

Cognition and Dysphoria in Egypt and Canada: An Examination of the Cognitive Triad

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Beck's (1979) cognitive triad postulates that depressed and dysphoric individuals hold negative, automatic thoughts about the self, the world and the future. Despite the central role of this hypothesis in the cognitive theory for depression, this prediction has rarely been studied outside of the Western world. This study examined the relationship between dysphoria and a number of inventories designed to assess negative cognitions, in 336 participants from Egypt ($n = 150$) and Canada ($n = 186$). Dysphoric individuals in both countries harbored significantly more negative thoughts toward self, world and future than nondysphoric individuals. Additionally, Egyptian participants showed significantly more negative thoughts toward self and world than their Canadian counterparts even after controlling for dysphoria. This investigation supports the cross-cultural validity of the cognitive theory for depression. Strengths and limitations of the current study, as well as areas for future research, are discussed.

Keywords: depression, cognition, culture, cognitive triad, negative thoughts

With an estimated 1-year prevalence of 5.18%, and a life-time prevalence of 8.75% world-wide, depression is one of the most common mental health concerns globally (Dobson & Dozois, 2008a). Such estimates attest to the universal nature of depression; the fact that it afflicts individuals in all geographical locations and of all cultures and political regimes cannot be overstated. Despite the universal importance of depression research, studies that involve individuals of Arab descent have been lacking. This fact is disquieting given evidence of a particularly high prevalence of depression in the Arab region. For instance, Okasha (1999) found the prevalence of depression in urban and rural Egyptian populations to be 11.4 and 19.7%, respectively. Similarly, using the Arabic version of the Diagnostic Interview Schedule, Karam and colleagues (1998) found that the lifetime rate of depression among Lebanese women after the Lebanese war was a staggering 32%. Further, Karam et al. (2006) found that the 1-year prevalence of depression in their Lebanese sample was 17% according to the Composite International Diagnostic Interview (CIDI). Another study (Daradkeh, Ghubash, & Abou-Saleh, 2002) found the lifetime prevalence of depression among United Arab Emirates women to be 10.3% (according to the CIDI). Although no specific estimates were provided, Al-Issa (1990) has also reported high rates of depression in Algeria.

Cognitive-behavioural models and treatments have risen as the predominant paradigm in conceptualising and treating depression

in the West. Indeed, a large body of literature demonstrates the accuracy and efficacy of this modality with depressed individuals in Western regions (Clark, Beck, & Alford, 1999; Gloaguen, Cottraux, Cucherat, & Blackburn, 1998). Given the ubiquity of depression in the Arab world and the efficacy of the cognitive-behavioural approach in Western countries, it is important to evaluate cognitive-behavioural theory with individuals in the Arab region. The present study investigated the validity of fundamental elements of the cognitive-behavioural theory for depression with individuals of Arabic heritage.

Cognitive Features of Depression in the West

Researchers have isolated nine core descriptive hypotheses for depression. The negativity hypothesis (Clark et al., 1999), which is the first of such nine hypotheses, claims that depressed individuals experience a predominance of self-referent negative cognitions. The negativity hypothesis is a foundational hypothesis for the remaining eight, and thus, can be considered a core element of the cognitive theory for depression. The term "Negative Cognitive Triad" (which is synonymous with the negativity hypothesis) was coined by Beck (1979) to describe the tripartite nature of the negative cognitions of depressed individuals related to the self, world, and future (Beck, 1967). The cognitive triad has been tested numerous times with robust findings in Western samples (for a review, see Haaga, Dyck, & Ernst, 1991). For example, Blatt and colleagues (1982) found that measures of self-criticism delineate between depressed and nondepressed patients. That is, depressed individuals exhibited significantly more negative, critical thoughts toward themselves than their nondepressed counterparts. This finding was true for both a clinical sample, and a nonclinical dysphoric (i.e., showing signs of depression but not meeting full diagnostic criteria) student sample (Blatt, Quinlan, Chevron, McDonald, & Zuroff, 1982). Similarly, Dobson and Shaw (1986) found that depressed participants endorsed significantly more negative self-descriptive adjectives than nondepressed participants. Recent find-

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ings have confirmed this pattern, wherein depressed individuals evidence a greater frequency and intensity of negative thoughts toward themselves (Lamberton & Oei, 2008; Oei, Dingle, & McCarthy, 2010).

The cognitive theory for depression postulates three features that distinguish depressed from nondepressed individuals (Dozois & Beck, 2008). Depressed individuals possess maladaptive self-referent core beliefs or schemas. These core beliefs, such as "I am unlovable" or "I am inept" are latent and become activated through schema-pertinent environmental stressors (e.g., dissolution of a romantic relationship; Ingram, Miranda, & Segal, 1998). Depressed individuals also harbor dysfunctional attitudes, which usually exist in the form of "if-then" propositions (Dozois & Beck, 2008). When these idiosyncratic propositions are perceived to be violated, negative automatic thoughts about the self, world, and future are activated. Thus, the cognitive triad is a vital feature in the cognitive theory for depression. Indeed, Clark et al. (1999) have commented that these negative thoughts are "as much a part of the core depressive experience as the dysphoria and anhedonia which are often viewed as the hallmark features of the disorder" (p. 116). Anhedonia is defined here as loss of pleasure in activities or with things that are otherwise enjoyable.

From the perspective of cognitive theorists, the presence of core maladaptive schemas and dysfunctional attitudes can be gathered from the presence and severity of automatic negative thoughts. Following this line of logic, if depressed individuals do not exhibit the cognitive triad, it becomes difficult, if not impossible, to assume the presence of more remote cognitive entities, such as dysfunctional attitudes or negative core beliefs. As a result, the validity of the entire cognitive theory for depression rests upon the empirical soundness of the negativity hypothesis.

