

AN EXAMINATION OF THE RELATIONSHIPS BETWEEN ATTRIBUTIONAL  
STYLE, REAPPRAISAL, AND DEPRESSION RISK IN ARAB AMERICANS

KHADEJA NAJJAR

Bachelor of the Arts in Psychology

Cleveland State University

May 2016

Submitted in partial fulfillment of requirement for the degree

MASTER OF ARTS IN PSYCHOLOGY

at the

CLEVELAND STATE UNIVERSITY

MAY 2018

We hereby approve this thesis for

KHADEJA NAJJAR

Candidate for the Master of Arts in Psychology degree for the

Department of Psychology

and the CLEVELAND STATE UNIVERSITY'S

College of Graduate Studies by

---

Thesis Chairperson, Dr. Ilya Yaroslavsky, Ph.D.

---

Department & Date

---

Thesis Committee Member, Dr. Elizabeth Goncy, Ph.D.

---

Department & Date

---

Thesis Committee Member, Dr. Shereen Naser, Ph.D.

---

Department & Date

Student's Date of Defense: May 10, 2018

AN EXAMINATION OF THE RELATIONSHIPS BETWEEN ATTRIBUTIONAL  
STYLE, REAPPRAISAL AND DEPRESSION RISK IN ARAB AMERICANS

KHADEJA NAJJAR

**ABSTRACT**

While depression is a cross-cultural phenomenon, much of the literature that examines risk factors and mechanisms for its occurrence is examined from a Western perspective. As cultural background and level of acculturation to the host culture is known to shape the expression of depressive disorders, as well as their risk factors, this study examined whether cultural factors influence the relationship between two cognitive emotion regulation processes and depression symptoms. Specifically, this study examined whether the relationship between internal, stable, and global causal attributions for negative events (negative attributional style) and depression is mediated by one's tendency to reframe the meaning of event to alter one's emotional experience (reappraisal), and whether the effects of negative attributional styles vary as a function of cultural background and level of acculturation. Therefore, the relationships between negative attributional style, reappraisal, and depression may differ between individualistic US culture, and individuals hailing from a collectivistic Arab heritage. Participants ( $N = 86$ ) completed measures of Arab cultural identity, negative attributional style, reappraisal, and depression symptoms. Mediation and mediated-moderated analyses were used to examine these relationships. While results showed that the effects of negative attributional style on depression was mediated by reappraisal, the direction of the effect was in the opposite direction than hypothesized: negative attributional styles predicted less reappraisal. Cultural background and acculturation levels were unrelated to

variables of interest and did not moderate model effects. Findings provide clarification on how emotion regulation efforts may unfold after an initial attribution is made.

## TABLE OF CONTENTS

	Page
ABSTRACT.....	iii
LIST OF TABLES.....	v
LIST OF FIGURES.....	vi
 CHAPTER	
I. INTRODUCTION.....	1
1.1 Background.....	1
1.2 Depression and Emotion Regulation .....	2
1.2.1 Cognitive Reappraisal.....	4
1.2.2 Attributional Style.....	5
1.3 Attributional Style-Reappraisal Model of Depression.....	8
II. CULTURE .....	10
2.1 Cross Cultural Use of Attributional Style.....	11
2.2 Cross-cultural use of Reappraisal .....	13
2.3 Cultural Effects on Attributional Style-Reappraisal Model of Depression.....	14
2.4 Acculturation in the Attributional Style-Reappraisal Model of Depression.....	15
2.5 The Present Study .....	15
III. METHOD .....	17
3.1 Participants.....	17

3.2 Measures .....	18
3.3 General Analyses .....	19
IV. RESULTS .....	21
4.1 Descriptive Analyses .....	21
5.2 Hypothesis Testing.....	21
V. DISCUSSION .....	24
5.1 Limitations .....	27
5.2 Future Directions .....	28
REFERENCES .....	29
APPENDICES	
A. Tables .....	41
B. Figures.....	49

## LIST OF TABLES

Table	Page
1. Descriptive Statistics and Bivariate Correlations of Study Variables .....	41
2. Results of Chi-Square Test and Descriptive Statistics for Cultural Background by Sex .....	41
3. Summary of Hierarchical Regression Analysis for NAS Predicting Depression.....	42
4. Summary of Hierarchical Regression Analysis for NAS Predicting Reappraisal.....	42
5. Summary of Hierarchical Regression Analysis for NAS and Reappraisal Predicting Depression .....	43
6. Summary of Hierarchical Regression Analysis for NAS Predicting Depression with Arab Background as a Moderator .....	43
7. Summary of Hierarchical Regression Analysis for NAS Predicting Depression among the non-Arab Sample .....	44
8. Summary of Hierarchical Regression Analysis for NAS Predicting Depression among the Arab Sample.....	44
9. Summary of Hierarchical Regression Analysis for NAS Predicting Reappraisal among the non-Arab Sample.....	45
10. Summary of Hierarchical Regression Analysis for NAS Predicting Reappraisal among the Arab Sample.....	45
11. Summary of Hierarchical Regression Analysis for NAS and Reappraisal Predicting Depression among the non-Arab Sample .....	46
12. Summary of Hierarchical Regression Analysis for NAS and Reappraisal Predicting Depression among the Arab Sample .....	46
13. Summary of Hierarchical Regression Analysis for NAS Predicting Depression with Level of Acculturation as a Moderator .....	47
14. Summary of Hierarchical Regression Analysis for NAS Predicting Reappraisal with level of Acculturation as a Moderator .....	48

## LIST OF FIGURES

Figure	Page
1. Attributional Style-Reappraisal Model of Depression.....	49
2. Cross-Cultural Effects on Attributional Style-Reappraisal Model of Depression.....	49
3. Acculturative Effects on Attributional Style-Reappraisal Model of Depression.....	50



## CHAPTER I

### INTRODUCTION

#### **1.1 Background**

Depression is a chronic mood disorder that can cause significant impairment across multiple life domains (Cohen & Willis, 1985). Hallmark symptoms of depression include feelings of sadness, worthlessness, and loss of interest in activities that were once pleasurable. Other depressive characteristics include changes in sleep patterns, lack of energy, difficulty concentrating, and even suicidal ideation (APA, 2013). This functionally impairing disorder affects about 16 million individuals in the United States (NIMH, 2015), and about 300-350 million individuals globally (WHO, 2017). Depression is predicted to be the second leading cause of disability by 2020, and the leading cause of disease burden worldwide by 2030 (WHO, 2012).

Given the high prevalence and disease burden of depression, considerable efforts have been made in the search for risk factors and mechanisms that impact development of the disorder. Though the etiology of depression may vary, the inefficient use of emotion regulation responses is a known risk factor that has received increasing attention during the past two decades (e.g., Gross & Munoz, 1995). Emotion regulation is a

multidimensional construct that encompasses multiple automatic and volitional responses across sensory, behavioral, cognitive, and interpersonal domains (Barrett, Mesquita, Ochsner, & Gross, 2001; *see Emotion Regulation section*). These responses are believed to alter the occurrence, duration, and intensity of a given emotion at various stages of its occurrence, and function as a network with the deployment of one response probabilistically influencing the occurrence and consequence of another (Gross, 1998). Further, functional outcomes of emotion regulation are influenced by endogenous and environmental contexts (Aldao, 2013). The present study aims to examine the interplay of two cognitive responses, attributional styles and reappraisal, in relation to depression symptoms in adult Arab and non-Arab Americans. Importantly, the present study tests whether those of an Arab cultural background differentially use negative attributional style and cognitive reappraisal responses (see Figure 1 for conceptual model). Arab Americans are among the fastest growing groups in the United States, and report greater levels of psychological distress, relative to the general US population (Padela & Heisler, 2010). Elucidating cultural differences in the use of emotion regulation may shed light on behavioral health disparities between those of Arab and non-Arab backgrounds, a growing public health problem in the U.S. (U.S. Department of Health and Human Services, 1999; McLaughlin, 2012). With this, novel insights may be provided for interventions efforts with this growing cultural group.

## **1.2 Depression and Emotion Regulation**

Depression is disorder marked by emotion regulation deficits (Joorman & Gotlib, 2010; Aldao, Nolen-Hoeksema & Schweizer, 2010). Emotion regulation includes any effort to modify the intensity or duration of an emotional response in the face of a

stressful situation (Gross 1998; Thompson 1994). Emotion regulation can refer to modulating either positive or negative emotions, although mitigating negative emotions tends to be a primary focus. To successfully cope with negative emotions, an individual must select both the appropriate emotion regulation strategies and efficiently execute them (Gross & Jazaieri, 2014; Liu & Thompson, 2017). Though the capacity to regulate emotions is universal (Garnefski & Kraaij, 2006; Lei, Zhang, Cai, Wang, & Zhu, 2014), large individual differences exist both in the specific strategies that individuals choose to employ, and their efficacy (Aldao et al., 2010).

Researchers have proposed various models in attempt to explain their conceptualization of emotion regulation. The Process Model reflects one effort to elucidate how emotion unfolds over time (Gross, 1998). This model highlights the five most common groups of emotion regulation strategies (Gross & Thompson, 2007), and differentiates between these groups of emotion regulation based on where they impact the emotion generative process. The Process Model suggests that emotion begins with emotional cues, or antecedents. Therefore, one class of emotion regulation responses are aimed at reducing exposure to emotional cues, or changing their meaning with the goal of circumventing an emotion before it occurs. These strategies include: 1) situation selection in the form of choosing which situations to engage in or avoid, 2) situation modification that involves modifying characteristics of a situation, 3) attention deployment in the form of directing attention to an aspect of a situation that is less upsetting, and 4) cognitive change that involves appraising a situation differently before it occurs in effort to minimize its emotional impact. Antecedent focused emotion regulation strategies,

including the four aforementioned strategies, are applied in effort to regulate emotions by influencing emotional input.

