

The Robustness of the Nine-Factor Structure of the Cognitive Emotion Regulation Questionnaire across Four Arabic-Speaking Middle Eastern Countries

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Abstract

The Cognitive Emotion Regulation Questionnaire (CERQ) focuses on the “pure” cognitive components of emotion regulation thought to help people to manage and control their emotions during or after the experience of a stressful event. The aim of this study was to explore the psychometric properties of an Arabic version of the CERQ (CERQ-Ar) across four Arabic-speaking countries in the Middle East (i.e., Egypt, Kingdom of Saudi Arabia, Kuwait, and Qatar; $N = 1,470$). The original nine-factor CERQ model was confirmed, and these factors had moderate-to-high internal reliabilities, modest-to-strong interrelations, and meaningful associations with positive and negative affect. Results were robust across the four Arabic countries, suggesting that the same cognitive emotion regulation strategies appear to be present across different cultures, but the relative preference to use one or more strategies may quantitatively vary across cultures.

Keywords

emotion regulation, cognitive emotion regulation strategies, CERQ, positive–negative affect, culture, Middle East

Introduction

Emotion regulation (ER) refers to the attempts individuals make to influence which emotions they have, when they have them, and how these emotions are experienced and expressed, regardless of whether these attempts are deliberate or automatic, conscious or unconscious, cognitive or behavioral, and successful or unsuccessful (e.g., see Gross, Richards, & John, 2006). According to the process model of ER, Gross (1998, 2001) suggested that emotions are regulated at five points in the emotion generative process: selection of the situation, modification of the situation, the deployment of attention, the change of cognitions, and the modulation of experiential,

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behavioral, or physiological responses. Accordingly, ER involves a variety of physiological, behavioral, social, and cognitive processes, which may not be assessed comprehensively using a *single* assessment (e.g., for a recent review, see John & Eng, 2014).

The cognitive processes and strategies underlying ER, so-called cognitive coping or cognitive ER, have received a good deal of attention in the empirical literature (e.g., for reviews, see Ochsner & Gross, 2008; Skinner, Edge, Altman, & Sherwood, 2003). The ER cognitive processes can be divided using a number of different dimensions, including unconscious (e.g., denial) versus conscious (e.g., self- or other-blaming), problem-focused (e.g., managing the stressors) versus emotion-focused (regulating the emotions associated with the stressor), and cognitive problem-oriented (e.g., making plans) versus behavioral problem-oriented (e.g., taking actions). Of note, as suggested by Garnefski, Kraaij, and Spinhoven (2001), all of the existing questionnaires for the cognitive coping and cognitive ER are composed of a mixture of strategies across these three bipolar dimensions (see also de Ridder, 1997). Specifically, Garnefski et al. (2001) suggested that problem-focused strategies are more functional than emotion-focused strategies and that cognitive appraisal processes precede taking action, regardless of whether they are conscious or unconscious. In an attempt to integrate this literature, Garnefski et al. (2001) developed the Cognitive Emotion Regulation Questionnaire (CERQ), which focuses on the self-regulatory, conscious, and “pure” cognitive components of ER that could help people to manage and control their emotions during or after the experience of a stressful event.

The CERQ consists of nine scales assessing distinct, conceptually independent cognitive strategies as follows: Self-Blame (i.e., the thoughts of blaming oneself for what has been experienced), Acceptance (i.e., the thoughts of resigning what has happened), Rumination (i.e., thinking all the time on the feelings and thoughts associated with a negative event), Positive Refocusing (i.e., thinking of other pleasant matters instead of the actual event), Refocus on Planning (i.e., thinking on potential steps to deal with negative events), Positive Reappraisal (i.e., thinking of attaching a positive meaning to the event in terms of personal growth), Putting Into Perspective (i.e., the thoughts of playing down the seriousness of a negative event as compared with other events), Catastrophizing (i.e., over-emphasizing the negativity of the events), and Other-Blame (i.e., the thoughts of putting the blame for what one has experienced on others). A principal components analysis (PCA) supported this nine-factor structure of the CERQ, and all subscales positively correlated with each other (r s ranged between .20 and .62), with moderate to high Cronbach’s alpha reliabilities (α s ranged between .68 and .83) and high test–retest stability (r s ranged between .41 and .59) across subscales. In addition, a second-order PCA extracted two broader factors: the first termed *more adaptive strategies* included Positive Refocusing, Positive Reappraisal, Putting Into Perspective, Refocus on Planning, and Acceptance, while the second was termed *less adaptive strategies* and included Rumination, Self-Blame, Other-Blame, and Catastrophizing subscales.

The discriminant and convergent validity of the CERQ has also been supported (see, for example, Garnefski & Kraaij, 2007). For example, the CERQ was able to differentiate between clinical and non-clinical samples (Garnefski et al., 2002) and between clinical groups with different problems (Garnefski, Kraaij, & van Etten, 2005). Importantly, however, most of the existing psychometric studies of the CERQ examining its convergent validity have focused on a variety of psychopathological symptoms including depression (Garnefski, Boon, & Kraaij, 2003; Garnefski & Kraaij, 2006; Garnefski et al., 2001), anxiety (e.g., Domínguez-Sánchez, Lasaristu, Amor, & Holgado-Tello, 2013; Garnefski & Kraaij, 2007; Garnefski et al., 2001; Martin & Dahlen, 2005), anger (e.g., Domínguez-Sánchez et al., 2013; Martin & Dahlen, 2005), stress (Garnefski et al., 2003; Garnefski & Kraaij, 2009; Schroevers, Kraaij, & Garnefski, 2007), and broad internalizing/externalizing problems (Garnefski et al., 2005). To date, few studies examined how the CERQ strategies associate with negative and positive emotions. In one notable study, using the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen,

1988), Domínguez-Sánchez et al. (2013) found that positive affect correlated positively with Positive Refocusing, Refocus on Planning, and Positive Reappraisal whereas negative affect correlated positively with Self-Blame, Rumination, Catastrophizing, and Other-Blame. Indeed, according to the tripartite model (Clark & Watson, 1991), levels of positive and negative affect underlie the commonly found co-occurrence (i.e., comorbidity) of anxiety and depressive symptoms. Specifically, the tripartite model posits that while anxiety and depression share the common trait of high negative affect, they are differentiated primarily by low positive affect that exhibits a specific association with depression (Mineka, Watson, & Clark, 1998).