As mentioned above, a number of investigations have supported the negativity hypothesis among depressed individuals of North American, Caucasian descent. Individuals in depressed or dysphoric states have also been shown to harbor more negative appraisals of their future than nondepressed participants. For example, Clark, Cook, and Snow (1998) administered the Hopelessness Scale to measure negative future expectations to a group of clinically depressed patients, and found that elevated levels of hopelessness reliably differentiated them from nondepressed medical patients and normal controls. Multiple researchers (e.g., Dohr, Rush, & Bernstein, 1989; Hamilton & Abramson, 1983; Hedlund & Rude, 1995) have also shown that negative thoughts about the self, world, and future diminish when depression remits. This finding provides further support to the theory, and lends credence to the diathesis-stress model which postulates that dormant maladaptive schemas become activated as a result of external stressors.

Depression in the Islamic World

A number of investigators have commented on the unique phenomenological features of depression in Arabic and Islamic countries. Some research indicates that individuals in these regions express their depression in the form of somatic symptoms (Al-Issa, 1990; Okasha, Kamel, Sadek, Lotaief, & Bishry, 1977; Sami & El-Gawad, 1995). For instance, individuals who suffer from depression in such areas report shortness of breath, agitation, and other physiological indicators (Okasha, 1999). This trend may be

due to the perceived legitimacy of physical complaints, and the need to avoid the stigma associated with psychological distress in these cultures (El-Islam & Abu-Dagga, 1992).

Although negative cognitions such as rumination and self-criticism are seen as common features of depression in the West, it has been suggested that depressed individuals in Arab regions experience relatively little guilt and self-deprecation (Sami & El-Gawad, 1995). For example, in their report about psychiatry in Iraq, Bazzoui and Al-Issa (1966) remarked that "although the depth of depression can reach the same severe degrees as seen in England, the great majority of patients [in Iraq] remain free from self-reproach and feelings of unworthiness" (p. 829). This reduced guilt may be explained by the Islamic tendency to attribute both sickness and health to Allah (God). Thus, the personal guilt that might otherwise occur is projected to supernatural forces and remains depersonalized. Bazzoui (1970) found that in a sample of 58 depressed Iraqi participants, only eight (13.8%) experienced ideas of worthlessness and feelings of guilt, and 9.2% of the sample experienced self-reproach.

Sami and El-Gawad (1995) randomly selected 100 depressed patients from an outpatient psychiatric clinic in Cairo, Egypt. The symptoms of these patients, rated on the Hamilton Rating Scale for Depression (Hamilton, 1960), were compared to scores of depressed patients of other ethnic backgrounds. In comparison to the depressed British and Indian samples, depressed Egyptians exhibited relatively more somatic symptoms and relatively fewer guilty feelings (Sami & El-Gawad, 1995). This result was attributed to the external projection of guilt that characterizes Muslim patients. The authors suggested that the Christian concept of original sin may be responsible for the exacerbation of self-reproach which typifies depression in the West.

A study found that depressed Pakistani individuals, in comparison to depressed Austrians, reported significantly less guilt as a concomitant to their depression (Stompe et al., 2001). The authors suggested that such differences reflected the religions that permeated both cultures (i.e., Islam in Pakistan and Christianity in Austria). In a more recent study (Stompe et al., 2006), the relatively low guilt and self-reproach that characterised Arab and Islamic countries as opposed to Western nations were explained through the philosophical differences espoused by the dominant religions in both regions. For instance, some Christian faiths teach that evil and temptation are inherent in human nature, and the Christian believer is encouraged to transcend the body, and instead to live according to the wishes of the spirit. Second, some Christian churches advocate that "human beings are responsible for their evil acts against themselves, against other people, and against God" (Stompe et al., 2006, p. 51). In contrast, Islam maintains that both good and evil come from God, and that events are destined. For instance, a common saying in the Muslim world is "inshallah," which is roughly translated as "if God wills." Islam espouses relatively limited human responsibility, and thus, reduces the need for self-reproach for undesirable outcomes. Moreover, the doctrine of original sin is absent in Islamic teachings, which instead proposes that humans have the inherent ability to be good. As such, negative views of the self may be a less common epiphenomenon of depression in Arab and Muslim societies.

Other data suggest that self-reproach and guilt may be a feature of depression among individuals of Arab origin. For instance, Hamdi, Amin, and Abou-Saleh (1997) identified guilt as one of the

symptoms experienced by a group of depressed individuals from Dubai. Similarly, El-Islam (1969) found that 62% of his Egyptian depressed sample displayed feelings of guilt. El-Islam (1969) also argued that self-reproach is associated with "sin" in Islamic cultures and thus, implies moral culpability. This association with religious ideals may explain why this feature of depression often becomes substituted by somatic symptoms in the Arab world (Hamdi et al., 1997). Moreover, Hamdi et al. (1997) have suggested that this symptom substitution may be due to the lack of available linguistic idioms to express feelings of guilt and self-reproach in this region.

Similarly, some research suggests that individuals of Arabic descent express psychological symptoms of depression more readily when the mode of assessment takes the form of paper-and-pencil self-reports (Matthey, Barnett, & Elliott, 1997). In contrast, disclosure is generally diminished during face-to-face interviews with researchers and/or clinicians, unless rapport is firmly established. Thus, individuals in the Arabic region may not be less inclined to experience negative thoughts as a concomitant of depression, rather, they are less inclined to disclose such thoughts given their cultural and religious implications.

Some authors (e.g., Hodge, 2005) have argued that Islamic ideals urge their adherents to stay optimistic and cheerful in regards to the future. Likewise, Al-Issa (1990) has commented that suicidal ideation and gestures, which tend to be highly correlated with one's view of the future in the West (Hirsch & Conner, 2006), are relatively low in Muslim nations. In support of such assertions, Al-Issa (1990) found that suicide occurs at a relatively low rate in Arab nations during the holy month of Ramadan. Similarly, Bazzou (1970) found that only 13.7% of depressed Iraqi participants in his sample displayed suicidal ideas.