Per Gross' (1998) model, after an emotional cue is appraised, a set of behavioral, experimental, and physiological responses are triggered. Together, these responses facilitate a reaction to an appraised event, during which response focused emotion regulation, or response modulation, comes into play. Response modulation is the fifth of the five most common groups of emotion regulation strategies, encompassing any direct influence of an emotional output, whether it be suppressing emotions, or ruminating about an emotional experience. While response focused emotion regulation is an adaptive method of coping, antecedent focused emotion regulation is more effective (Gross, 1998).

### **1.2.1 Cognitive Reappraisal**

Cognitive processes play a significant role in the effectiveness of emotion regulation strategies. Such processes involve interpreting life events, and thereafter influencing the intensity and duration of an emotional response (Lazarus, 1999). Cognitive reappraisal, the act of reframing an initial interpretation in effort to alter an emotional experience (Gross & John 2003; Lazarus & Alfert 1964; Kudinova, James & Gibb, 2017), is a key intermediary between stressful environmental stimuli and the emotional result, both short and long term (Lazarus & Folkman, 1984). Reappraisal occurs before an emotion unfolds in the emotion generation process (Schuttle et al., 2009), which allows an individual to avoid potentially adverse emotion regulation strategies that they may later use. Reappraisal is one of the most effective types of emotion regulation strategies (Webb et al., 2012; Kudinova et al., 2017), with direct links

to better interpersonal functioning, greater mood capacity, and better overall well-being (Garnefski et al., 2004; Gross & John, 2003; Kudinova et al., 2017).

Cognitions can be biased in such a way that they may lead to subsequent emotion regulation deficits. Depressive cognitive biases create an opportunity for automatic depressive thoughts, causing a maintenance of negative mood and a renewal of negative cognitions. This depressive cycle is often circumvented when reappraisal is employed, as use of cognitive reappraisal has a reliably inverse relationship with depressive symptoms (Gross & John, 2003; Rottenberg & Gross 2007; Aldao et al., 2010; Kudinova et al., 2017). In fact, reappraisal has been a main focus in depression literature, showing that sporadic use of reappraisal is linked to depressive severity (Garnefski & Kraaij 2006; Joorman & Gotlib 2010; Joorman & Stanton 2016; Aldao, et al., 2010), whereby habitual use of reappraisal reduces negative affect and general depressive symptomology (John & Gross 2003; Ehrling et al., 2010). Reappraisal influences depressive symptoms because it offers individuals the opportunity to reframe their view of a stressful event to an adaptive point of view. The positive effects of reappraisal have been evidenced across lifespan, and in different settings (Moore & Fresco, 2007; Mofras & Uba, 2016; Garnefski, Teerds, Kraaij, Legerstee, & Kommer 2004). According to Ehrling and colleagues (2010), use of cognitive reappraisal can be equally as adaptive among never-depressed and remitted samples (Ehrling et al., 2010).

### **1.2.2 Attributional Style**

Attributional style reflects an antecedent emotion regulation response that may influence the use of reappraisal. Though reappraisal is the act of reframing an initial interpretation of a life event, attributional style refers to how people explain the cause of

that life event (Peterson & Seligman, 1984). The degree to which individuals appraise the causes of stressful events (attributional style) may set the tone for subsequent cognitive reappraisal.

The concept of attributional style is described in the attributional reformulation of the learned helplessness theory (Abramson et al., 1978), which explains that the causal attributions that an individual makes about the cause of a life event sets the tone for the subsequent feelings that unfold. Casual attributions span three general areas: stability, globality, and internality. If the causal attribution that is made is stable (i.e., it is going to last for a while), then feelings of helplessness will be long lasting. Conversely, if a causal attribution is unstable, then it is short-lived. If a causal attribution is global (i.e., it is going to affect other situations), then helplessness will span beyond the situation at hand, and into other life domains. However, if a causal attribution is specific, then its effects do not span beyond the situation at hand. Lastly, if a causal attribution is made to be internal (i.e., it is my fault), an individual's self-esteem becomes damaged, whereby if a causal attribution is made external, then self-esteem is not effected (Peterson & Park, 2006).

Attributional style can be broadly categorized as positive or negative. Negative attributional style involve attributing the cause of negative events as self-generated (internal), enduring (stable) and pervasive (global). Using these negative attributional styles worsen the already adverse effects of stress (Alloy et al., 2006) and predict increased levels of hopelessness (Joiner, Perez, Wagner, Berenson, & Marquina, 2000). In turn, using negative attributional styles can induce a depressive episode (Alloy et al., 2006). These effects have been evidenced in college students, whereby among non-

depressed individuals, those who practiced a negative attributional style demonstrated higher rates of depressive symptoms and depression occurrence within the past two years than those who practiced a positive attributional style (Alloy, Lipman & Abramson, 1992). In women of low socioeconomic status, stable and global attributions were significantly correlated with depression (Peter & Seligman, 1984). Even clinically depressed children exercise more negative attributional styles than their non-depressed peers, leaving them more prone to depression (Asarnow & Bates, 1988). Negative attributional styles are a depression risk factor simply because those who practice them are inclined to view stressful life events from a destructive lens. To illustrate, say an individual is fired from their job. If they attribute their job loss to a lack of performance on their end (internal), believe that because they lost their job, they are going to fail in other areas of their life as well (global), and will always be a disappointment (stable), they are likely to become depressed. This is because negative attributional style encourages beliefs of helplessness, leaving individuals to feel as though they have no control in the situation that they have been placed in (Peterson & Park, 2006).

The effects of negative attributional style have been studied from an emotional regulatory lens, in direct relation to depressive symptoms (Peterson & Park, 2006). However, few studies have taken steps to understand the mechanisms of emotion regulation that unfold after an initial negative attribution has been made. The use of negative attributional style opens the possibility that negative emotions may be encouraged, however it also opens the possibility that the individual feeling such negative emotions may employ additional emotion regulation strategies in effort to feel better. One strategy that an individual may choose to attempt to employ is reappraisal. In fact, as

previously mentioned, the degree to which individuals appraise the causes of stressful events (attributional style) may set the tone for subsequent cognitive reappraisal.

To illustrate, say a student fails a math exam. This student decides that because they failed this one exam, they are unintelligent and are now a universal failure. This in turn causes the student to feel bad about them self. Noticing that they feel bad, the student may choose to reframe, or reappraise, the situation in such a way that instead of feeling like this failed math exam will have global implications. They may remind him-or-herself self that that just because he/she failed one exam, it does not mean that he/she is unintelligent, and can take steps to do better on the next exam. Alternately, the attributional style an individual uses may lead to reappraisal being unnecessary. Using the same scenario of failing a math test, instead of the student attributing their exam failure to them self and expanding that one bad grade to feeling like they are an overall failure, they may take into consideration that the exam was hard, that they tried their hardest, and just because they failed this one exam doesn't mean that they are unintelligent, or that they will not ace future exams. With this framework, the student may see no need to reappraise the situation at all. Thus, how an individual cognitively reappraises an event, or if they choose to use reappraisal at all, is influenced by their attributional style.

### **1.3 Attributional Style-Reappraisal Model of Depression**

As previously noted, the Process model of emotion regulation proposes that emotion regulation can occur at several stages that include prior to emotion's experience (antecedent focused emotion regulation) and following emotion's manifestations (response focused emotion regulation). Emotion regulation strategies that occur in the



antecedent focused stage modify the intensity or duration of the anticipated emotion. Of such classified strategies, reappraisal has received the most attention with respect to affective outcomes, although some have posited that attributional styles are another antecedent focused strategy that precedes reappraisal. This study proposes to test a model that examines the interplay of negative attributional style, reappraisal and depression symptoms. Negative attributional styles are a maladaptive variant of attributional styles that place causes of negative events as internal, the likelihood of their occurrence as stable, and consequences of their effects global across life domains. As negative attributional styles reflect the appraisal of an event, and given that an event has to be appraised before it can be reappraised, negative attributional styles are expected to predict reappraisal (Figure 1, Path B). Further, given the empirical evidence for associations between negative attributional styles and reappraisal with depression, both emotion regulation constructs are expected to maintain direct effects on depression symptoms in the model (Figure 1, Paths A & C).

## CHAPTER II

### CULTURE

Culture fundamentally shapes an individual's cognitions, emotion regulation responses, and environment around them (Chun et al., 2009). Among domains of cultural differences, individualism and collectivism are the most widely studied cultural values with respect to emotion regulation and adjustment (Chun et al., 2009). In individualistic cultures, priority is placed on the self rather than the group. Conversely, in collectivistic cultures, priority is placed on the group over the self (Markus & Kitayama, 1991). Consideration of cultural constructs are essential in understanding the experience of stress, coping and overall psychological adjustment.