In addition to the original Dutch version, Garnefski et al. (2001) provided an English version of the CERQ, which has been validated in the United States (Martin & Dahlen, 2005; Zlomke & Hahn, 2010) and has been translated into many different languages, including French (Jermann, Van der Linden, d'Acremont, & Zermatten, 2006), Chinese (Zhu et al., 2008), German (Ehring, Fischer, Schnülle, Bösterling, & Tuschen-Caffier, 2008), Roman (Perçe & Miclea, 2011), Turkish (Tuna & Bozo, 2012), Persian (Abdi, Taban, & Ghaemian, 2012), Italian (Cerutti, Presaghi, Gratz, & Manca, 2012), Spanish (Domínguez-Sánchez et al., 2013), and Portuguese (Duarte, Matos, & Marques, 2015). Across these translations, the nine-factor model of the original CERQ and consistently adequate to strong psychometric properties have been confirmed.

The present study sought to provide initial validation for an Arabic version of the CERQ, the CERQ-Ar, in four Arabic-speaking Middle Eastern countries (Egypt, Kingdom of Saudi Arabia [KSA], Kuwait, and Qatar). Such an extension is important for a number of reasons with regard to both theory and practice. Theoretically, results of the current study contribute to improving our understanding of the cross-cultural differences in cognitive ER. Indeed, recent studies have reported quantitative and qualitative differences across different cultures in ER (Ford & Mauss, 2015; Mauss, Bunge, & Gross, 2008). To date, however, no large-scale study has examined ER in the Arabic-speaking Middle East, representing a significant gap in the literature on the cross-cultural variability in ER. For example, in one of the largest cross-cultural studies to date, Matsumoto et al. (2008) found that the use of cognitive appraisal and suppression varied remarkably across 23 different countries around the world. Unfortunately, none of these countries were Arabic-speaking, suggesting a clear gap in the literature which the present study aims to fill. Furthermore, gender differences in CERQ strategies also appear to evidence cross-cultural differences. For examples, females scored higher than males on Rumination in the Netherlands (Garnefski, Teerds, Kraaij, Legerstee, & Kommer, 2004), United States (Martin & Dahlen, 2005), France (Jermann et al., 2006), Spain (Domínguez-Sánchez et al., 2013), and Portugal (Duarte et al., 2015), but not in China (Zhu et al., 2008) and Iran (Abdi et al., 2012). In addition, females scored lower than males on Other-Blame in the United States (Martin & Dahlen, 2005), France (Jermann et al., 2006), and Spain (Domínguez-Sánchez et al., 2013), but not in the Netherlands (Garnefski et al., 2004), China (Zhu et al., 2008), Iran (Abdi et al., 2012), and Portugal (Duarte et al., 2015). Therefore, the present study further aimed to examine gender differences in the use of CERQ strategies in the four Middle Eastern countries as compared with a Western country, the Netherlands, where the original version of the CERQ was developed (Garnefski et al., 2004).

In addition to this theoretical importance, the present study has critical applied implications in the context of mental health care. A significant source for the challenges of mental health services in Arabic-speaking Middle Eastern countries (e.g., for a review, see Okasha, 1999) may relate to the shortage of well-established clinical resources that could provide comprehensive assessments that, in turn, would allow for appropriate evidence-based interventions. A large body of recent studies has suggested that emotion dysregulation can lead to various forms of psychopathology (e.g., for reviews, see Kring & Sloan, 2010; Sheppes, Suri, & Gross, 2015). Subsequently, enhancing ER skills has been recently used within the context of Cognitive Behavior Therapy (e.g., for reviews, see Mennin & Fresco, 2014; Neacsiu, Bohus, & Linehan, 2014). Therefore, validating an Arabic version of the CERQ could improve clinical assessment and treatment not

only in the Middle East but also in many Western countries in Europe and the United States, which are currently accepting an increasingly large number of Arabic-speaking asylum seekers, many of whom are likely struggling with mental health concerns (Tribe, 2002). To date, there has been only one study investigating ER difficulties as a mediator in the relationship between trauma exposure, post-migration living difficulties, and psychological distress within a very small ($N = 6$) sample of Iraqi asylum seekers (Nickerson et al., 2015). Nickerson et al. (2015) found that ER difficulties mediated the associations between trauma and psychological symptoms, and between living difficulties and psychological symptoms.

Therefore, the present study aimed to (a) provide an Arabic version of the CERQ (i.e., CERQ-Ar), (b) explore the nine-factor (the CERQ strategies) and two-factor (the more vs. less adaptive CERQ strategies) models of the CERQ-Ar in four Middle Eastern countries using a series of first-order and second-order confirmatory factor analyses (CFAs), (c) investigate the psychometric properties (Cronbach's alpha, interscale correlations, and criterion validity) of the CERQ-Ar across those countries, and (d) explore gender differences in the CERQ-Ar across the four countries.

