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Clinical Psychology

The Relationship between Anger, Emotion Regulation, Interpersonal Problems and Depression in Individuals with Depressive Symptoms in Saudi Arabia

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Abstract

Background

Depression is a mental health disorder (World Health Organization, 2013) with a chronic, recurrent course among adults (Fava, 2003). According to empirical studies and clinical observations, there are four key areas of depression in terms of symptoms, which are emotional, somatic, cognitive and interpersonal (Cheung & Power, 2012). Emotional symptoms, such as anger, are more dominant in individuals with depression (Blatt, 2004; *cf.* Cheung & Power, 2012). Previous literature (e.g., Besharat et al., 2013) has found a strong relationship between anger and depression in individuals suffering from depression. Moreover, individuals with symptoms of depression have been found to have interpersonal difficulties (i.e., being too aggressive, showing shyness and low assertiveness), which in turn undermine their relationships.

Likewise, previous literature has highlighted a strong relationship between maladaptive emotion regulation strategies and depressive symptoms (Moriya & Takahashi, 2013). These strategies are dependent upon cultural contexts that shape the way individuals manage their emotions. Cultural orientations such as collectivism or individualism may impact on how individuals manage their emotions, especially negative emotions such as anger (Seo, 2011; Sivadas, Bruvold, & Nelson, 2008). Moreover, past studies (e.g., Chowdhury & Gupta, 2014) have documented that individuals with depressive symptoms may inhibit the overt expression of anger (by using suppression strategy), while they feel anger internally, indicating that there may be an interaction between experiencing and expressive suppression factors (i.e., the suppression of overt expression of anger), which in turn may be linked to depressive symptoms.

Surprisingly, even though the negative consequences of dysregulation of anger as well as expressive suppression on depression have been well reported, the interactions between the anger expression-out (tendency to express a feeling of anger in aggressive behaviour, either physically or verbally, towards people or objects), expressive suppression and collectivist factors have not been explored in the literature. Moreover, there is no study, according to the author's knowledge, which brings all these predictor variables together in one study to investigate them in individuals with symptoms of depression, especially in Saudi Arabia. Therefore, if we bring all these predictor variables together in one study, we could explain the contributors to depression better than if we were examining them in isolation. Therefore, the current study will consider the presence of interpersonal problems, such as being self-

sacrificing and being too aggressive, as a key factor of depression in addition to the previously mentioned factors to provide a better explanation of depression than what is already available.

Objectives

This research utilises cross sectional designs. It aims to examine how the interaction between expressive suppression (ES) and anger expression-out (AO) as well as the interaction between collectivism (HVC) and anger expression-out provides an enhanced understanding of depression compared to these predictors (ES, AO and HVC) in isolation. The present research has two hypotheses: it was hypothesised that (1) the interaction between high expressive suppression and low anger expression-out ($AO \times ES$) as well as (2) the interaction between high collectivism and low anger expression-out ($AO \times HVC$) would contribute to the variance in depression over and above what was predicted by expressive suppression, collectivism and anger expression-out variables in isolation. The interaction denotes the inhibition of overt expression of anger. That is, individuals with depressive symptoms may feel anger internally, but they may frequently make an effort to inhibit the expressive components of angry responses, which in turn may contribute to depressive symptoms. The purpose was to add to the current explanations of the Beck's cognitive model of depression, which tends to focus more on the effects of negative schematic beliefs, which in turn may add to our understanding of depression.

Methods

Three-hundred-and-five adults (183 Male and 122 Female) with symptoms of depression were recruited from mental health hospitals in Saudi Arabia after formal approval from concerned authorities. The participants' age ranged from 18 to 59 years, with a mean age of 34.4 years ($SD = 8.5$). Seven questionnaires were administered: The Beck Depression Inventory (BDI-II); The Dysfunctional Attitudes Scale (DAS-26); The State-Trait Anger Expression Inventory (STAXI-2); The Emotion Regulation Questionnaire (ERQ); The Brief Core Schema Scale (BCSS); The Horizontal and Vertical Individualism and Collectivism Scale (HVICS) and The Inventory of Interpersonal Problems (IIP-32). All questionnaires were translated into Arabic using the translation and back translation technique. Psychometric properties were examined, and revealed good reliability. Hierarchical multiple regression and simple slope analyses were used in order to analyse the data.