Current depression research has been largely confined to western populations, which hold an individualistic cultural orientation. Consequently, the effects of these emotion regulation strategies among individuals of other cultures is largely unknown. The few cross-cultural studies that have examined these topics reveal not only a differential use of emotion regulation between individualistic and collectivistic cultures, but also a difference in the adaptability of various emotion regulation strategies (Anderson, 1999; Ford & Mauss, 2016). For instance, among hyphenated Americans (e.g., Asian-American) who emigrated from another country, the outcomes of emotion regulation strategies have been shown to differ from persons whose families have resided for several generations within that culture (Taylor et al., 2004). Of the

various hyphenated American groups in the United States, the Arab American group is among fastest growing in the US (AAIUSA, 2015). While this growth is encouraging, increasing evidence shows that members of this group are at a disproportional risk for developing depression relative to the general US population. Indeed, one study notes that 66% of Arab Americans are at risk of developing a depressive disorder (Samari, 2016) relative the 17-20% base rate observed in US community samples (Kessler & Bromet, 2013). Further, those of an Arab background appear to have a more enduring course of the disorder relative to their US peers (Ferrari et al., 2013). Though individuals of Arab descent have been largely unexamined with respect to depression risk factors, existing literature suggests that the effects of various coping strategies, such as attributional style, more closely align with that of other collectivistic groups, such as Asians. This is because both Asian and Arab cultures are guided by the notion that group welfare should be placed before the self.

Arab Americans have endorsed high psychological distress due to issues related to both historical trauma and more recently, discrimination in today's post 9/11 socio-political climate (Abu-Ras & Abu-Badr, 2008). This, in addition to the increasing amount of displaced refugees from the Middle East into the United States, make elucidating the portability of depression risk factors across cultural lines critical to discern for both treatment and prevention efforts in the growing Arab American community.

## **2.1 Cross Cultural Use of Attributional Style**

Relatively few studies have examined the cross-cultural differences of negative attributional styles. Presently, the vast majority of attributional style literature focuses on individuals hailing from individualistic cultures (Anderson, 1999). As such, positive and negative attributional styles have been defined from an individualistic point of view. This is

problematic, as the effect of attributional styles in collectivistic cultures is largely unknown. However, the small literature that has examined attributional styles among those who hold a collectivistic cultural orientation evidence a differential outcome in the use of negative attributional style as compared to their individualistic peers. For example, Joiner and colleagues (2000) found that attributing negative events to external causes, a risk factor for depression among those hailing from western cultures, was unrelated to depression among Mexican American participants, who identify with a collectivistic cultural orientation (Joiner et al., 2000). Results of another study showed that causal attributions differentially predict depressive symptoms among Chinese and European participants. Specifically, negative attributional styles served as a more pernicious risk factor for depression among those of a collectivistic culture (China), as compared to those hailing from an individualistic culture (Americans) (Anderson, 1999).

Interestingly, research shows that acculturation, the process of adopting the cultural traits of another cultural group (Amer, 2007), has an effect on the coping strategies an individual chooses to employ. Specifically, use of negative attributional style among hyphenated Americans who hail from a collectivistic culture, but dwell in a mainstream individualistic culture, may have a differential effect on depression risk than both those of both a mono-individualistic or mono-collectivistic culture. For instance, in a study comparing mainland Chinese, Chinese American, and Anglo American students, Anglo Americans made more positive causal attributions than both Chinese American and mainland Chinese students. However, mainland Chinese American students made more negative causal attributions than Chinese American students did (Lee & Seligman, 1997). Similar results were evidenced in a sample of Japanese, American, and Japanese-American participants, whereby those who are influenced by both a collectivistic

society (Asian) and an individualistic society (Europe) tend to employ coping strategies that fit in the middle between the attributional styles of foreign born Asians and Euro Americans (Taylor et al., 2004).

In another collectivistic group (Mexican American), Joiner and colleagues (2000) showed that attributing negative events to external causes, a risk factor for depression among individualistic (European) cultural groups, was unrelated to depression among this collectivistic group, who tend to hold fatalistic beliefs (Joiner et al., 2000). Similar to Mexican Americans, Palestinian women were noted to make external attributions to the cause of negative life events (i.e., a potentially positive cancer diagnosis). Making attributions to external causes may be adaptive among collectivistic hailing individuals, such as Arabs, because there is a stronger reliance upon context (Chun et. al., 2009). These findings open the possibility that attributional styles may function differently as a risk factor for depression among individuals of Arab descent, as compared to their Anglo-American peers.

## **2.2 Cross-cultural use of Reappraisal**

Current literature on the cross-cultural use of reappraisal is mixed. For example, some studies show evidence of a difference in the frequency of the use of reappraisal among those of an individualistic versus a collectivistic culture. Qu and Telzer (2017) argue that among American (individualistic) and Chinese (collectivistic) participants, those of a collectivistic background are more likely to practice reappraisal when regulating emotions. This differential use of reappraisal may be due to the variation in cultural orientation among American and Chinese individuals (Qu & Telzer, 2017). Because collectivistic East Asian culture places an emphasis on maintaining group harmony, individuals hailing from this cultural group may be more motivated to change their emotions to circumvent conflict and preserve group harmony

(Markus & Kitayama, 1991; Qu & Telzer, 2017). In another cross-cultural comparison, Sinha and colleagues (2000) found that Indian (collectivistic) individuals use cognitive reappraisal during times of stress more often than their Canadian (individualistic) peers do (Sinha, Willson, & Watson, 2000).

While there is support for cross-cultural differences in use of reappraisal, other studies dispute this claim. Among individuals hailing from the United States (individualistic) and East Asian (collectivistic) cultures, no cultural differences in the use of reappraisal were found (Matsumoto et al., 2008; Ramzan & Amjad 2017). These results were replicated in other US and East Asian samples (Soto, Perez, Kim, Lee, & Minnick, 2011; Kwon et al., 2013). Among Latino/a and Asian-heritage college students in the United States, Juang and colleagues (2016) found that reappraisal was negatively related to depressive symptoms in both groups, suggesting that it is an adaptive coping mechanism for these individuals. Similar findings were replicated in a sample of Turkish and German community dwellers and depressed psychiatric patients, where use of reappraisal was equally as adaptive for both groups (Arens, Balkir & Barnow, 2013).

### **2.3 Cultural Effects on Attributional Style-Reappraisal Model of Depression**

To summarize, there is mixed evidence that the effects of negative attributional styles may vary across those of individualistic and collectivistic cultural backgrounds. Whereas negative attributional styles are a risk factor for depression among those of individualistic/western backgrounds, these styles may be innocuous for those of collectivistic backgrounds, such as in the case of Arab Americans. If such is the case, it may be expected that negative attributional styles do not engender a need to reappraise one's negative state. Therefore, an Arab cultural background may moderate the relationships between negative attributional style and depression (Figure 2, Path A) and reappraisal (Figure 2, Path B). Further, there is some

evidence for cultural differences in the use of reappraisal response (Sinha et al., 2000; Qu & Telzer, 2017), whereby those of collectivistic background tend to use reappraisal more frequently than their individualistic/western peers. Therefore, I will test whether an Arab background predicts higher levels of reappraisal relative to those of non-Arab backgrounds (Figure 2, Path C).

## **2.4 Acculturation in the Attributional Style-Reappraisal Model of Depression**

While cultural background is an important contextual factor for depression risk and emotion regulation, its effects are likely mitigated by the degree to which a person subscribes to the values of their host culture relative to those of their culture of origin. Shifting value systems from the culture of origin to those of the majority culture is called acculturation (Amer & Hovey, 2007), and has been shown to influence coping norms (Taylor et al., 2004). As acculturation reflects a continuum between the culture of origin and the majority culture, it is reasonable, therefore, to believe that among Arab Americans, the level of exposure to the Arab culture may influence the relationship among emotion regulation responses and their association with depression. Specifically, Arab Americans who acculturated and have reduced their exposure to the Arab culture may be expected to show similar associations between the constructs of interest as their non-Arab peers. Conversely, those with strong Arab identities should evidence the expected cultural differences in associations among emotion regulation measures and depression symptoms (see Figure 3, Paths A - C).

## **2.5 The Present Study**

This study aims to examine cultural differences between Arab and Non-Arab Americans in the relationships between reappraisal, attributional style, and depression. Specifically, I seek to test whether: (1) negative attributional styles predict a greater use of cognitive reappraisal,

which, in turn, will mediate the association between negative attributional styles and depression symptoms, (2) the effects of negative attributional style on reappraisal and depression symptoms will be attenuated for those of an Arab cultural background relative to their non-Arab peers, and (3) the effects of cultural background on the relationships described above will be reduced as a function of acculturation in the Arab group.



## CHAPTER III

### METHOD

#### **3.1 Participants**

A final sample of 123 participants took part in this study. Arab participants were recruited by contacting various Arab-affiliated organizations on campus and throughout the United States to distribute study information to their respective communities. Non-Arab participants were recruited via on-campus posters, and from the Cleveland community. Social media platforms were also utilized to recruit both Arab and non-Arab participants. Those who were interested logged into the study link, where they were presented with the letter of consent. A forced-choice response option required participants to acknowledge their understanding of the consent document prior to proceeding to the online survey. The online survey, which was administered via Qualtrics, collected information on 1) demographics, 2) ethnic identity, 3) emotion regulation and coping methods, 4) depressive symptoms, 5) and consistency items for data quality control. Participants had the option to receive payment either directly via an anonymous HIT on Mechanical Turk, or by choosing to donate their dues to a charity of their choice.

### 3.2 Measures

***Demographic Questionnaire.*** This questionnaire measures participant's age, sex, racial, and educational background. It will also be used to ascertain participants' country of origin and years/generations that the participant/their family lived in the US.