Method

Participants

A total of 1,470 native Arabic-speaking undergraduate students ($M_{\text{age}} = 18.6 \pm 1.3$; 50% females) in four public universities in Egypt ($n = 355$), KSA ($n = 315$), Kuwait ($n = 400$), and Qatar ($n = 400$) volunteered to participate in this study. Table 1 describes the participants' ages and genders in each country. All participants were volunteers, who did not receive any compensation for participation, and none had ever experienced any psychiatric or neurological disorders as they self-reported.

Table 1. Summary Statistics for the Basic Demographic Variables of the Participant Samples in the Four Middle Eastern Countries.

Countries	<i>n</i>	Gender		M_{age} (<i>SD</i>)
		Females	Males	
Egypt	355	180	175	18.6 (1.4)
KSA	315	155	160	18.5 (0.9)
Kuwait	400	200	200	18.3 (1.6)
Qatar	400	200	200	18.9 (1.2)

Note. KSA = Kingdom of Saudi Arabia.

Measures

CERQ. The CERQ (Garnefski et al., 2001) is a 36-item self-report measure of nine cognitive ER strategies (Self-Blame, Acceptance, Rumination, Positive Refocusing, Refocus on Planning, Positive Reappraisal, Putting Into Perspective, Catastrophizing, and Other-Blame), each of which involve four items. Participants are asked to rate how they cope with negative events using a 5-point Likert-type scale ranging from 1 (*almost never*) to 5 (*almost always*). Therefore, the scores of each subscale range between 4 and 20, and a high score reflects a great use of a CERQ strategy. The psychometric properties of the CERQ are discussed in details in the "Introduction" section.

PANAS. The PANAS (Watson et al., 1988) is a widely used instrument that has been translated and validated into many languages around the world (e.g., for reviews, see Gray & Watson, 2007; Watson & Vaidya, 2013). It is a 20-item self-report measure of positive and negative affect as dispositional dimensions. High positive affect (PA) is a state of high energy, full concentration,

and pleasurable engagement, whereas low PA is characterized by sadness and lethargy. In contrast, high negative affect (NA) reflects a variety of aversive mood states, whereas low NA is characterized by a state of calmness and serenity. Each PANAS item consists of a one adjective word describing a specific emotion. Half of the items describe 10 positive emotions (i.e., interested, excited, strong, enthusiastic, alert, determined, inspired, attentive, active, and proud) whereas the remaining half describe 10 negative emotions (i.e., irritable, distressed, upset, guilty, scared, hostile, ashamed, nervous, jittery, and afraid). Respondents are asked to indicate to what extent they have generally experienced the 20 emotional states using a 5-point Likert-type scale ranging from 1 (*very slightly or not at all*) to 5 (*extremely*). Therefore, the scores of each subscale range between 10 and 50, and high scores reflect high positive or negative emotions. The two-factor model of the PANAS was supported, and PA and NA factors had high reliability ($\alpha = .88$ and $.87$) and test–retest stability ($r_s = .68$ and $.71$; Watson et al., 1988). In the present study, the reliabilities of PA and NA subscales were high in all of the four countries (Egypt: $.86$ and $.89$; KSA: $.84$ and $.89$; Kuwait: $.88$ and $.90$; Qatar: $.89$ and $.88$).

Translations and Procedures

The CERQ and the PANAS were translated from English into Arabic with permission granted from the first author of each questionnaire to the first author of the current study. Using the committee translation method (van de Vijver & Leung, 1997), two independent translations were obtained for each instrument: one from the first author of this study and the other from a professional translator who had no prior experience with questionnaires. The translations of each questionnaire were compared with each other and with the original English version to compile a final Arabic version. This forward translation method was deemed superior to the popular back-translation method, which “puts a premium on literal translation” (van de Vijver & Leung, 1997, p. 39), whereby word-by-word translations rather than translations capture the essence and the meaning of the items. Indeed, the back-translation method tends to miss serious problems in the translated version because the back-translator compensates for any errors by “recovering” the original phrase into the source language (Hambleton, 2005; van de Vijver & Leung, 1997).

Data were collected using identical procedures in each country. The instruments were administered in groups in the students’ classes using the original instructions of questionnaires, which were presented in hardcopies. Written informed consent for participation was obtained from all participants and all procedures were approved by Qatar University’s institutional review board (QU-IRB).

Statistical Analyses

To determine the construct validity of the CERQ-Ar, a series of first-order CFAs using the nine-factor model of the original CERQ (Garnefski et al., 2001) was applied to the CERQ-Ar on the four Arabic countries. In the next step, a series of second-order CFAs using the two-factor model of the original CERQ (Garnefski et al., 2001) was carried out for the CERQ-Ar on each country. Because of the categorical nature of the items used as indicators for each of the factors, weighted least squares means and variance adjusted (WLSMV) estimator was used in Mplus (Muthén & Muthén, 1998–2012). Root mean square error of approximation (RMSEA), comparative fit index (CFI), and the Tucker–Lewis index (TLI) were used to evaluate model fit in addition to chi-square as it is overly sensitive in large samples. In addition, to determine the construct validity of the CERQ-Ar, Pearson’s correlation coefficients were used to examine the associations between the CERQ-Ar strategies and the PANAS scales. The reliability of the CERQ-Ar strategies was examined using Cronbach’s alpha (α), and the interrelations were examined using Pearson’s correlation coefficients. Finally, gender differences in the CERQ-Ar strategies were examined using a series of independent t tests, which were followed by examining the effect sizes using Cohen’s d to examine the strength of any differences.