In contrast to such findings, Abdel-Khalek and Lester (1998) compared Kuwaiti and American students and found that hopelessness was significantly more prevalent among Kuwaitis than Americans. Moreover, Sami and El-Gawad (1995) found that a depressed Egyptian sample exhibited significantly more suicidal ideation than depressed Indian and British participants. The authors suggested that while suicidal ideation, pessimism, and hopelessness may be high in depressed Arab populations, factors which reduce the risk of suicide such as family cohesion, social connection, and religious condemnations of suicide are also high. Furthermore, these factors may be more salient in Islamic nations than their Western/Judeo-Christian counterparts (Bhugra & Mastrogiovanni, 2004). Thus, in Islamic nations, there appears to be a weaker association between negative thoughts toward the future and suicidal gestures. That is, although depressed Arabs may hold more negative views of the future, moderating factors may keep this negativity from transforming into suicidal attempts.

This study investigated the validity of the cognitive triad among dysphoric Egyptian students. A sample of White Canadian students acted as a control group to the Arabic sample, and scores from both samples were compared. First, and as postulated by the cognitive theory of depression (Clark et al., 1999), it was hypothesised that dysphoric students, regardless of their country of origin, would exhibit more negative cognitions toward the self, world, and future than nondysphoric students. Second, and in accordance with the results obtained by Bazzou (1970), Sami and El-Gawad (1995), and Stompe et al. (2001), it was hypothesised that dysphoric Egyptian students would exhibit lower levels of negative

cognitions toward the self and world than dysphoric Canadian students. Finally, and in light of the findings obtained by Abdel-Khalek and Lester (1998) and Sami and El-Gawad (1995), it was predicted that the Egyptian sample would exhibit higher levels of negative thoughts about the future than their Canadian counterparts.

This study is the first to directly examine Beck's (1979) cognitive triad hypothesis among individuals of Arabic descent. Unlike other studies from this region, the sample size employed in this investigation is large and thus, power is sufficient to detect differences between groups. Furthermore, unlike many cross-cultural investigations, this study directly compares the target cultural sample to a control sample wherein the hypotheses in question have been examined.

Method

Participants

A total of 442 participants, aged 18 to 54, were recruited for this investigation. Two hundred and 32 of these participants were recruited from various undergraduate programs at the University of Calgary, Canada, while the remaining 210 participants were recruited from the Department of Psychiatry at Kasr Al-Ainy, Cairo, Egypt. The Canadian participants were recruited through the University of Calgary Research Participant System, which provided partial course credit for participation. Since no equivalent system exists in Egypt, Egyptian participants were instead recruited directly from classes; the third author approached students in class, explained to them the nature of the study, and assured them that their participation was voluntary.

The Canadian students were required to be at least third generation European, at least second generation Canadian, and had to speak English as their primary language. To qualify for the Egyptian sample, participants were required to be at least third generation Egyptian, and to speak Arabic as their primary language. Of the 442 participants, 55 indicated that they were born in a country other than the two target countries (Canada or Egypt), and thus, were excluded from further analyses. A further 49 participants were excluded for reporting: (a) a parental birthplace outside of the countries of interest; (b) birthplace for grandparents outside of the specified inclusion criteria (for the Canadian sample, outside of North America or Europe, for the Egyptian sample, outside of Egypt); or (c) a primary language other than English or Arabic. Finally, two individuals missed or failed to complete one or more scales, and so their data were removed from further consideration. Using these inclusion criteria, data from 336 participants qualified for the study.

Measures

Demographic information. After providing consent, all participants completed a demographic information form wherein they indicated their age, country of birth, birth place of parents and grandparents, religious affiliation, academic year and major of study, and predominate language.

Dysphoria—The Centre for Epidemiologic Studies Depression Scale. The Centre for Epidemiologic Studies Depression scale (CES-D; Radloff, 1977) is a 20-item instrument that was

designed to assess current (past week) levels of depressive symptomatology in the general population. Using a "0" to "3" Likert-type scale, participants specified how much they endorsed statements such as "I felt everything I did was an effort" and "I felt depressed". Scores on the CES-D range from 0 to 60, and higher scores indicate greater distress. The scale score reliability (Cronbach's alpha = .85; test-retest = .32–.67) and concurrent validity of the CES-D among community samples have been well established (Ross & Mirowsky, 1984). A number of studies have also demonstrated the psychometric soundness of this instrument among university populations. For example, Devins et al. (1988) found that the CES-D achieved scale score reliabilities close to those originally derived by Radloff (1977), in a sample of undergraduate students.

A four-factor solution for the CES-D was obtained by Radloff (1977) in her original study. This solution was replicated in a number of more recent studies (see Shafer, 2006 for a review). Results of such studies indicate that items which express a negative or depressive affect (using key words such as "Depressed", "Sad", "Crying", "Failure", etc.) cluster together in the first of four factors, while items which express retarded activity and somatic symptoms (using key words such as "Bothered", "Appetite", "Sleep", "Effort", etc.) are primarily associated with the second factor. Moreover, Radloff (1977) has suggested that items which express positive affect (using key words such as "Happy", "Hopeful", "Good", and "Enjoyed") comprise a third factor, and the two items which express interpersonal failure (using the key words "Dislike" and "Unfriendly") primarily define the last of the four factors.

Ghubash and her colleagues (2000) investigated the psychometric properties of an Arabic version of the CES-D among female university students in the United Arab Emirates. They found that the Cronbach's alpha coefficient of the instrument was .88, while test-retest reliability over a 2-week period ranged from .14 to .91 (with an average of .59; Ghubash, Daradkeh, Al Naseri, Al Bloushi, & Al Daheri, 2000). The researchers also found that the CES-D accurately discriminated between depressed and nondepressed Arab students as categorised by a diagnostic inventory, which thus partially assures its concurrent validity. In particular, they reported that a CES-D score of 21 provides adequate sensitivity (82%) and specificity (83%) for depression diagnosis. As such, this score appears to be optimal to evaluate the hypothesised differences between dysphoric and nondysphoric automatic negative cognitions. For the purposes of this study, the a priori criterion for dysphoric group status was a score of 21 and over on the CES-D, while a score of 16 or less was designated as nondysphoric.