***Arabic Identity Scale (AIS).*** The Arabic Identity Scale is a 20- point scale that measures how strongly an Arab identifies with an Arabic ethnic identity. Participants were asked to rate items regarding ethnic Arabic practices, religious values, and family values on a 7-point Likert-type scale ranging from 1= "strongly disagree" to 7= "strongly agree." The AIS is a shortened and modified version of the Male Arabic Ethnic Identity Scale (MAEIM) (Barry 2000). The MAEIM is a 33 item self-report containing 4 scales and 4 uncategorized items. We followed Amer's (2007) modification of the MAEIM, which included items from the Religious-Family Values (RFV) scale and Ethnic Arabic Practices (EAP) scale. Any items that were geared specifically to males or used male pronouns were edited to sound gender neutral (i.e., "I would never allow my wife to have an abortion" was edited to read as "a married woman should not be allowed to have an abortion.). The AIS has an internal consistency of ( $\alpha = .89$ ) (Barry, 2000).

***Emotion Regulation Questionnaire (ERQ).*** The ERQ is a 10-item scale measuring individual differences in "response-focused" emotion regulation strategies. Participants make responses via a 7-point Likert scale to such prompts as "I keep my emotions to myself." The ERQ has an internal consistency of ( $\alpha = .73$ ) and ( $\alpha = .79$ ) for the cognitive reappraisal subscale (Gross & John, 2003). The ERQ has been shown to have strong reliability and validity in previous Arab samples ( $\alpha = .77$ ) (Merhi & Kazarian, 2015)

***Cognitive Style Questionnaire (CSQ).*** The CSQ is a questionnaire that measure causal attributions, consequences, and self-worth characteristics for six positive and six negative

hypothetical events on dimensions of internality, stability, and globality. For each hypothetical event, participants are first asked to vividly imagine themselves in a specific situation, in real time (example event: “You take an exam and receive a low grade on it.”). Next, they are asked to write down what they believe to be the one major cause of the event. Participants then use a 7-point Likert-type scale to rate the specified case on dimensions of internality, stability, and globality. Finally, participants are asked to think about what the occurrence of the hypothetical situation would mean to them, and to use a 7-point Likert-type scale to rate the consequences and self-worth implications of the hypothetical event. The CSQ has been shown to be a reliable and valid measure of cognitive style in both non-Arab samples ( $\alpha > .88$ ) (Haefel et al., 2008), and other collectivistic samples ( $\alpha = .94$ ) (Chen et. al., 2013).

***Center for Epidemiologic Studies Depression Scale (CES-D).*** The CES-D is a 20-item scale measuring depressive symptoms in the general population. Participants made responses to such prompts “I was bothered by things that usually don’t bother me” on a 4-point Likert scale, ranging from 1= rarely or none of the time (less than one day a week) to 4= most or all of the time (5-7 days). The CES-D has been shown to be a reliable and valid measure of depression in both non-Arab samples, ( $\alpha > .85$ ) (Roberts; 1980; Radloff, 1977) and in Arab samples, ( $\alpha > .85$ ) (Gubash, 2000).

### **3.3 General Analyses**

Statistical analyses were completed using IBM SPSS version 23 (SPSS IBM, 2014). First, descriptive bivariate analyses were conducted to characterize and examine associations among study variables within each cultural group. Then, the two cultural groups were compared with respect to variables of interest via t-test and Chi-Square analyses. Next, study hypotheses were examined through a series of regression models that followed steps outlined by Baron and

Kenny (1986) for mediation and mediated-moderation. Confidence intervals around the indirect effect were estimated using the Monte Carlo method (Selig & Preacher, 2008). Assumptions of linearity, normality of residuals, absence of multicollinearity, and homoscedasticity of residuals were examined before hypothesis testing took place. All model assumptions were supported. Hypothesis I was tested by conducting a series of regression models with negative attributional style as a predictor and depression as an outcome (path C), with negative attributional style as a predictor and reappraisal as an outcome (path A), and then negative attributional style and reappraisal (path C' and B) as predictors, and depression as the outcome. Hypothesis II was examined using a mediated-moderation model, with reappraisal mediating the relationship between negative attributional styles and depression, and Arab cultural identity moderating the relationship between negative attributional style and reappraisal. Hypothesis III was examined using a mediated-moderation model among the Arab sample, with reappraisal mediating the relationship between negative attributional styles and depression, and Arab level of acculturation moderating the relationship between negative attributional styles and reappraisal.

## CHAPTER IV

### RESULTS

#### **4.1 Descriptive Analyses**

Descriptive analyses and differences between study variables among Arab and non-Arab participants are presented in Table 1. The two groups did not significantly differ in their demographic characteristics nor in their negative attributional styles, reappraisal and depression levels.

Pearson correlations were conducted to examine bivariate correlations among study variables within each cultural group. In the non-Arab American sample, reappraisal was significantly correlated with depressive symptoms,  $r = -.35, p = .05$ . No other study variables in the non-Arab American sample were correlated with another. Among Arab Americans, the same correlation was noted, where reappraisal was significantly correlated with depressive symptoms,  $r = -.30, p < .01$ . In the Arab American sample, no other study variables were correlated with each other. Surprisingly, negative attributional style is not significantly correlated with depressive symptoms in either sample.

#### **5.2 Hypothesis Testing**

Aim one of this study was to examine whether the use of negative attributional style has an adverse effect on depressive symptoms, and if cognitive reappraisal mediates this relationship

(Figure 1). A series of hierarchical regression models were conducted, first with negative attributional style as a predictor and depression as the outcome (Figure 1, Path C). Then, a regression model with negative attributional style as a predictor and reappraisal as the outcome was conducted (Figure 1, Path A). Finally, a regression model with negative attributional style and reappraisal as predictors, and depression as the outcome was examined. (Figure 1, Paths C' and B). In all models, age, sex, and cultural background were examined as covariates.

Contrary to expectation, greater use of negative attributional style predicted higher endorsement of depressive symptoms independent of demographic characteristics,  $\beta = -.21$ ,  $t(80) = 1.98$ ,  $p = .05$ ,  $R^2 = .10$ . Also as expected, higher use of negative attributional style predicted lower reappraisal use,  $\beta = -.21$ ,  $t(80) = -2.19$ ,  $p = .03$ ,  $R^2 = .07$ . In turn, reappraisal predicted significantly lower endorsement of depressive symptoms,  $\beta = -.20$ ,  $t(79) = -2.85$ ,  $p < .001$ ,  $R^2 = .18$ , independent of the effects negative attributional styles and demographic characteristics. To evaluate if reappraisal mediates the effect of negative attributional style and depression, the indirect effect of negative attributional styles on depression via reappraisal was tested using the Monte Carlo method (Selig & Preacher, 2008) with 50000 boot strap samples. Results indicated that the indirect effect of reappraisal  $b = 1.32$  fell within the 95% CI [.06 - 2.6].

The second aim of this study was to determine whether the effects noted in aim one would be attenuated for those of an Arab cultural background, relative to non-Arabs (Figure 2). As a preliminary step hierarchical regression model was fit to examine whether the effect of negative attributional style (predictor) on depression (outcome) varied as a function of an Arab cultural ground (Figure 2, Path A). This effect was examined in order to determine whether this moderation effect needed to be included as a covariate in models that tested the second hypothesis. Then hypothesis testing involved fitting a regression model with negative

attributional style as a predictor, reappraisal as the outcome, and Arab cultural background as the moderator (Figure 2, Path B). Contingent on the significant moderation effect of Arab cultural background on the relationship between negative attributional style and reappraisal, a third regression model would be fit with depression as the outcome, and reappraisal, negative attributional style, and the interaction between negative attributional styles and cultural group as predictors.

Results showed that hailing from an Arab cultural background did not moderate the effects of negative attributional style and depression,  $\beta = -.13$ ,  $t(79) = -.71$ ,  $p = .48$ ,  $\Delta R^2 = .01$ . Therefore, this effect was not added to models that tested the second hypothesis. In contrast to expectation, cultural background did not moderate the effect of negative attributional style on reappraisal,  $\beta = .15$ ,  $t(79) = .82$ ,  $p = .41$ ,  $\Delta R^2 = .01$ . No additional models were fit to test the second hypothesis given the non-significant moderated effect of the predictor on the mediator.

The final aim of this study was to determine where level of acculturation among Arab Americans influenced the effects of negative attributional style on reappraisal. A series of hierarchical regression models were conducted that followed those that tested the second aim of this study. However, in these models, level of acculturation replaced the dichotomous culture group variable. As with results that probed the second aim, level of acculturation among the Arab sample did not moderate the effect of negative attributional style on depression,  $\beta = -.05$ ,  $t(62) = -.37$ ,  $p = .72$ ,  $\Delta R^2 = .01$ . Further, acculturation did not moderate the relationship between negative attributional style and reappraisal,  $\beta = .12$ ,  $t(62) = -.95$ ,  $p = .54$ ,  $\Delta R^2 = .01$ . Given the non-significant relationship between the predictor and mediator, no further analyses were conducted.

## CHAPTER V

### DISCUSSION

The present study examined the role that culture plays in the relationships between attributional style, reappraisal and depression. A large body of work suggests that the use of negative attributional style predicts the endorsement of depressive symptoms (Abramson, Metalsky, Alloy, 1989). However, few studies have sought to clarify the emotion regulatory processes that unfold after an initial negative attribution has been made. Because reappraisal reflects an emotion regulation strategy that involves a reevaluation of the initial appraisal of a negative life event, it is feasible that the type of attribution a person makes sets the tone for subsequent reappraisal use. However, because reappraisal has been shown to be an adaptive emotion regulation strategy, its use following a negative attribution may circumvent the depressogenic effects of that attribution. Further, the effects of negative attributional style and reappraisal on depression have largely been examined in Western samples. Therefore, it is unclear whether the relationships among these constructs vary for those of other cultural backgrounds that are distinct in key dimensions from the Western culture. Therefore, this study examined the mediation role of reappraisal between negative attributional styles and depression symptoms, as well as whether these relationships differed across those of



Western and Arab backgrounds. Moreover, because it has been suggested that acculturation influences coping norms, (Taylor et al., 2004; Chun et al., 2009), this study also sought to clarify the role of acculturation in the aforementioned relationships.