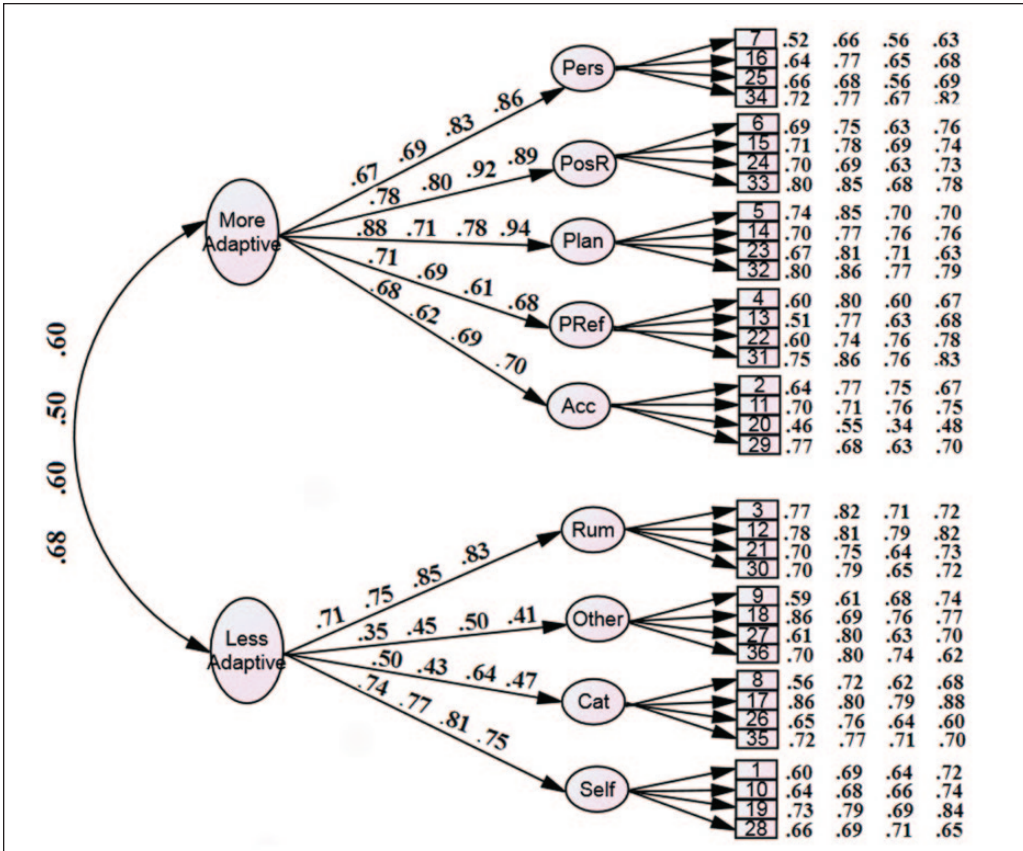


Figure 1. CFA loadings for the CERQ-Ar across the four Middle Eastern countries. Note. Loading values from left to right represent the CFA results in Egypt, Kingdom of Saudi Arabia, Kuwait and Qatar (respectively). Pers = Putting into Perspective; PosR = Positive Reappraisal; Plan = Refocus on Planning; PRef = Positive Refocusing; Acc = Acceptance; Rum = Rumination; Other = Other-blame; Cat = Catastrophizing; Self = Self-blame.

Results

CFAs

Table 2 shows the fit indices for the nine-factor CERQ first-order CFA analyses for each country. The RMSEAs indicate a good fit on Egypt, KSA, and Qatar (<0.05) and an acceptable fit on Kuwait (<0.08). Similarly, the CFI and TLI indicate a good fit on Egypt, KSA, and Qatar (≥.90) and an acceptable fit on Kuwait (≥.84). Figure 1 shows the standardized loadings of the CERQ-Ar’s nine factors on their corresponding items (see the bottom three lines) on each country. Moderate to high loadings were observed, with means of .75, .72, .68, and .67 on KSA, Qatar, Egypt, and Kuwait (respectively).

Table 2. Fit Indices for Nine-Factor CERQ Confirmatory Factor Analysis Models for Each Nation.

	χ^2	p value	RMSEA	CFI	TLI
Egypt	958.17	<.001	.045	.913	.901
KSA	849.91	<.001	.041	.949	.942
Kuwait	1,394.98	<.001	.061	.861	.843
Qatar	1,102.88	<.001	.049	.930	.921

Note. As described in text, CERQ items modeled at categorical indicators using WLSMV estimator; CERQ = Cognitive Emotion Regulation Questionnaire; RMSEA = root mean square error of approximation; CFI = comparative fit index; TLI = Tucker–Lewis index; KSA = Kingdom of Saudi Arabia; WLSMV = weighted least squares means and variance.

Table 3 shows the fit indices for the two-factor CERQ second-order CFA analyses for each country. The RMSEAs indicate an acceptable fit for the four countries (all RMSEAs ≤ 0.08). Similarly, the CFI and TLI indicate a generally acceptable fit for the four countries. Figure 1 shows the standardized loadings of the CERQ-Ar two-broader factors on their corresponding scales on each country. There were moderate to high standardized loadings for the five adaptive scales (with means of .81, .77, .74, and .70 for Qatar, Kuwait, Egypt, and KSA, respectively) and relatively lower standardized loadings for the four less adaptive scales (with means of .70, .61, .60, and .57 for Kuwait, Qatar, KSA, and Egypt, respectively). Therefore, across the four nations, the standardized loadings of the adaptive scales ($M = .76$) were higher than those of the less adaptive scales ($M = .62$).

Table 3. Fit Indices for Two-Factor CERQ Confirmatory Factor Analysis Models for Each Nation.

	χ^2	p value	RMSEA	CFI	TLI
Egypt	1,347.58	<.001	.061	.834	.821
KSA	1,236.82	<.001	.060	.886	.877
Kuwait	1,893.60	<.001	.075	.783	.766
Qatar	1,596.05	<.001	.066	.869	.859

Note. As described in text, CERQ items modeled as categorical indicators using WLSMV estimator. CERQ = Cognitive Emotion Regulation Questionnaire; RMSEA = Root Mean Square Error of Approximation; CFI = comparative fit index; TLI = Tucker–Lewis index; KSA = Kingdom of Saudi Arabia; WLSMV = weighted least squares means and variance.