Negative cognitions toward self, world, and future. The Cognitive Triad Inventory (CTI; Beckham, Leber, Watkins, Boyer, & Cook, 1986) is a 36-item scale that assesses the intensity of negative cognitions toward the self, world, and future. Six of the items are nonscored filler items, and thus, each of the three subscales is comprised of 10 items. The instrument uses a Likert-style scale (1 = *totally disagree* to 7 = *totally agree*) to measure the respondent's level of endorsement of statements such as "I can do a lot of things well", "The world is a very hostile place", and "There is nothing to look forward to in the years ahead". The full scale has a range of 30 to 210, and each subscale has a range of 10–70, with higher scores more indicative of a greater frequency of negative thoughts.

Beckham et al. (1986) found scale score reliabilities for the CTI of $\alpha = .91$, $.81$, and $.93$ for the self, world, and future subscales, respectively, and an overall Cronbach's alpha of .95 in a sample of clinically depressed participants. They also found that the scale was highly correlated ($r = .77$) with the Beck Depression Inventory (Beck, Steer, & Brown, 1996). The view of the future subscale was strongly correlated with the Hopelessness Scale ($r = .90$; Beck, Weissman, Lester, & Traxler, 1974), while the view of self subscale was strongly associated with scores on the Rosenberg Self-Esteem scale ($r = .90$; Rosenberg, 1965). The CTI has recently been adapted for use in a German sample (Pösse, 2009). The German CTI evidenced good psychometric properties. To the authors' knowledge, this measure has never been used with a Middle Eastern sample.

The Automatic Thoughts Questionnaire (ATQ; Hollon & Kendall, 1980) consists of 30 negatively oriented items. This test employs a 5-point Likert scale (1 = *not at all* to 5 = *all the time*), and instructs respondents to indicate how frequently they thought of the presented statements over the last day. The scale possesses a range of 30–150, with higher scores indicating higher frequencies of negative thoughts. The ATQ possesses excellent scale score reliability ($\alpha = .96$) and successfully discriminates between depressed and nondepressed individuals (Hollon & Kendall, 1980). Finally, the ATQ significantly correlates with scores on the Beck Depression Inventory (Beck, Brown, Steer, Eidelson, & Riskind, 1987). Recently, this instrument showed good psychometric properties in a Turkish student sample (Gul, Yilmaz, & Berksun, 2009).

The Cognitions Checklist (CCL; Beck et al., 1987) is a 26-item self-report scale designed to investigate the differences in the automatic thoughts characteristic of anxiety and depression. Thus, the instrument consists of 2 subscales: CCL-Anxiety subscale (CCL-A, 12 items) and CCL-Depression subscale (CCL-D, 14 items). Only the 14-item CCL-D was administered in the current study. Respondents were asked to indicate how often thoughts such as "I'm a social failure" and "I will never overcome my problems" occur on a 5-point frequency scale (0 = *never* and 4 = *always*). Scores can range from 0 to 56, with higher scores indicative of more frequent negative cognitions.

Researchers (Steer, Beck, Clark, & Beck, 1994) have found excellent scale score reliability ($\alpha = .90$) for the CCL-D in a student sample. Furthermore, student scores on the CCL-D were correlated with scores on the Beck Depression Inventory ($r = .58$; Beck, Steer, & Garbin, 1988). Moreover, depressed individuals' scores on the CCL-D were correlated with the Revised Hamilton Rating Scale for Depression ($r = .58$; Riskind, Beck, Brown, & Steer, 1987).

Translation

The World Health Organisation (WHO) has developed *Guidelines for the Process of Translation and Adaptation of Instruments* (WHO, 2007), which are widely recognised as appropriate means to translate measures for cross-cultural research. All of the measures used in this investigation were translated into Arabic in reference to the WHO guidelines. In the first phase, a certified translator translated the original English scales to Arabic. In the next phase, a second independent translator translated the Arabic measures back to English. The third author was involved in both phases of translation. The principal investigators then reviewed the

back-translation and compared it to the original scales. Concerns or potential revisions were discussed and documented. This process continued until agreement was reached, culminating in a final Arabic translation of the scales. Some of the concerns that emerged when the back-translation was compared to the original were mostly surrounding equivalent translation of cultural-specific idioms. For example, translation of item 4 on the CES-D ("felt that I could not shake off the blues . . .") proved difficult, given the reference to the strictly North American phenomenon of "the blues." To deal with this, the authors brainstormed a number of words similar in meaning to "blues", and when agreement was reached upon one such words, it was translated and back-translated to assure equivalence.

Data Analyses

After the data were cleaned, means and standard deviations for measures of the cognitive triad (CTI, ATQ, CCL-D) and dysphoria (CES-D) were calculated. Further, the scale score reliability of all scales was assessed. First, scores on the measures of the cognitive triad (CTI; ATQ; CCL-D) were compared between dysphoric and nondysphoric students in both countries through analysis of variance (ANOVA). Second, bivariate correlations between dysphoria scores, as assessed by the CES-D, and all measures of the cognitive triad were conducted for both samples. Third, and to evaluate cultural differences in negative cognitions while controlling for dysphoria, an analysis of covariance (ANCOVA) was conducted. Finally, and as a chief test of the three hypotheses forwarded by this investigation, a 2 (Country) by 2 (Dysphoria status) ANOVA was performed. An alpha level of .05 was determined to be optimal for this investigation.

Results

After data entry, 20% of the data was randomly selected and checked for accuracy. As accuracy was virtually 100%, data omissions were examined. As aforementioned, the data from two participants were removed from the analysis since these participants missed or failed to complete one or more scales. The remaining missing data points (i.e., failure to respond to an item on a particular scale), which was less than 3% of the entire data set, was estimated using item means within each scale, and within each national subsample, accordingly. This is considered an acceptable method of imputation of missing data (Donders, van der Heijden, Stijnen, & Moons, 2006).

The assumption of homogeneity of variance between countries was examined for all variables using Levene's test. All such

comparisons were significant ($p < .01$), which was expected given the disparity in the populations from which the samples were drawn. According to Tabachnick and Fidell (2007), however, if sample sizes are large ($N > 50$), ANOVA is robust to violations of the assumption for homogeneity of variance.