The first hypothesis, that the lower use of negative attributional style predicts a greater use of cognitive reappraisal, and that reappraisal mediates the association between negative attributional style and depressive symptoms, was partially supported. Contrary to expectation, negative attributional styles predicted the reduced use of reappraisal. However, consistent with expectation and the extant literature, reappraisal predicted reduced depression levels, and mediated the effect of negative attributional style on depression. These findings may be interpreted in several ways. First, it is feasible that causal attributions for negative events, which occur quickly, undermine subsequent efforts to reappraise the negative event. Evidence for this possibility comes by way of work on memory mood-congruent recollection in depression. Results from several studies show that depressed persons are better able to recall negative memories than positive ones (Blaney, 1986; Watkins, Mathews, Williamson, & Fuller, 1992; Joorman, Hertel, Brozovich & Gotlib, 2005). As negative attributions engender negative mood states (Perterson & Park, 2006), such mood states may undermine efforts to engage in a mood congruent process of reappraisal. Another possibility is that negative attributional style increase the intensity of distress that is brought about by the negative event, which makes it difficult to engage a cognitive ER response (Teasdale, 1997). For example, Brans and Verduyn (2014) noted an inverse relationship between emotional intensity and the capacity to effectively engage in cognitive restructuring. In their study, individuals who reported feeling intense levels of sadness exhibited the least success in cognitively

restructuring their thoughts (Brans & Verduyn, 2014). Finally, negative attributional style and reappraisal reflect different facets of the same cognitive construct. That is, making initial negative attributions and maintaining them by considering new information (low reappraisal) may reflect a rigid, depressive way of thinking. Future works should explore these possibilities.

While the inverse relationship between negative attributional style and reappraisal that was observed in this study was surprising, the associations between both constructs and depression is consistent with the extant literature. Indeed, low use of reappraisal is frequently linked to elevated depression severity (Garnefski & Kraaij 2006; Joorman & Gotlib 2010; Joorman & Stanton 2016; Aldao, et al., 2010), as is the strong tendency to make negative causal attributions (Alloy et al., 2006). These results suggest that reappraisal and negative attributional style should remain important targets for intervention efforts. Further, the mediating role of reappraisal between negative attributional styles and depression appear to support the approach taken by Cognitive Behavioral Therapy (CBT) to improve patient's capacity to rationally re-examine their automatic thoughts and initial appraisals via cognitive restructuring (Beck, 1979).

The second and third hypotheses examined the relationship between that the relationship between negative attributional styles and reappraisal as a function of cultural background and acculturation. Both hypotheses were not supported. Indeed, the two cultural groups did not vary on any construct of interest, nor in the relationships among those constructs. In a similar vein, the Arab identity scale, which indexed acculturation, was unrelated to all study variables. As relatively few studies investigate depression risk factors in Arab samples, it is not clear whether the null effects found in this study reflect

a true absence of cross-cultural differences or specific characteristics of the Arab sample, which was comprised of many who had post-secondary education and therefore a greater likelihood of a “white-collar” employment. Findings from this study add to a mixed literature on the effects of negative attributional style among collectivistic cultures. For example, while attributing negative events to external causes was unrelated to depression among Mexican Americans (Joiner et al., 2000), negative attributional styles was a pernicious risk factor for depression among Chinese (Anderson, 1999) and Navajo Native American participants (Rieckmann, Wadsworth, & Dehyle, 2004). Work that employs a more representative sample of Arab participants would do much to elucidate whether the effects of negative attributional styles for those of this cultural group.

## **5.1 Limitations**

The results of this study should be considered in the context of several limitations. First, the study was administered anonymously and online. Though this modality would in theory increase both accessibility and sample size, it is unclear how honest and committed study participants were. Second, approximately 30% of the sample were excluded from this study due to incomplete responses. This may decrease the amount of power necessary to capture cultural differences in the relationships between negative attributional styles, reappraisal and depression. Additionally, participation in this study would not have been possible without being technologically and internet literate. This alone excludes a large number of potential participants from the Arab group. Finally, because the study was only administered in the English language, Arabic-only reading individuals were unable to participate.

## **5.2 Future Directions**

As the Arab cultural group is a growing and relatively unexamined cultural group in literature, future research should continue to examine such constructs within this ethnic group. Replicating this study with a larger and more diverse sample in terms of Arab cultural identity would be worth conducting. The Arab cultural group continues to grow in the United States, by virtue of voluntary immigration or seeking asylum from the current political climate in the Middle East. As such, clarifying adaptive emotion regulation efforts among this group is vital for intervention and prevention treatment efforts.

## REFERENCES

- Abu-Ras, W., & Abu-Bader, S. (2008). The impact of 9/11 on the Arab American well-being. *Journal of Muslim Mental Health*, 3, 219-242.
- Arab American Institute. Demographics. (n.d.). Retrieved September 22, 2017, from <http://www.aaiusa.org/demographics>.
- Abramson, L. Y., Seligman, M. E. P., & Teasdale, J. D. (1978). Learned helplessness in humans: Critique and reformulation. *Journal of Abnormal Psychology*, 87, 49–74.
- Aldao, A. (2013). The future of emotion regulation: Capturing context. *Perspectives on Psychological Science*, 8(2), 155-172.
- Aldo, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review*, 30, 217-237.
- Alloy, L. B., Lipman, A. J., & Abramson, L. Y. (1992). Attributional style as a vulnerability factor for depression: validation by past history of mood disorders. *Cognitive Therapy and Research*, 16, 391–407.
- Alloy, L., Abramson, L., Whitehouse, W., Hogan, M., Panzarella, C., & Rose, D. (2006). Prospective incidence of first onsets and recurrences of depression in Individuals at high and low cognitive risk for depression. *Journal of Abnormal Psychology*, 115, 145-156.
- Amer, M., Hovey, J.D. (2007). Socio-demographic differences in acculturation and mental health for a sample of 2<sup>nd</sup> generation/early immigrant Arab Americans. *Journal of Immigrant Minority Health*, 9, 335-347.

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: American Psychiatric Association.
- Anderson, C. (1999). Attributional style, depression, and loneliness: a cross-cultural comparison of American and Chinese students. *Personality and Social Psychology Bulletin*, 482-499.
- Arens, E.A., Nazli B., & Sven, B. (2011). Ethnic Variation in Emotion Regulation: Do Cultural Differences End Where Psychopathology Begins? *Journal of Cross-Cultural Psychology*, 44(3), 335-351.
- Asarnow, J.R. & Bates, S. J (1988). Depression in child psychiatric inpatients: Cognitive and attributional patterns. *Abnormal Child Psychology*, 166, 601-615.
- Barry, D. T., Elliot, R., & Evans, E. M. (2000). Foreigners in a strange land: Self-construal and ethnic identity in male Arabic immigrants. *Journal of Immigrant and Minority Health*, 2(3), 133-144.
- Barret, L.F., Mesquita, B., Ochsner, K.N., Gross, J.J. (2007). The experience of emotion. *Annual Review of Psychology*, 58, 373-403.
- Barnum SE, Woody ML, Gibb BE. Predicting changes in depressive symptoms from pregnancy to postpartum: The role of brooding rumination and negative inferential styles. *Cognitive Therapy and Research*. 2013; 37, 71–77.
- Baron-Epel, O., Friedman, N., & Lernau, O. (2009). Fatalism and mammography in a multicultural population. *Oncology Nursing Forum*, 36(9), 353-361.

- Barry, D., Elliott, R., & Evans, M. E. (2000). Foreigners in a strange land: Self-construal and ethnic identity in male Arabic immigrants. *Journal of Immigrant Health*, 2, 133–144.
- Beck, A.T., Rush, J., Shaw, B.F., Emery, G. (1979). Cognitive therapy of depression. New York: Guilford.
- Blaney, P.H. (1986). Affect and memory: a review. *Psychological Bulletin*, 99 229-246.
- Brans K, Verduyn P (2014) Intensity and Duration of Negative Emotions: Comparing the Role of Appraisals and Regulation Strategies. *PLoS ONE* 9(3): e92410.
- Chun, C., Moos, R., & Cronkite, R. (2006). Culture: A fundamental context for the stress and coping paradigm. *Handbook of Multicultural Perspectives on Stress and Coping*, 29-50.
- Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, 98(2), 310-357.
- Cutuli, D. (2014). Cognitive reappraisal and expressive suppression strategies role in the emotion regulation: An overview on their modulatory effects and neural correlates. *Frontiers in Systems Neuroscience*, 8, 175.
- Ehring, T., Fischer, S., Schnülle, J., Bösterling, A., Tuschen-Caffier, B. (2008). Characteristics of emotion regulation in recovered depressed versus never depressed individuals. *Personality and Individual Differences*. 44, 1574–1584
- Ferrari, A. J., Charlson, F. J., Norman, R. E., Patten, S. B., Freedman, G., Murray, C. J. L., & Whiteford, H. A. (2013). Burden of depressive disorders by country, sex, age, and year: Findings from the global burden of disease study 2010. *PLoS Medicine*, 10(11).