Reliability and Interscale Correlations

Table 4 shows Cronbach's alpha values for the CERQ-Ar subscales in the four Arabic countries, along with those of the original Dutch version of the CERQ (Garnefski et al., 2001). The reliabilities were moderate to high for each subscale, with averages of .80, .78, .72, and .71 for KSA, Qatar, Egypt, and Kuwait (respectively). Table 5 shows the interscale correlations of the CERQ-Ar in the four Arabic countries along with those of the original CERQ (Garnefski et al., 2001). There were modest to strong intercorrelations among most of the CERQ-Ar subscales across the four countries. However, catastrophizing and other-blame had weak or no correlations with positive refocusing, refocus on planning, and positive reappraisal (see Table 5).

Table 4. Cronbach's Alpha Values for the CERQ-Ar Subscales in Four Middle Eastern Countries Along With Those of the Original CERQ (Garnefski, Kraaij, & Spinhoven 2001).

	The Netherlands (N = 487)	Egypt (N = 355)	KSA (N = 315)	Kuwait (N = 400)	Qatar (N = 400)
CERQ nine factors					
Self-Blame	.81	.69	.76	.70	.79
Acceptance	.80	.69	.73	.66	.72
Rumination	.83	.74	.84	.74	.80
Positive Refocusing	.81	.71	.84	.74	.80
Refocus on Planning	.81	.76	.86	.78	.77
Positive Reappraisal	.72	.76	.82	.69	.81
Putting Into Perspective	.79	.69	.78	.67	.77
Catastrophizing	.72	.75	.81	.73	.78
Other-Blame	.68	.74	.78	.72	.75

Note. CERQ = Cognitive Emotion Regulation Questionnaire; CERQ-Ar = Arabic version of the CERQ; KSA = Kingdom of Saudi Arabia.

Table 5. Interrelations Among the Nine CERQ-Ar Subscales in the Four Middle Eastern Countries, Along With Those of the Original CERQ (Garnefski, Kraaij, & Spinhoven 2001).

Nations	Self	Acc	Rum	PRef	Plan	PosR	Pers	Cat
Acceptance (Acc)								
The Netherlands	.49							
Egypt	.41							
KSA	.33							
Kuwait	.39							
Qatar	.36							
Rumination (Rum)								
The Netherlands	.55	.55						
Egypt	.36	.32						
KSA	.32	.32						
Kuwait	.42	.38						
Qatar	.42	.41						
Positive Refocusing (PRef)								
The Netherlands	.25	.46	.29					
Egypt	.21	.28	.15					
KSA	.32	.21	.32					
Kuwait	.25	.19	.08					
Qatar	.22	.26	.29					
Refocus on Planning (Plan)								
The Netherlands	.52	.37	.56	.37				
Egypt	.34	.32	.38	.47				
KSA	.27	.28	.27	.43				
Kuwait	.29	.27	.27	.48				
Qatar	.35	.40	.40	.53				
Positive Reappraisal (PosR)								
The Netherlands	.44	.43	.43	.43	.62			
Egypt	.28	.32	.28	.41	.62			
KSA	.30	.37	.29	.48	.49			
Kuwait	.28	.35	.25	.46	.58			
Qatar	.26	.40	.37	.48	.70			
Putting Into Perspective (Pers)								
The Netherlands	.44	.49	.41	.49	.48	.52		
Egypt	.35	.39	.29	.20	.32	.38		
KSA	.22	.40	.29	.32	.38	.42		
Kuwait	.36	.45	.36	.29	.37	.53		
Qatar	.31	.52	.37	.42	.54	.62		
Catastrophizing (Cat)								
The Netherlands	.34	.37	.51	.23	.29	.22	.20	
Egypt	.22	.27	.43	.09	.13	.03	.19	
KSA	.29	.11	.30	.02	.03	-.02	.06	
Kuwait	.32	.26	.48	-.03	-.01	.01	.17	
Qatar	.32	.15	.29	.09	.09	.01	.12	
Other-Blame (Other)								
The Netherlands	.34	.35	.39	.31	.40	.39	.39	.43
Egypt	-.01	.09	.27	.17	.10	.06	.19	.33
KSA	.23	.11	.20	.10	.10	.05	.09	.49
Kuwait	.22	.19	.25	.13	.06	.08	.20	.50
Qatar	.20	.02	.16	.21	.13	.07	.13	.50

Note. All r values $\geq .11$ are significant at a .05 level. CERQ = Cognitive Emotion Regulation Questionnaire; CERQ-Ar = Arabic version of the CERQ; KSA = Kingdom of Saudi Arabia.

Criterion Validity

Table 6 shows the correlation between the CERQ-Ar and the Arabic translation of the PANAS. To summarize, Positive Refocusing, Positive Reappraisal, Putting Into Perspective, Refocus on Planning, and Acceptance correlated positively with PA and negatively with NA. Although Self-Blame and Rumination correlated positively with PA, they had weak to near-zero correlations with NA. In addition, Catastrophizing and Other-Blame were not associated with either PA or NA. The associations between the CERQ-Ar two factors and the PANAS were also examined. The more adaptive strategies factor correlated positively with PA and negatively with NA. However, the less adaptive strategies factor showed moderate positive correlations with PA and weak to near-zero correlations with NA.

Table 6. The Correlation Between the CERQ-Ar and the Arabic Translation of the PANAS in the Four Middle Eastern Countries.