Demographic Variables

Means and standard deviations for various demographic variables are provided in Table 1. There were significantly more females (193/57.5%) than males (143/42.5%) in the total sample, $\chi^2(1, N = 336) = 6.82, p < .01$. There were significantly more females (112/60.2%) than males (74/39.8%) in the Canadian sample, $\chi^2(1, N = 186) = 7.76, p < .01$. The number of males (69/46.0%) and females (81/54.0%) did not significantly differ in the Egyptian subset, $\chi^2(1, N = 150) = .66, ns$. The combined mean age for both the Canadian and Egyptian samples was 21.57 ($SD = 2.96$). A one-way ANOVA revealed that Egyptian students were significantly older, $F(1, 334) = 20.69, p < .001$, partial $\eta^2 = .06$, and more educated, $F(1, 334) = 1019.68, p < .001$, partial $\eta^2 = .76$, than Canadian students.

Dysphoria and Negative Thoughts

Table 2 shows the mean scores, standard deviations, and Cronbach's alpha coefficients of the CES-D and the various other negative cognitions questionnaires. A one-way ANOVA was used to compare the Egyptian and Canadian samples on CES-D scores. The Egyptian sample reported significantly higher levels of dysphoria than the Canadian sample, $F(1, 334) = 70.48, p < .001$ (partial $\eta^2 = .18$). Although the average levels of dysphoria were significantly higher in the Egyptian sample, this analysis does not clarify if the pattern of relationships between depression and negative thoughts were divergent among the respondents in the two countries. As such, correlations were computed between depression scores and the other measures of negative thoughts, in the total sample, and within each country separately. As shown in Table 3, all outcome measures of negative cognitions were significantly and positively correlated with total depression scores within each of the two cultural samples. Results from a Fisher Z-transformation revealed that the magnitude of correlation between the CES-D and ATQ and the CES-D and CCL-D was greater in the Canadian sample than in the Egyptian sample, $p < .05$ and $p < .01$, respectively.

Table 1
Means for Demographic Variables for Both Cultural Samples

Gender	Egypt ($n = 150$)		Canada ($n = 186$)	
	Age	Education	Age	Education
Male ($n = 143$)	22.41 ($SD = .92$)	6.00 ($SD = 0.0$)	20.77 ($SD = 4.15$)	2.38 ($SD = 1.32$)
Female ($n = 193$)	22.31 ($SD = .82$)	6.00 ($SD = 0.0$)	21.02 ($SD = 3.55$)	2.70 ($SD = 1.28$)
Total ($N = 336$)	22.36 ($SD = .87$)	6.00 ($SD = 0.0$)	20.92 ($SD = 3.80$)	2.57 ($SD = 1.30$)

Note. Age is in years. Education represents the number of years participants have spent in university.

Table 2
Mean Scores, Standard Deviations, and Cronbach Alphas for Dysphoria and Negative Cognitions Measures

Measure	Canadian						Egyptian								
	Overall (n = 186)			Males (n = 74)			Females (n = 112)			Overall (n = 150)			Males (n = 69)		
	M	SD	α (95% CI)	M	SD	α (95% CI)	M	SD	α (95% CI)	M	SD	α (95% CI)	M	SD	α (95% CI)
CES-D	12.56	10.64	.90 (.88-.92)	12.35	8.51	.89 (.84-.92)	12.70	9.20	.91 (.88-.93)	21.54	10.54	.88 (.85-.91)	17.87	8.59	.84 (.77-.89)
CTI-S	22.15	7.80	.81 (.77-.85)	22.89	8.21	.82 (.75-.88)	21.67	7.51	.81 (.75-.86)	28.99	9.44	.83 (.79-.87)	26.73	9.09	.83 (.76-.88)
CTI-W	25.94	8.31	.82 (.78-.86)	28.49	9.75	.86 (.81-.91)	24.25	6.74	.75 (.68-.82)	32.65	8.48	.73 (.67-.79)	30.94	6.96	.65 (.52-.76)
CTI-F	19.32	6.91	.85 (.82-.88)	19.86	7.66	.87 (.83-.91)	18.96	6.37	.84 (.79-.88)	23.71	8.79	.83 (.79-.87)	22.41	9.02	.86 (.81-.91)
ATQ	44.31	16.89	.96 (.95-.97)	45.46	17.46	.96 (.94-.97)	44.24	16.57	.96 (.95-.97)	66.73	19.66	.94 (.93-.96)	60.25	17.57	.94 (.92-.96)
CCL-D	4.76	6.15	.88 (.85-.90)	5.43	7.05	.91 (.87-.93)	4.31	5.50	.86 (.81-.89)	8.52	7.93	.88 (.84-.90)	6.38	5.67	.79 (.70-.85)

Note. M = Mean; SD = Standard Deviation; α = Cronbach's Alpha Coefficient; CI = Confidence Interval; CES-D = Center for Epidemiologic Study Depression Scale; CTI—S = Cognitive Triad Inventory—Self Subscale; CTI—W = Cognitive Triad Inventory—World Subscale; CTI—F = Cognitive Triad Inventory—Future Subscale; ATQ = Automatic Thoughts Questionnaire; CCL-D = Cognitive Checklist—Depression Subscale.

Table 3
Correlations Between Dysphoria (CES-D Total) and Outcome Measures of Negative Cognitions

Measure	CES-D	CTI-Self	CTI-World	CTI-Future	ATQ	CCL-D
CES-D	—	.62	.65	.55	.67	.50
CTI-Self	.67	—	.49	.62	.77	.65
CTI-World	.57	.68	—	.56	.56	.47
CTI-Future	.66	.77	.60	—	.57	.47
ATQ	.79	.75	.56	.66	—	.80
CCL-D	.78	.76	.62	.72	.83	—

Note. All correlations are significant at $p < .01$. Coefficients for the Canadian subsample are presented below the diagonal while coefficients for the Egyptian subsample are presented above the diagonal. CES-D = Center for Epidemiologic Study Depression Scale; CTI—S = Cognitive Triad Inventory—Self Subscale; CTI—W = Cognitive Triad Inventory—World Subscale; CTI—F = Cognitive Triad Inventory—Future Subscale; ATQ = Automatic Thoughts Questionnaire; CCL-D = Cognitive Checklist—Depression Subscale.