- Ford, B. Q., & Mauss, I. B. (2014). The paradoxical effects of pursuing positive emotion: When and why wanting to feel happy backfires. In J. Gruber & J. T. Moskowitz (Eds.), *Positive emotion: Integrating the light sides and dark sides* (pp. 363-381)
- Garnefski, N., Teerds, J., Kraaij, V., Legerstee, J., & Van den Kommer, T. (2004). Cognitive emotion regulation strategies and depressive symptoms: Differences between males and females. *Personality and Individual Differences*, 36, 267–276
- Garnefski, N., & Kraaij, V. (2006). Relationships between cognitive emotion regulation strategies and depressive symptoms: A comparative study of five specific samples. *Personality and Individual Differences*, 40, 1659-1669.
- Gibb, B.E., Beevers, C.G., Andover, M.S., & Holleran, K (2006). The hopelessness theory of depression: A prospective multi-wave test of the vulnerability-stress hypothesis. *Cognitive Therapy and Research*. 30, 763–772.
- Gross J. J., & Levenson R. W. (1993). Emotional suppression: physiology, self-report and expressive behavior. *Journal of Personality and Social Psychology*, 64, 970–986.
- Gross, J.J., & Munoz, R.F. (1995) Emotion regulation and mental health. *Clinical Psychology: Science and Practice*, 2, 151-164.
- Gross, J.J., & John, O.P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, 85, 348-362.
- Gross, J.J. (1998) The emerging field of emotion regulation: an integrative review. *Review of General Psychology*. 2(3), 271–299.



- Gross, J.J. & Thompson, R. (2007). Emotion Regulation: Conceptual Foundations. *Handbook of Emotion Regulation*. 3-27.
- Gross, J.J., & Jazaieri, H. (2014). Emotion, emotion regulation, and psychopathology: An affective science perspective. *Clinical Psychological Science*, 2, 387-401.
- Gubash, B., Daradkeh, T., Al Naseri, K., Al Bloushi, N., Al Daheri, A. (2000). The Performance of the Center for Epidemiologic Study Depression Scale (CES-D) in an Arab Female Community. *International Journal of Social Psychiatry*, 46, 241–249.
- Haefel, G. J., Abramson, L. Y., Voelz, Z. R., Metalsky, G. I., Halberstadt, L., Dykman, B. M., et al. (2003). Cognitive vulnerability to depression and lifetime history of Axis I psychopathology: A comparison of negative cognitive styles (CSQ) and dysfunctional attitudes (DAS). *Journal of Cognitive Psychotherapy*, 17, 3–22.
- Haefel, G.J., Gibb, B.E., Metalsky, G.I., Alloy, L.B., Abramson, L.Y., Hankin, B.L., Joiner, T., Swedensen, J.D. (2008). Measuring cognitive vulnerability to depression: Development and validation of the cognitive style questionnaire. *Clinical Psychology Review*, 28, 824-836.
- Haefel G.J. (2011). After further deliberation: Cognitive vulnerability predicts changes in event-specific negative inferences for a poor midterm grade. *Cognitive Therapy and Research*. 35(4), 285–92.
- Haefel, G.J., Hershenberg, R., Goodson, J.T. Hein, S., Square, A., Griorenko, E.L., Chapman, J. (2017). The Hopelessness Theory of Depression: Clinical Utility and Generalizability. *Cognitive Therapy and Research*.

- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guilford.
- Joiner, T., Perez, M., Wagner, K., Berenson, A., & Marquina, G. (2000). On fatalism, pessimism, and depressive symptoms among Mexican-American and other adolescents attending an obstetrics-gynecology clinic. *Behaviour Research and Therapy*, 887-896.
- Joormann, J., & Gotlib, I. H. (2010). Emotion Regulation in Depression: Relation to Cognitive Inhibition. *Cognition & Emotion*, 24(2), 281–298.
- Joorman, K., Stanton, C. H. Examining emotion regulation in depression: A review and future directions. *Behaviour Research and Therapy*, 86, 35-49.
- Juang, L.P., Moffit, U., Kim, Y. S., Lee, R. M., Soto, J. A., Hurley, E., Weisskirch, R. S., Shelley, B. A., Castillo, L.G., Huynh, Q., Whitborne, S. K., (2016) Cognitive and expressive suppression: Links to racial-ethnic discrimination and adjustment among Latino/a and Asian-heritage college students. *Journal of Adolescence*, 53, 21-33.
- Kennedy, S. H. (2008). Core symptoms of major depressive disorder: relevance to diagnosis and treatment. *Dialogues in Clinical Neuroscience*, 10(3), 271–277.
- Kessler, R. C., & Bromet, E. J. (2013). The epidemiology of depression across cultures. *Annual Review of Public Health*, 34, 119–138.
- Kudinova, A.Y., James, K., Gibb, B. E., (2017). Cognitive reappraisal and depression in children with a Parent history of depression. *Journal of Abnormal Child Psychology*, 1-8.

- Kwon, H., Yoon, K. L., Joorman, J., Kwon, J. Cultural and gender differences in emotion regulation: Relation to depression. *Cognition and emotion*, 27(5), 769-782.
- Lazarus, R. S. (1999). Stress and emotion: A new synthesis. New York: Springer.
- Lazarus, R. S., & Alfert, E. (1964). Short-circuiting of threat by experimentally altering cognitive appraisal. *The Journal of Abnormal and Social Psychology*, 69(2), 195-205.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.
- Lee, Y.T., & Seligman, M. E. P. (1997). Are Americans more optimistic than the Chinese? *Personality and Social Psychology Bulletin*, 23(1), 32-40.
- Lei, H., Zhang, X., Cai, L., Wang, Y., Bai, Zhu, X. (2014). Cognitive emotion regulation strategies in outpatients with major depressive disorder. *Psychiatry Research*, 218, 87-92.
- Liu, R. T., Kleiman, E. M., Nestor, B. A., & Cheek, S. M. (2015). The Hopelessness Theory of Depression: A Quarter Century in Review. *Clinical Psychology: A Publication of the Division of Clinical Psychology of the American Psychological Association*, 22(4), 345–365.
- Liu, D. Y., Thompson, R. J., (2017). Selection and implementation of emotion regulation strategies in major depressive disorder: An integrative review. *Clinical Psychology Review*, 57, 183-194.
- Merhi R, Kazarian SS (2015) Examination of Two Emotion Regulation Strategies in a Lebanese Community Sample: Validation of the Arabic Emotion Regulation Questionnaire (ERQ). *Journal of Psychology Clinical Psychiatry* 3(4): 00147.

- McLaughlin, K. A. (2011). The Public Health Impact of Major Depression: A Call for Interdisciplinary Prevention Efforts. *Prevention Science : The Official Journal of the Society for Prevention Research*, 12(4), 361–371.  
<http://doi.org/10.1007/s11121-011-0231-8>
- Marcus M. Depression: A Global Crisis, WHO Department of Mental Health and Substance Abuse: World Health Organization; 2012
- Markus, H., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review*, 98(2), 224-253.
- Matsumoto, D., Hee Yoo, S., Nakagawa, S.. (2008). Culture, emotion regulation, and adjustment. *Journal of Personality and Social Psychology*, 94(6), 925-937.
- Matsumoto, D., Yoo, S. H., Fontaine, J., Anguas-Wong, A. M., Ariola, M., Ataca, B., et al. (2008). Mapping expressive differences around the world: The relationship between emotional display rules and individualism v. collectivism. *Journal of Cross-Cultural Psychology*, 39, 55–74.
- Mauss I. B., Levenson R. W., McCarter L., Wilhelm F. H., Gross J. J. (2005). The tie that binds? Coherence among emotion experience, behavior and physiology. *Emotion*, 5, 175–190.
- Monroe, S.M. & Harkness, K.L. (2005). Life stress, the “kindling” hypothesis, and the recurrence of depression: Considerations from a life stress perspective. *Psychological Review*, 112, 417-445.
- Moore, M.T. & Fresco, D.M. (2007). Depressive realism and attributional style: Implications for individuals at risk for depression. *Behavior Therapy*, 38, 144-154.

- Parker, G., Gladstone, G., & Chee, K.T. (2001). Depression in the planet's largest ethnic group: The Chinese. *American Journal of Psychiatry*, 158, 857-864.
- Paukert, A. L., Pettit, J. W., Perez, M., & Walker, R. L., Affective and Attributional Features of Acculturative Stress among Ethnic Minority College Students. *The Journal of Psychology: Interdisciplinary and Applied*, 140(5), 405-419.
- Peterson, C., & Seligman, M.E.P. (1984). Causal explanations as a risk factor for depression: Theory and evidence. *Psychological Review*, 91, 347-374.
- Peterson, C., & Park, N. (2006). Explanatory style and emotion regulation. *Handbook of Emotional Regulation*, 159-179.
- Qu, Y., & Telzer, E. H. (2017). Cultural differences in beliefs, practices, and neural mechanisms of emotion regulation. *Cultural Diversity and Ethnic Minority Psychology*, 23(1), 36-44.
- Radloff, L. S. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, 1, 385-401.
- Raps, C.S., Peterson, C., Reinhard, K.E., Abramson, L.Y., & Seligman, M.E.P. (1982). Attributional style among depressed patients. *Journal of Abnormal Psychology*, 91, 102-108.
- Reilly-Harrington, N. A., Alloy, L. B., Fresco, D. M., & Whitehouse, W. G. (1999). Cognitive styles and life events interact to predict bipolar and unipolar symptomatology. *Journal of Abnormal Psychology*, 108, 567-578
- Ramzan, N., & Amjad, N. (2017). Cross Cultural Variation in Emotion Regulation: A Systematic Review. *Annals of King Edward Medical University*, 23(1).