	Egypt (df = 353)		KSA (df = 313)		Kuwait (df = 398)		Qatar (df = 398)	
	PA	NA	PA	NA	PA	NA	PA	NA
CERQ nine factors								
Self-Blame	.28	-.19	.20	-.04	.18	-.07	.19	-.17
Acceptance	.32	-.14	.18	-.21	.26	-.13	.31	-.24
Rumination	.34	-.07	.20	-.07	.25	-.05	.32	-.18
Positive Refocusing	.34	-.25	.35	-.29	.23	-.30	.34	-.34
Refocus on Planning	.50	-.30	.38	-.23	.32	-.26	.50	-.45
Positive Reappraisal	.45	-.28	.43	-.34	.38	-.31	.50	-.40
Putting Into Perspective	.28	-.11	.25	-.20	.33	-.16	.38	-.34
Catastrophizing	.15	.04	.04	.09	.01	.14	.10	-.01
Other-Blame	.11	.08	.08	.09	.10	-.03	.11	-.05
CERQ two factors								
Adaptive	.54	-.31	.45	-.36	.42	-.33	.53	-.46
Less adaptive	.23	-.05	.18	.03	.18	.01	.26	-.15

Note. All r values $\geq .11$ are significant at .05 level. CERQ = Cognitive Emotion Regulation Questionnaire; CERQ-Ar = Arabic version of the CERQ; PANAS = Positive and Negative Affect Schedule; KSA = Kingdom of Saudi Arabia.

Gender Differences

Table 7 shows gender differences in the CERQ-Ar, along with those on the original CERQ in Garnefski et al.'s (2004) study, in which the Dutch sample generally resembled our Arab samples according to age and gender. Females had higher scores on Rumination than males. This finding was consistently found in all of the four countries, with means of 15.1 versus 13.3 and a mean size effect of .53 (across the samples). Only in Kuwait, females had lower scores on Other-Blame than males (10 versus 10.7, with an effect size of .22). No other gender differences were found (see Table 7).

Table 7. Descriptive Statistics and Gender Differences in the CERQ-Ar Along With Those of the Original CERQ (Garnefski et al., 2004).

Nations	Females		Males		t value	p	Cohen's d
	M	SD	M	SD			
Self-Blame							
The Netherlands	8.2	3.2	8.4	2.9	0.65	.51	.06
Egypt	11.6	3.6	11.1	3.1	1.45	.15	.15
KSA	11.2	3.6	11.6	3.4	1.14	.25	.11

(continued)

Table 7. (continued)

Nations	Females		Males		t value	p	Cohen's d
	M	SD	M	SD			
Kuwait	11.4	3.3	11.3	3	0.40	.69	.03
Qatar	11.3	3.6	11.6	3	0.91	.36	.09
Acceptance							
The Netherlands	10.8	3.6	10.4	3.7	1.54	.12	.11
Egypt	13	3.6	12.7	3.4	0.99	.32	.08
KSA	13.7	3.5	13.8	3.3	0.14	.89	.03
Kuwait	12.8	3.3	12.5	3	0.76	.44	.09
Qatar	12.9	3.5	12.9	3.1	0.17	.87	0
Rumination							
The Netherlands	10.8	3.9	9.5	3.6	4.37	<.001	.35
Egypt	15.4	3.6	14.1	3.2	3.46	.001	.38
KSA	15.6	3.6	13.1	3.2	6.57	<.001	.73
Kuwait	15	3.3	13.2	3.3	5.46	<.001	.54
Qatar	14.6	3.6	13	3.2	4.7	<.001	.47
Positive Refocusing							
The Netherlands	10.1	3.5	9.4	3.7	2.45	.01	.19
Egypt	12.8	3.8	12.6	3.4	0.37	.71	.05
KSA	13.3	4.3	13	4	0.74	.45	.07
Kuwait	12	3.7	12.3	3.3	0.92	.36	.08
Qatar	12.6	3.7	12.6	3.8	0.04	.97	0
Refocus on Planning							
The Netherlands	12.8	3.9	12.7	3.9	0.44	.66	.02
Egypt	15.2	3.7	14.7	3.7	1.18	.24	.13
KSA	15.1	3.7	15.9	4	1.73	.08	.21
Kuwait	14.3	3.6	14.9	3.6	1.66	.10	.17
Qatar	15.1	3.5	14.8	3.4	0.79	.43	.09
Positive Reappraisal							
The Netherlands	12.4	4.1	11.9	4	1.70	.09	.12
Egypt	15	3.7	14.7	3.6	0.74	.46	.08
KSA	13.9	3.9	14.1	4.1	0.35	.72	.05
Kuwait	14.1	3.5	14.4	3.1	1.01	.31	.09
Qatar	14.9	3.7	14.3	3.5	1.78	.07	.17
Putting Into Perspective							
The Netherlands	11.6	3.9	12.3	3.8	1.05	.29	.18
Egypt	13.3	3.5	13.3	3.6	0.11	.91	0
KSA	13.1	3.8	13	3.7	0.21	.83	.03
Kuwait	12.9	3.2	12.6	3.2	1.04	.30	.09
Qatar	14.1	3.5	13.6	3.5	1.36	.17	.14
Catastrophizing							
The Netherlands	6.6	3	5.7	2.3	4.36	<.001	.34
Egypt	11.3	4.2	11.2	3.5	0.05	.96	.02
KSA	11.4	4.6	11.3	4	0.28	.77	.02
Kuwait	11	4	10.8	3.3	0.49	.62	.03
Qatar	10.4	3.9	10.9	3.1	1.18	.24	.14
Other-Blame							
The Netherlands	6.5	2.9	6.2	2.5	1.51	.13	.11
Egypt	10.4	3.5	10.7	3.2	0.85	.40	.08
KSA	10.1	3.3	10.4	3.7	0.77	.44	.08
Kuwait	10	3.3	10.7	2.9	2.20	.03	.22
Qatar	9.8	3.3	10.3	2.9	1.73	.08	.16

Note. The Netherlands ($df = 628$), Egypt ($df = 353$), KSA ($df = 313$), Kuwait ($df = 398$), Qatar ($df = 398$). Using a Bonferroni correction, p values were considered significant only if $p < .005$ (.05/9). CERQ = Cognitive Emotion Regulation Questionnaire; CERQ-Ar = Arabic version of the CERQ; KSA = Kingdom of Saudi Arabia.