Culture and Negative Cognitions

Given the strong association between mood and negative thoughts, and given the disparity in depression scores between samples, an ANCOVA was conducted to compare the Egyptian and Canadian students on (a) CTI scores (negative views of self, world, and future subscales), (b) ATQ scores, and (c) CCL-D scores, while controlling for scores on the CES-D. Even with depression scores controlled, Egyptian students scored significantly higher than Canadian students on the CTI subscales of negative thoughts toward the self, $F(1, 334) = 4.64, p < .05$ (partial $\eta^2 = .01$), and negative thoughts toward the world, $F(1, 334) = 4.42, p < .05$ (partial $\eta^2 = .01$). Egyptian students also scored significantly higher than Canadian students on the ATQ, $F(1, 334) = 9.46, p < .01$ (partial $\eta^2 = .03$). There were no statistically significant differences between samples on the CTI subscale of negative thoughts toward the future, $F(1, 334) = .001, p > .05$, and the CCL-D, $F(1, 334) = .37, p > .05$, when depression scores were controlled.

As planned, CES-D scores were split, to create a group of dysphoric participants with scores of 21 and above, and a group of nondysphoric participants with scores of 16 and less. Based on these cut-offs, 36 (19.4%) participants in the Canadian sample and 74 (49.3%) participants in the Egyptian sample were classified as dysphoric, $\chi^2 (1, N = 110) = 13.13, p < .001$. A 2 (Dysphoria status: Dysphoric vs. nondysphoric) by 2 (Nationality: Canadian vs. Egyptian) ANOVA was conducted, using the same set of measures as in the above analyses. The main effect for dysphoria status was statistically significant with all outcome measures; dysphoric students scored significantly higher than nondysphoric students on the CTI subscale of negative views of self, $F(1, 305) = 155.61, p < .001$ (partial $\eta^2 = .34$), world, $F(1, 305) = 132.69, p < .001$ (partial $\eta^2 = .30$), and of the future, $F(1, 305) = 98.89, p < .001$ (partial $\eta^2 = .24$). Dysphoric students also scored higher than nondysphoric students on the ATQ, $F(1, 305) = 176.20, p < .001$ (partial $\eta^2 = .37$), and CCL-D, $F(1, 305) = 146.72, p < .001$ (partial $\eta^2 = .32$).

There was a statistically significant main effect for nationality on three of the outcome measures. Egyptian participants scored higher than Canadian participants on CTI subscales of negative

view of self, $F(1, 305) = 10.72, p < .01$ (partial $\eta^2 = .04$), and negative view of the world, $F(1, 305) = 10.92, p < .01$ (partial $\eta^2 = .03$). Egyptians also scored significantly higher than Canadians on the ATQ, $F(1, 305) = 18.13, p < .001$ (partial $\eta^2 = .06$). There were no statistically significant differences between Egyptian and Canadian students on CTI subscale scores of negative views of the future, $F(1, 305) = 1.59, ns$, and scores on the CCL-D, $F(1, 305) = .001, ns$ (see Table 4).

One statistically significant interaction between nationality and dysphoria status emerged on the CCL-D, $F(1, 305) = 9.55, p < .01$ (partial $\eta^2 = .03$). This analysis revealed that nondysphoric Egyptian students scored significantly higher than nondysphoric Canadians on the CCL-D, while there were no statistically significant differences between dysphoric Egyptians and Canadians on this scale. There were no statistically significant interaction effects between nationality and dysphoria status on CTI view of self, $F(1, 305) = .165, ns$, view of world, $F(1, 305) = 1.11, ns$, and view of future subscales, $F(1, 305) = .85, ns$. In similar fashion, there was no significant interaction between nationality and dysphoria status on ATQ scores, $F(1, 305) = 2.41, ns$.

Gender, Culture, and Dysphoria

A one-way ANOVA revealed that Egyptian females scored significantly higher than Egyptian males on the CES-D, $F(1, 149) = 17.34, p < .01$ (partial $\eta^2 = .10$). Canadian females and males did not significantly differ on CES-D scores, $F(1, 185) = .07, ns$. Given this gender disparity on CES-D scores in the Egyptian sample, and given that scores on the CES-D are significantly correlated with all measures of negative cognitions, an ANCOVA was conducted which compared the scores of Egyptian males and females on measures of negative cognition, while accounting for dysphoria (Tabachnick & Fidell, 2007). With depression scores controlled, no statistically significant differences be-

tween the genders emerged in the Egyptian subsample on any of the measures of negative cognitions.

Discussion

This study represents a cross-cultural investigation of the validity of Beck's cognitive theory for depression. One of the main results of this investigation was that dysphoric students harbored significantly more negative thoughts about themselves, the world and the future, regardless of their nationality, in comparison to students who did not show signs of depression, which was supportive of the model. Second, although contrary to what was predicted, it was observed that students of Egyptian origin possessed significantly more negative thoughts about the self and the world than their Canadian counterparts, regardless of dysphoria status. This result held even after controlling for depression across samples. There was no support for the third hypothesis of this investigation, which predicted that Egyptian students would harbor significantly more negative thoughts of the future.

Although no specific predictions were made to address this matter, gender differences were examined in the Egyptian subsample. This set of analyses showed that Egyptian females obtained significantly higher scores than their male counterparts on the dysphoria scale. However, when dysphoria was controlled, no statistically significant differences emerged between the genders on any of the negative cognitions questionnaires. This indicates that negative cognitions are better accounted for by dysphoria than gender in this sample of Egyptian students. The elevated dysphoria among Egyptian females bolsters the already robust evidence which identifies gender as a risk factor for depression in different regions of the world (for a review, see Chentsova-Dutton & Tsai, 2008).