- Rottenberg, J., & Gross, J. J. (2007). Emotion and emotion regulation: A map for psychotherapy researchers. *Clinical Psychology: Science and Practice*, 14, 323–328.
- Sanjuan, P., & Magallares, A. (2009). A longitudinal study of the negative explanatory style and attributions of uncontrollability as predictors of depressive symptoms. *Personality and Individual Differences*, 46, 714–718.
- Samari, G. (2016). Cross-border ties and Arab American mental health. *Social Science Medicine*, 155, 93–101.
- Schutte, N.S., Manes, R.R. & Malouff, J.M. (2009). Antecedent focused emotion regulation, response modulation and well-being. *Current Psychology: A Journal for Diverse Perspectives on Diverse Psychological Issues*, 28(1): 21-31.
- Sinha, B. K., Willson, L. R., Watson, D. C. (2000). Stress and coping among students in India and Canada. *Canadian Journal of Behavioural Science*, 34(2), 218-225.
- Soto, J. A., Perez, C. R., Kim, Y.-H., Lee, E. A., & Minnick, M. R. (2011). Is expressive suppression always associated with poorer psychological functioning? A cross-cultural comparison between European Americans and Hong Kong Chinese. *Emotion*, 11(6), 1450-1455.
- Stein, G.L., Supple, A., Huq, N., Dunbar, A. & Prinstein, M.J. (2016). A longitudinal examination of perceived discrimination and depressive symptoms in ethnic minority youth: The roles of attributional style, positive ethnic/racial affect, and emotional reactivity. *Developmental Psychology*, 52, 259-271.

- Tafarodi, R.W., & Smith, A.J. (2001). Individualism-collectivism and depressive sensitivity to life events: the case of Malaysian sojourners. *International Journal of Intercultural Relations*, 25, 73-88.
- Tajfel, H., & Forgas, J. P. (2000). Social categorization: Cognitions, values and groups. In C. Stangor (Ed.), *Stereotypes and prejudice: Essential readings* (pp. 49–63). New York, NY: Psychology Press.
- Vines, L., & Nixon, R. (2009). Positive attributional style, life events and their effect on children's mood: Prospective study. *Australian Journal of Psychology*, 61(4), 211-219.
- Taylor, S. E., Sherman, D. K., Kim, H. S., Jarcho, J., Takagi, K., & Dunagan, M. S. (2004). Culture and social support: Who seeks it and why? *Journal of Personality & Social Psychology*, 87(3), 354-362.
- Teasdale, J. D. (1997). The relationship between cognition and emotion: The mind-in-place in mood disorders. In D. M. Clark & C. G. Fairburn (Eds.), *Science and Practice of Cognitive Behaviour Therapy*, 67-93.
- U.S. Department of Health and Human Services, National Institutes of Health, National Institute of Mental Health. (2015). Major Depression Among Adults. Retrieved from <https://www.nimh.nih.gov/health/statistics/prevalence/major-depression-among-adults.shtml>
- U.S. Department of Health and Human Services. Healthy People 2010: Understanding and Improving Health. 2nd Ed. Washington DC: U.S. Government Printing Office.

Wang, Y., Yi, J., He, J., Chen, G., Li, L., Yang, Y, Zhu, X. (2014) . Cognitive emotion regulation strategies as predictors of depressive symptoms in women newly diagnosed with breast cancer. *Psychoncology*. 23, 93–99.

World Health Organization. (2012). Depression: A global public health concern. Geneva, Switzerland: WHO.

World Health Organization. (2017). Depression. Retrieved from <http://www.who.int/mediacentre/factsheets/fs369/en/>



## Appendix A: Tables

Table 1.

*Descriptive Statistics and Bivariate Correlations of Study Variables (Arab Sample, Upper Diagonal N=85; Non-Arab Sample, Lower Diagonal, N=37).*

Variables	Arab M (SD)	Non-Arab M (SD)	t	1.	2.	3.	4.	5.	6.
1. Age	27.28 (9.67)	30.06 (11.16)	1.37	--	.07	-.11	.06	-.11	-.05
2. Sex	--	--	--	-.18	--	.08	.21	.23	-.20
3. NAS	4.32 (.73)	4.55 (.83)	1.25	.09	.19	--	-.17	-.13	.15
4. CR	28.58 (7.77)	28.73 (6.48)	.11	.23	-.06	-.38	--	.14	-.30***
5. AIS	28.27 (7.73)	--	--	--	--	--	--	--	.03
6. CESD	24.48 (11.47)	22.54 (11.98)	.11	-.18	-.29	-.29	-.35*	--	--

*Notes:* Sex = 0=female, 1=male, NAS= negative attributional style, CR = cognitive reappraisal, AIS= Arab Identity Scale, CES-D= Center of Epidemiological studies depression scale.

\*\*\* $p \leq .01$ , \* $p \leq .05$ .

Table 2.

*Results of Chi-Square Test and Descriptive Statistics for Cultural Background by Sex (N = 123).*

Sex	Cultural background	
	Arab	Non-Arab
Male	14 (11%)	7 (6%)
Female	72 (59%)	30 (24%)

*Notes.* Sex = 0=female, 1=male, Meast= 0=non-Arab, 1=Arab  $\chi^2 = 0.13$ , df = 1. Numbers in parentheses indicate column percentages.

Table 3.

*Summary of Hierarchical Regression Analysis for NAS Predicting Depression (N = 123).*

Variable	Model 1			Model 2		
	B	SE	$\beta$	B	SE	$\beta$
Age	-.11	.13	-.09	-.10	.13	-.08
Sex	-4.63	3.10	-.16	-5.33	3.07	-.19
Meast	3.42	2.73	.14	4.17	2.71	.17*
NAS	---	---	---	3.22	1.63	.21
$R^2$		.06			.10	
$\Delta R^2$		.06			.04	
<i>F</i> for change in $R^2$		1.59			3.91*	

Notes. Sex = 0=female, 1=male, Meast= 0=non-Arab, 1=Arab, NAS = negative attributional style.

\* $p = .05$

Table 4.

*Summary of Hierarchical Regression Analysis for NAS Predicting Reappraisal (N = 123).*

Variable	Model 1			Model 2		
	B	SE	$\beta$	B	SE	B
Age	-.10	.08	.12	.08	.08	.11
Sex	1.10	1.92	.06	1.58	1.89	.09
Meast	1.14	1.68	.08	.63	1.66	.04
NAS	--	--	--	-2.19	1.00	-.24**
$R^2$			.02			.08
$\Delta R^2$			.02			.06***
<i>F</i> for change in $R^2$			.60			4.78***

Notes: Sex = 0=female, 1=male, Meast= 0=non-Arab, 1=Arab, NAS = negative attributional style.

\*\* $p = .03$

Table 5.

*Summary of Hierarchical Regression Analysis for NAS and Reappraisal Predicting Depression (N = 123).*

Variable	Model 1			Model 2		
	B	SE	$\beta$	B	SE	$\beta$
Age	-.11	.13	-.09	-.06	.13	-.05
Sex	-4.6	3.1	-.16	-4.55	2.95	-.16
Meast	3.4	2.7	.14	4.48	2.59	.18
NAS	--	--	--	2.13	1.61	.19
CR	--	--	--	-.50	.17	-.30***
$R^2$			.06			.18
$\Delta R^2$			.06			.13***
$F$ for change in $R^2$			1.59			6.19***

*Notes:* Sex = 0=female, 1=male, Meast= 0=non-Arab, 1=Arab, NAS = negative attributional style, CR = cognitive reappraisal.

\*\*\* $p \leq .00$

Table 6.

*Summary of Hierarchical Regression Analysis for NAS Predicting Depression with Arab background as a moderator (N = 123).*

Variable	Model 1			Model 2			Model 3		
	B	SE	$\beta$	B	SE	$\beta$	B	SE	$\beta$
Age	-.11	.13	-.09	-.10	.13	-.082	-.11	.13	-.09
Sex	-4.63	3.10	-.16	-5.33	3.07	-.186	-5.42	3.08	-.20
Meast	--	--	--	4.17	2.71	.17	4.32	2.7	.17
NAS	--	--	--	3.22	1.63	.21*	4.76	2.7	.32
Meast x NAS	--	--	--	--	--	--	-2.4	3.4	-.13
$R^2$			.06			.10			.11
$\Delta R^2$			.06			.04			.01
$F$ for change in $R^2$			1.59			3.91			.50

*Notes:* Sex = 0=female, 1=male, Meast= 0=non-Arab, 1=Arab, NAS = negative attributional style.

\* $p = .05$

Table 7.

*Summary of Hierarchical Regression Analysis for NAS Predicting Depression among the non-Arab sample (N = 37).*

Variable	Model 1			Model 2		
	B	SE	$\beta$	B	SE	$\beta$
Age	-.11	.24	-.10	-.16	.24	-.14
Sex	-.62	6.24	-.02	-2.69	6.20	-.09
NAS	--	--	--	4.57	2.92	.32
$R^2$			.01			.11
$\Delta R^2$			.01			.10
$F$ for change in $R^2$			.86			1.17

*Notes:* Sex = 0=female, 1=male, NAS = negative attributional style.

Table 8.

*Summary of Hierarchical Regression Analysis for NAS Predicting Depression among the Arab sample (N = 86).*

Variable	Model 1			Model 2		
	B	SE	$\beta$	B	SE	$\beta$
Age	-.08	.17	-.06	-.06	.17	-.05
Sex	-6.39	3.66	-.23	-6.81	3.66	-.24
NAS				2.49	2.03	.16
$R^2$			.06			.08
$\Delta R^2$			.06			.03
$F$ for change in $R^2$			.1.74			1.51

*Notes:* Sex = 0=female, 1=male, NAS = negative attributional style.

Table 9.