Discussion

The aim of the current study was to explore the psychometric properties of an Arabic translation of the CERQ (CERQ-Ar) in four Middle Eastern countries (Egypt, KSA, Kuwait, and Qatar). The results of first-order nine-factor CFAs indicated generally acceptable to good fit for the CERQ-Ar in the four countries, where the means of standardized loadings of the nine CERQ-Ar factors ranged between .75 and .67 (see Figure 1). In addition, the results of higher-order two-factor CFAs (using the adaptive and less adaptive CERQ strategies) indicated a generally acceptable fit in the four countries, but the standardized loadings for the adaptive subscales ($M = .76$) were higher than those for the less adaptive subscales ($M = .62$; see Figure 1). Furthermore, the nine factors of the CERQ-Ar had moderate to high reliability (see Table 4), modest to strong intercorrelations (see Table 5), and expected associations with positive and negative affect (see Table 6).

The Factorial Structure of the CERQ-Ar

Consistent with findings across a variety of other languages and countries (Abdi et al., 2012; Cerutti et al., 2012; Domínguez-Sánchez et al., 2013; Duarte et al., 2015; Ehring et al., 2008; Jermann et al., 2006; Martin & Dahlen, 2005; Perçe & Miclea, 2011; Tuna & Bozo, 2012; Zhu et al., 2008), CFA fit indices (RMSEAs, CFI, and TLI) for the CERQ-Ar in the current study confirmed the nine-factor model of the original (Garnefski et al., 2001). Underscoring the robustness of this finding was the consistency across the four different Middle Eastern countries.

The replication of the nine-factor model of the CERQ across different nations supports the universality of the cognitive strategies of ERs. In other words, the ways by which individuals cognitively regulate their emotion appear to be present across different cultures, but the relative preference to use one or more strategies may be quantitatively varied across cultures. For example, although the nine cognitive ER strategies are present in the Netherlands (Garnefski et al., 2001) and the four Arab countries in this study, an inspection of Table 7 indicates large mean-level differences across most strategies between these two cultures.

Indeed, culture may shape whether individuals are motivated to regulate their emotions and whether ER is adaptive (e.g., for a recent review, see Ford & Mauss, 2015). For example, Matsumoto et al. (2008) suggested that collectivistic cultures (which emphasize interdependence and in-group values as in Africa, Asia, and Latin America; see Triandis, 1989) tended to have higher scores on expressive suppression, whereas individualistic cultures (which emphasize independence and in-individual values as in the United States, Western Europe, and Canada; see Triandis, 1989) tended to have higher scores on cognitive reappraisal. Indeed, Americans and Germans were found to have higher levels of cognitive reappraisal and lower scores on expressive suppression than Japanese and Turkish participants, respectively (Arens, Balkir, & Barnow, 2012; Matsumoto, 2006). In addition, German women reported a primary use of cognitive reappraisal, while Turkish women reported to use cognitive reappraisal and expressive suppression to a similar extent (Arens et al., 2012). Culture may also shape the adaptivity of ER. For example, expressive suppression was found to associate with increasing negative affect and depression and decreasing positive affect and interpersonal functioning in the individualistic cultures such as the United States (Gross & John, 2003) and Germany (Arens et al., 2012), but not in the collectivistic cultures such as China (Soto, Perez, Kim, Lee, & Minnick, 2011) and Turkey (Arens et al., 2012). Furthermore, there were “mean” differences between American and Chinese participants in some CERQ strategies (Zhu et al., 2008). Although outside the scope of the current study, potential explanations for the quantitative cross-culture differences among Arabic-speaking samples found in the current study should be investigated in future studies.

The standardized loadings of the CERQ-Ar nine factors on their corresponding items were moderate to high except for Item 20 (*I think that I cannot change anything about it*), which had

relatively low standardized loadings on its corresponding factor across the four countries ($M = .48$). This item measures acceptance, which is defined as the “thoughts of accepting what you have experienced, and resigning yourself to what has happened” (Garnefski et al., 2001, p. 1314). In fact, acceptance and resignation have different implications in Middle Eastern countries. The religious belief of predetermination is massive in Middle East that it may convince people to accept their stressful events. However, making changes is believed to be parts of the predetermined events. Therefore, resignation is considered as a passive response. This could potentially explain why Item 20 had the lowest loadings in the present study. Nevertheless, it seems that the problem in this item does not relate to the specific culture or translation in the current study. Indeed, validation studies of the French (Jermann et al., 2006) and Spanish (Domínguez-Sánchez et al., 2013) versions of the CERQ have similarly reported very low standardized loadings for this item (.24 and .10; respectively), leading to suggestions that this item may not exactly measure the factor to which it corresponds.

Consistent with previous studies using a variety of versions of the CERQ (Domínguez-Sánchez et al., 2013; Garnefski et al., 2001; Jermann et al., 2006), the nine factors of the CERQ-Ar could be summarized—to some extent—into two higher-order factors: adaptive versus less adaptive strategies. However, the standardized loadings of the adaptive scales were higher than those of the less adaptive scales (see Figure 1), with Other-Blame evidencing the lowest loading on its respective factor across the four countries ($M = .43$). One potential explanation for this consistent finding may be the collectivistic culture of Middle Eastern countries, which may enhance the adaptive aspects of Other-Blame. Indeed, it is thought that individuals in the collectivistic cultures tend to attribute their behaviors to situational circumstances (e.g., blaming others), while those in individualistic cultures tend to use more internal attributions (for a review, see Oyserman, Coon, & Kemmelmeier, 2002).