Egyptian participants reported significantly higher levels of depression than their Canadian counterparts. Levels of depression were significantly and positively associated with negative cognitions in both cultures. This pattern of results provides credence to the cross-cultural reliability of the cognitive triad hypothesis proposed by Beck (1979). It appears that this hypothesis not only applies to depressed Western students, but also to students of Egyptian origin who may suffer from dysphoria.

The high levels of dysphoria observed in the Egyptian sample were consistent with what some researchers have found with other Arabic populations (e.g., Karam et al., 1998). This result begs the question of what mechanisms explain this divergence between Arabic and non-Arabic cultures. Most researchers have found that self-reproach and guilt are atypical features of depression in Islamic and Arabic regions. This pattern of results has led some to conclude that the self-reproach that often accompanies affective disorders in the West is rare in non-Judeo-Christian patients (Stompe et al., 2001; Sami & El-Gawad, 1995).

The results of the current study are consistent with those found by Hamdi et al. (1997) and El-Islam (1969). El-Islam also found that individuals who displayed depressive guilt were more likely to be literate, and noted that "the association between guilt and literacy may be related to the relative complexity of the life of more educated people which is a basis for the complex imaginative experience of guilt" (p. 58). If this theory holds, then the relatively elevated levels of negative thoughts toward the self displayed by dysphoric Egyptians in this study can, perhaps, be understood as a

Table 4
Mean Scores and Standard Deviations on Measures of Nondysphoric Dysphoria and Negative Cognitions for Egyptian Dysphoric and Nondysphoric, and Canadian Dysphoric and Nondysphoric Students

Measure	Canadian		Egyptian	
	Dysphoric (n = 36)	Nondysphoric (n = 141)	Dysphoric (n = 74)	Nondysphoric (n = 59)
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)
CES-D	27.40 (6.50)	8.38 (4.19)	30.27 (6.90)	11.10 (4.02)
CTI-Self	31.61 (8.37)	19.40 (4.96)	33.44 (9.57)	23.44 (5.84)
CTI-World	34.89 (10.13)	23.48 (5.78)	36.67 (8.52)	27.37 (6.01)
CTI-Future	26.61 (9.03)	17.26 (4.71)	26.77 (9.00)	19.20 (5.90)
ATQ	66.86 (24.18)	38.79 (8.09)	72.12 (19.70)	49.83 (12.41)
CCL-D	13.31 (7.82)	2.47 (3.12)	11.12 (8.17)	4.69 (4.31)

Note. *M* = Mean; *SD* = Standard Deviation; CES-D = Center for Epidemiologic Study Depression Scale; CTI—S = Cognitive Triad Inventory—Self Subscale; CTI—W = Cognitive Triad Inventory—World Subscale; CTI—F = Cognitive Triad Inventory—Future Subscale; ATQ = Automatic Thoughts Questionnaire; CCL-D = Cognitive Checklist—Depression Subscale.

function of their educational status. El-Islam (1969) argued that more educated individuals personalize the depressive guilt which is typically projected by less educated sufferers away from the self and toward supernatural figures.

As Hamdi et al. (1997) have argued, it is possible that the translated Western questionnaires administered to participants in the current study provided a lexicon of psychological idioms. The elevated endorsement of such idioms by distressed Egyptian students may, thus, be a function of their availability. The disparity of findings regarding the experience of self-reproach among individuals with depression in the Islamic world may be due to methodological differences (e.g., assessment measures, interviews, etc.) between studies (see also Sulaiman, Bhugra, & de Silva, 2001). In other words, the presence or absence of self-reproach as a correlate of depression among Islamic or Arabic samples may be primarily related to the type of, and manner in which, questions are posed to respondents.

Sulaiman et al. (2001) have also contended that the presence or absence of guilt among Muslim individuals who suffer from depression may be associated with the tenets of specific denominational sects (e.g., Sunni or Shi'ite). For instance, self-reproach is likely to attenuate if the individual believes that his or her affliction is a test of one's spiritual steadfastness. On the other hand, feelings of inadequacy and self-reproach may increase if the afflicted individual believes that his or her ailment is a punishment for one's moral failing. As the participants in this study were only asked to identify their broad religious affiliation, this latter hypothesis was not explored.

Although the above discussion has focused on the differences between Western and Arabic groups, other authors (e.g., Bhugra & Mastrogiovanni, 2004) have commented that the boundaries that separate geographical regions are increasingly permeable. In other words, globalization and urbanization are responsible for changes in the topography of mental disorders around the world. Clinical features of depression that were once associated with a particular geographical region and peoples, such as negative thoughts toward the self, are now being observed in different areas of the world. As such, the clinical presentation of depression in the Arab region may have changed to align more with what has been traditionally observed in the West. In addition, the similar pattern of relationships between dysphoria and elevated negative cognitions found in the current study suggests cross-cultural similarity of the construct of depression. Increased levels of dysphoria were associated with a systematic increase in automatic negative thoughts, and therefore concurrent validity of the construct in question was partially established.

Finally, as disclosure is enhanced with the use of paper-and-pencil self-reports as opposed to face-to-face interviews with researchers (Matthey et al., 1997), it is likely that Egyptian students in this investigation willingly endorsed the experience of self-reproach on the self-report questionnaires provided.

Study Limitations

Several limitations are worth noting. First, this study exclusively employed a student population. The Egyptian sample in particular was relatively homogenous; such students were recruited from the same academic program in Medicine, were in the same academic year (i.e., sixth year) and were strikingly similar in age. As such,

generalisations from this sample to the Egyptian population in general, let alone all Arab and Islamic nations, are at best questionable and at worst unjustifiable. In addition, although all Islamic and Arabic nations are often placed in the same category throughout, such nations are highly heterogeneous. There are a number of subtle differences between Egyptian culture and other Arabic cultures, and as such, it may be necessary to cautiously generalise from the findings of previous studies within this region.

Second, with a focus on negative cognition, the current study only partially explored the nomological network of depression in Egypt. Given the pattern of results obtained through this study, it is reasonable to assume that "depression" as defined in the West, both exists and is defined similarly in Egypt. However, a larger subset of depressive correlates, as well as a number of predictive criteria, should be explored in such populations before this conclusion can be more firmly evaluated (Brislin, 1970; Berry, Poortinga, Segall, & Dasen, 1992).