*Summary of Hierarchical Regression Analysis for NAS Predicting Reappraisal among the non-Arab sample (N = 37).*

Variable	Model 1			Model 2		
	B	SE	$\beta$	B	SE	$\beta$
Age	.23	.13	.34	-.26	.12	.40
Sex	-.90	3.38	-.05	.63	3.17	.04
NAS	--	--	--	-3.39	1.50	-.42
$R^2$			.13			.29
$\Delta R^2$			.13			.16
$F$ for change in $R^2$			1.71			5.13

Notes: Sex = 0=female, 1=male, NAS = negative attributional style.

Table 10.

*Summary of Hierarchical Regression Analysis for NAS Predicting Reappraisal among the Arab sample (N = 86).*

Variable	Model 1			Model 2		
	B	SE B	$\beta$	B	SE B	$\beta$
Age	-.00	.11	-.00	-.02	.11	-.02
Sex	2.49	2.34	.14	2.79	2.34	.16
NAS	--	--	--	-1.77	1.30	-.18
$R^2$			.02			.05
$\Delta R^2$			.02			.03
$F$ for change in $R^2$			.57			1.87

Notes: Sex = 0=female, 1=male, NAS = negative attributional style, Meast= Arab cultural background.

Table 11.

*Summary of Hierarchical Regression Analysis for NAS and Reappraisal Predicting Depression among the non-Arab sample (N = 37).*

Variable	Model 1			Model 2		
	B	SE	$\beta$	B	SE	$\beta$
Age	-.11	.24	-.10	-.04	.26	-.04
Sex	-.62	6.2	-.02	-2.40	6.17	-.08
NAS	--	--	--	3.03	3.23	.21
CR	--	--	--	-.46	.41	-.26
$R^2$			.01			.16
$\Delta R^2$			.01			.15
$F$ for change in $R^2$			.10			1.84

Notes: Sex = 0=female, 1=male, NAS = negative attributional style, CR = cognitive reappraisal.

Table 12.

*Summary of Hierarchical Regression Analysis for NAS and Reappraisal Predicting Depression among the Arab Sample (N = 86).*

Variable	Model 1			Model 2		
	B	SE	$\beta$	B	SE	$\beta$
Age	-.08	.17	-.06	-.07	.16	-.05
Sex	-6.39	3.66	-.23	-5.43	3.54	-.19
NAS	--	--	--	1.6	1.97	.10
CR	--	--	--	-.50	.20	-.31
$R^2$			.06			.18
$\Delta R^2$			.06			.12
$F$ for change in $R^2$			1.74			3.85

Notes: Sex = 0=female, 1=male, NAS = negative attributional style, CR = cognitive reappraisal

Table 13.

*Summary of Hierarchical Regression Analysis for NAS Predicting Depression with level of Acculturation as a Moderator (N = 86).*

Variable	Model 1			Model 2			Model 3		
	B	SE	$\beta$	B	SE	$\beta$	B	SE	B
Age	-.13	.16	-.09	-.09	.16	-.07	-.10	.16	-.07
Sex	-7.63	3.5	-.26	-7.0	3.57	-.27	-8.0	3.6	-.27
NAS	--	--	--	3.2	1.9	.20	3.18	2.0	.20
AIS	--	--	--	-.004	.07	-.01	-.01	.07	-.01
AIS x NAS	--	--	--	--	--	--	-.03	.08	0.05
$R^2$			.08			.12			.12
$\Delta R^2$			.08			.04			.00
$F$ for change in $R^2$			2.8			1.4			.14

*Notes:* Sex = 0=female, 1=male, NAS = negative attributional style, CR = cognitive reappraisal, AIS = Arab Identity Scale.

Table 14.

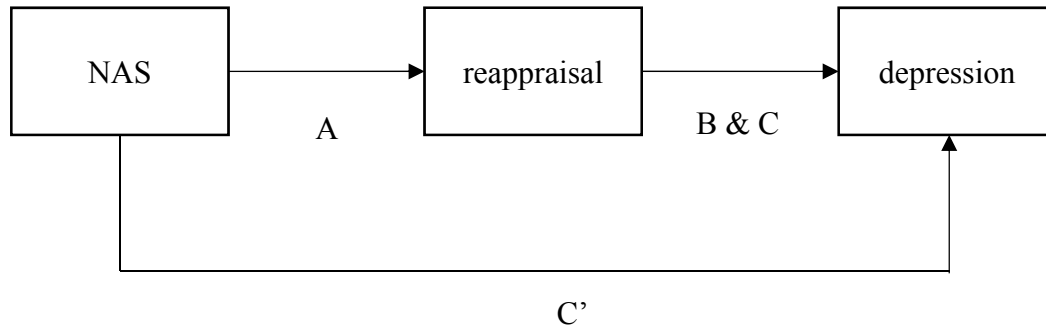
*Summary of Hierarchical Regression Analysis for NAS Predicting Reappraisal with level of Acculturation as a Moderator (N = 86).*

Variable	Model 1			Model 2			Model 3		
	B	SE	$\beta$	B	SE	$\beta$	B	SE	$\beta$
Age	-.03	.10	-.04	-.03	.10	-.04	-.04	.10	-.05
Sex	2.86	2.20	.16	2.50	2.23	.14	2.35	2.24	.13
NAS	--	--	--	-1.00	1.21	-.10	-1.02	1.22	-.10
AIS	--	--	--	.05	.04	.16	.04	.04	.14
AIS x NAS	--	--	--	--	--	--	-.05	.05	-.12
$R^2$			.03			.06			.07
$\Delta R^2$			.03			.04			.01
$F$ for change in $R^2$			.86			1.17			.90

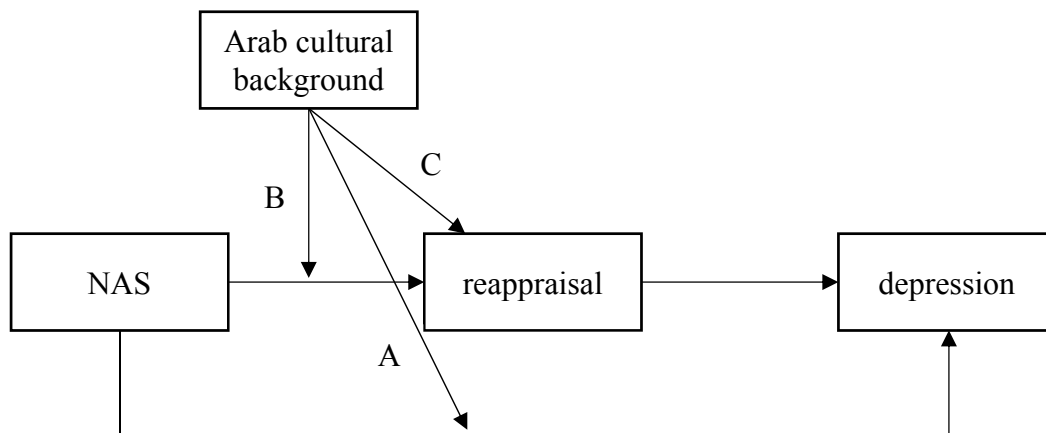
*Notes:* Sex = 0=female, 1=male, NAS = negative attributional style, CR = cognitive reappraisal, AIS = Arab Identity Scale.



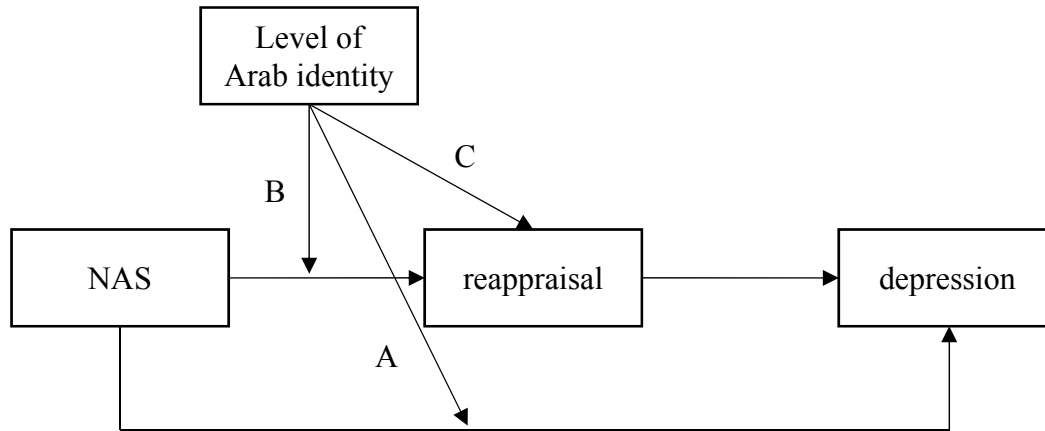
## Appendix B: Figures



*Figure 1.* Attributional Style-Reappraisal Model of Depression. This model illustrates the relationship between NAS and reappraisal (A), reappraisal and depression (B), negative attributional styles on depression (C'), and the mediation of reappraisal between NAS and depression (C).



*Figure 2.* Cultural Effects on Attributional Style-Reappraisal Model of Depression. This model tests the mediation of reappraisal between NAS and depression and examines how this is moderated by Arab cultural background via Paths A and B. Path C represents a planned post-hoc analysis in the event moderated-mediation is significant to test whether reappraisal differs based on Arab cultural background.



*Figure 3.* Acculturation in the Attributional Style-Reappraisal Model of Depression. This model tests the mediation of reappraisal between NAS and depression and examines how this is moderated by level of acculturation via Paths A and B. Path C represents a planned post-hoc analysis in the event moderated-mediation is significant to test whether reappraisal differs based on level of acculturation among the Arab sample.