The Associations Between the CERQ-Ar and Positive/Negative Affect

All of the five adaptive strategies—Acceptance, Positive Refocusing, Positive Reappraisal, Putting Into Perspective, and Refocus on Planning—associated positively with PA and negatively with NA. These associations were very strong and robust across the four Arabic countries (see Table 6). However, a less consistent pattern of results was obtained using the four less adaptive strategies. For example, Self-Blame and Rumination had moderate positive correlations with PA but they had weak to near-zero correlations with NA. No associations were found between the other less adaptive strategies (Catastrophizing and Other-Blame) and both PA and NA across the four Arabic countries. The positive correlations between some of the less adaptive strategies (Self-Blame and Rumination) are consistent with the results of the original Garnefski et al. (2001) study in which all of the four less adaptive strategies, similar to the five adaptive strategies, correlated positively with anxiety and depression. However, other studies have reported that the less adaptive strategies correlated positively, while the more adaptive strategies, especially Positive Reappraisal, correlated negatively, with depression (e.g., Garnefski et al., 2003; Garnefski et al., 2005). In addition, using the Spanish version of the CERQ, Domínguez-Sánchez et al. (2013) found that the CERQ strategies of Positive Refocusing and Positive Reappraisal were related to the activation of affects with positive valences whereas the CERQ strategies of Self-Blame, Catastrophizing, Other-Blame, and Rumination were associated with the activation of affects with negative valences. In addition, Brans, Koval, Verduyn, Lim, and Kuppens (2013) examined the association between the use of six ER strategies (reflection, reappraisal, rumination, distraction, expressive suppression, and social sharing) with changes in positive affect and negative affect in daily life. Brans et al. found that the ER strategies of reflection, reappraisal, distraction, and social sharing associated with increases in positive affect, while the ER strategies of suppression and rumination were associated with increases in negative affect. Taken together,

considering both previous findings in other cultures/countries as well as results of the current study, it appears that the CERQ-Ar could significantly improve the clinical assessment and subsequent intervention strategies aimed at disorders associated with affect, most notably anxiety and depression (Clark & Watson, 1991; Jolly, Dyck, Kramer, & Wherry, 1994; Mineka et al., 1998).

Cross-Cultural Variations for Gender Differences in the CERQ Strategies

Consistent with previous findings across a variety of countries including the Netherlands (Garnefski et al., 2004), the United States (Martin & Dahlen, 2005), France (Jermann et al., 2006), Spain (Domínguez-Sánchez et al., 2013), and Portugal (Duarte et al., 2015), significant gender differences emerged for Rumination on the CERQ-Ar with females evidencing significantly higher scores than males. This gender difference was robust (across the four Arab countries), large, and strong (with a mean effect size of .49). These findings, along with consistent findings across Western countries, suggest that rumination is an important feature for understanding emotion processing in women.

Importantly, however, gender differences in other CERQ strategies were subjected to cross-cultural variations. For example, males were found to score higher in Other-Blame than females in some Western countries such as the United States (Martin & Dahlen, 2005), France (Jermann et al., 2006), and Spain (Domínguez-Sánchez et al., 2013). In contrast, such gender differences were not found in the Arab countries, except in Kuwait (see Table 7). In addition, females tended to have higher levels of Positive Refocusing and Catastrophizing in the Netherlands (Garnefski et al., 2004), but these gender differences were not observed in the four Arab countries (see Table 7). It will be important for the etiology of these cross-cultural variations to be considered in future studies.

Limitations and Conclusion

This study is not without limitations. For example, although the study was conducted using a very large sample size across four Arab countries ($N = 1,470$), all participants were undergraduate university students who might not be representative of community-dwelling adults potentially with a broader distribution of ER difficulties. However, young adults experience more emotion variability and greater ER difficulty than middle-aged and older adults (Riediger & Klipker, 2014); thus, focusing on a younger sample may be especially fruitful for the purpose of the current study. Second, convergent validity was examined in the current study with regard to broad dimensions of affects as measured by the PANAS, which may be limited to high arousal states (Watson & Vaidya, 2013). While an important initial step, future studies are needed to examine the convergent validity of the CERQ-Ar using a variety of criterion measures. Third, future research should examine the discriminant validity of the CERQ-Ar within both clinical and non-clinical samples.

Despite these limitations, the current study provides initial validation of an Arabic version of one of the most widely used measures of ER, the CERQ. Results suggest that the CERQ-Ar can be well explained by the original nine-factor CERQ model (Garnefski et al., 2001) and in other translations across several different countries (Abdi et al., 2012; Cerutti et al., 2012; Domínguez-Sánchez et al., 2013; Duarte et al., 2015; Ehring et al., 2008; Jermann et al., 2006; Martin & Dahlen, 2005; Perțe & Miclea, 2011; Tuna & Bozo, 2012; Zhu et al., 2008), suggesting that the same cognitive ER strategies appear to be present across different cultures, but the relative preference to use one or more strategies may be quantitatively varied across cultures. In addition, the factors of the CERQ-Ar showed moderate to high internal reliabilities, modest to strong interrelations, and the expected pattern of associations with the positive and negative emotions. All told,

the CERQ-Ar appears to represent a valid measure of ER strategies and can be employed for subsequent ER studies in the Arabic-speaking Middle East. Such studies have the potential to significantly improve our understanding of the quantitative and qualitative similarities and differences in the use of cognitive ER strategies across different cultures.

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