Third, it is difficult to accurately explain the cultural meaning of the observed differences in this investigation. Although construct similarity was partially established, this does not preclude the need for establishing scalar equivalence (or full score comparability; Church, 2001). For example, a total score of 24 on the CES-D for the average Canadian may not necessarily be equivalent, or clinically comparable, to a score of 24 for the average Egyptian (Berry et al., 1992). Also, as Brislin (1970) argued, a perfect back-translation is not synonymous with a valid and culturally sensitive translation. Indeed, Brislin has asserted that there is an overreliance on linguistically equivalent back-translation in cross-cultural work, with a relative lack of attention to the cultural meaning of items. It is possible that the differences between the national samples obtained in this study are partially an artifact of methodological biases (scalar, item, format, translation, or otherwise) that were left unchecked.

Some theorists (e.g., Coyne & Gotlib, 1983) have argued that examining negative cognitions in association with depression is a circular endeavor. That is, individuals are placed into dysphoric and nondysphoric groups, in part, based on their endorsement of negative self-statements, and then it is shown that these participants have different types or levels of negative thinking. This criticism is not without its flaws, however, given that the majority of research to date points to a lack of negativity toward self in Arabic individuals with depression. As such, this concept may not be synonymous with the depressive experience in some parts of the world.

Finally, some psychometric issues that were raised in previous studies have reemerged in the current investigation. For example, high Cronbach alphas were obtained for scales such as the ATQ in both national samples, which may indicate item redundancy in this scale. Furthermore, Beckham et al. (1986) found poor discriminant validity for the CTI subscales of negative views of self and future, as these subscales were highly correlated with the Rosenberg Self-Esteem scale and Hopelessness Scale, respectively. It is unclear how such psychometric issues influenced results in the current study, if at all.

Directions for Future Research

Future research that both replicates and extends the current study is needed. First, replication of the current findings with a

sample of clinically depressed Egyptian participants is necessary for the cross-cultural validation of the cognitive theory for depression. Second, both exploratory and confirmatory analyses of the four-factor model of the CES-D with Egyptian participants are needed to establish construct equivalence of this measure of depression. Moreover, full score comparability on all criteria and outcome measures needs to be established across cultures. Thus, future research should employ item-response theory to ensure scalar equivalence. Without such a crucial step, group differences that may emerge are rendered equivocal.

Research that further explores the nomological network of depression in Egypt is warranted. Concepts such as rumination, avoidance, attributional style, and neuroticism (see Dobson & Dozois, 2008b for review) that have been empirically linked to depression in the West should be examined with individuals of Arabic descent, both to determine cross-cultural similarities and points of divergence. It is also important to investigate biological markers of depression in a sample of Arabic patients, as such work has been sparse in the Arab region. Rather, the majority of research in depression in the Middle East has focused exclusively on simple measurement of symptomatology, clinical presentation, and epidemiology.

There may be unique risk and protective factors for depression among individuals in the Islamic world. Most investigators in this area (e.g., Bhugra & Mastrogiani, 2004; Okasha, 1999; Sulaiman et al., 2001) agree that religiosity is a pivotal element in the lives of many Arabs. Indeed, many authors have argued that religiosity may moderate the presentation of depression in the Middle East. Although religiosity was not explored in this study, it is certainly an element that is worth examination in future research.

Studies with depressed Western individuals show that age of onset, severity, and duration of first episode, familial history of psychopathology, and presence of comorbid conditions may moderate the presentation and course of depression (see Burcusa & Iacono, 2007). As such, these variables could be examined in depressed Arab individuals. In addition, other hypotheses generated by the cognitive theory for depression are worthy of examining in the Islamic world. For instance, whether negative thoughts with themes of personal failure are specifically associated with depression, or whether their presence and severity is also linked to other disorders (e.g., content-specificity hypothesis; Clark et al., 1999), could be the focus of future research. Finally, as suggested by Berry et al. (1992), sound cultural research should not be exclusively etic and nomothetic (i.e., focusing on the universal nature of psychopathology) in nature. Cross-cultural adaptation of tests and constructs should be considered the initial steps of a more elaborate research program that involves both idiographic and emic elements (i.e., focusing on local, ethnographic versions of distress).

In conclusion, the results of this investigation support the universality of the depressive experience among student populations. Not only is it reasonable to assume that depression in an Egyptian student population shares key similarities with depression as experienced by students in the West, but also that concomitants of this disorder may be similar across these cultures and groups. The results of this study support Beck's (1979) cognitive triad hypothesis in an Egyptian sample of students, and serve to partially validate the cognitive theory for depression in this particular culture. Although these conclusions require replication and expansion,

there is now empirical ground upon which an Egyptian adaptation of cognitive theory for depression stands. Further research can now be advanced, which builds upon this beginning to extend the theoretical research, and also to examine the cross-cultural aspects of cognitive therapy for depression in people from Egypt or other Arab countries.

Résumé

La triade cognitive de Beck (1979) postule que les individus déprimés et dysphoriques entretiennent des pensées négatives automatiques envers soi, le monde extérieur et le futur. Malgré le rôle central de cette hypothèse dans la théorie cognitive de la dépression, cette préiction a rarement été testée à l'extérieur du monde occidental. Cette étude visait à examiner la relation entre la dysphorie et certaines échelles mesurant les cognitions négatives, auprès de 336 participants provenant de l'Égypte ($n = 150$) et du Canada ($n = 186$). Les individus dysphoriques des deux pays ont manifesté significativement plus de pensées négatives envers soi, le monde et le futur que les individus non-dysphoriques. De plus, les participants égyptiens ont montré significativement plus de pensées négatives envers soi et le monde que les participants canadiens, après avoir contrôlé pour la dysphorie. Cette étude appuie la validité cross-culturelle de la théorie cognitive de la dépression. Les forces et les limites de la présente étude, ainsi que des pistes pour la recherche future, sont abordées.

Mots-clés : dépression, cognition, culture, triade cognitive, pensées négatives.

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