards to nationality, the results indicated that there were no significant differences between overall EI scores among the four Arab countries. However, using *post hoc* analysis, we could discern that Egypt had the lowest score on two factors; emotion regulation and utilization. The differences in these two sub-dimensions between Egypt on one hand and Kuwait, the UAE and Saudi Arabia on the other may be attributed to the national emotional climate in these countries.

With regards to gender, the study's findings did support some pervious studies which showed that females tended to score higher on EI measures than males (Alumran and Punamaki, 2008). One possible explanation of this result is that in the masculine Arab culture, girls are taught to show and use more emotions than boys.

Limitations and future research directions
A key limitation of this study is the relatively small sample that came from some of the countries in the study. Future studies, should use larger samples and include more Arab countries especially in North Africa. Of particular importance is the need to study

the relationship between the EIS-41-A and important workplace outcomes such as job performance and satisfaction.

Conclusion

In spite of the popularity of EI, very few studies have been conducted on the concept in the Arab region. The purpose of this study was report the reliability and factor structure data of an Arabic version of the EIS-41 in four Arab countries. The results provided evidence that the Arabic version had acceptable reliability and a factor structure that was identical to the original English test. Although more tests are needed, this study shows that the concept of EI as measured by the EIS-41 does apply to the Arab world and that the test can be used in that region. Finally, we hope that our work will open the way for more research on EI in the Arab world.

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