Results

The findings of the present research indicated that the variables of dysfunctional attitudes, negative core schema beliefs, interpersonal problems, trait anger, and interaction

terms ($AO \times ES$ and $AO \times HVC$) were significant predictors of the Beck Depression Inventory (BDI-II) total score. The present results provide support to the study's hypotheses by showing that the interaction between anger expression-out and both expression suppression ($AO \times ES$) and collectivism ($AO \times HVC$) predicted depressive symptoms in the sample, and explained a greater amount of variance than negative cognitions. These results suggest that suppression of overt expression of anger plays an important role in depression in the Saudi context.

The interpersonal component combined with the interaction terms explained more variance in depression over and above cognitive factors, indicating that the interpersonal component was very important in contributing to depressive symptoms. This result indicated that suppression of overt expression of anger was more relevant to interpersonal difficulties. The final model accounted for 62% of the variance in depression.

Discussion

The findings of this study suggest that dysregulation of anger, emotion regulation and interpersonal components play an important role in depression. That is, the interaction of behaviour, thoughts and emotions contributes to symptoms of depression. Moreover, the current results may potentially expand the current theoretical model of depression by considering interpersonal aspects, especially in relation to anger. Consequently, the proposed interactional model may contribute in developing potential intervention strategies relating to emotion regulation in individuals with symptoms of depression.

Lay Summary

Depression is a chronic recurring mental health disorder among adults and can produce a range of symptoms which may involve emotional feelings, physical symptoms, cognitive symptoms (related to the person's mind and thinking) and symptoms relating to the person's interactions with other people around them.

Researchers have found a strong relationship between various emotional feelings and depression, particularly with anger. This leads to difficulties with interactions with the people around them, which in turn undermines their relationships. Further problems arise when people use inappropriate strategies to deal with strong emotions that they feel, such as suppressing (not expressing) these emotions. These strategies are often related to the person's cultural context. For example, some cultures are more individualistic and it is acceptable to be quite assertive and show the people around you how you feel, when necessary. Other cultures, as is the case in Middle Eastern countries such as Saudi Arabia, are more collectivist, based on shared community values and behavioural conventions. These cultural factors shape the way individuals manage and express their negative emotions such as anger. Moreover, past studies have found that people with depressive symptoms may experience anger but suppress their expression of anger rather than dealing with them, which in turn may be linked to increasing their depressive symptoms.

Surprisingly, even though this link has been reported, there have been no previous studies investigating the link between depression and cultural pressures to suppress the expression of anger. Thus, this research aims to investigate the effects of the factors that might affect the severity of the person's depressive symptoms, particularly the pressure to suppress the expression of ones' angry feelings in a collectivist culture, in this case Saudi Arabia. It is hoped that the results obtained will provide a better understanding of depression and, thus, how sufferers can be effectively treated.

To achieve this aim, a large sample of men and women with depression from hospitals in Saudi Arabia agreed to complete several different questionnaires which are widely used in psychological studies. The research used the results of these questionnaires to establish to what degree the feelings of anger and the cultural pressures to suppress any expressions of these feelings interact to explain the severity of their depressive symptoms. These results suggest that avoiding openly expressing anger plays an important role in depression in the Saudi context, particularly in contributing to interpersonal difficulties in a collectivist culture where there is pressure to maintain group harmony. Based on these findings the study proposes an

interactional model which takes into account these cultural factors and which is aimed, subject to further research, to contribute to developing potential intervention strategies for individuals with symptoms of depression to help them to regulate their emotions.

Declaration

I hereby declare that this thesis is my own work. This thesis has not been submitted for any previous degree. The information obtained from sources other than this study is acknowledged in the text and included in the references.

Khaled Ali Alrwailan

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List of Abbreviations

Abbreviation	Meaning
BDI-II	Beck Depression Inventory
ERQ	Emotion Regulation Questionnaire
ES	Expressive Suppression subscale
IIP-32	Inventory of Interpersonal Problems
DAS-26	Dysfunctional Attitudes Scale
STAXI-2	State-Trait Anger Expression Inventory-2 scale
TA	Trait Anger Subscale
AO	Anger Expression-Out
HCIVS	Horizontal and Vertical Individualism and Collectivism Scale
HC	Horizontal Collectivism Subscale
VC	Vertical Collectivism Subscale
HI	Horizontal Individualism Subscale
VI	Vertical Individualism Scale
HVC	Combined Horizontal and Vertical Collectivism Scales
BCSS	Brief Core Schema Scale
NSB	Negative Self-Beliefs subscale
NOB	Negative Others Beliefs subscale
PSB	Positive Self-Beliefs subscale
POB	Positive Others Beliefs subscale
OPD	Outpatients Department
S-W	Shapiro-Wilk test
K-S	Kolmogorov-Smirnov test
Z	Value of Skew or Kurtosis
<i>r</i>	Pearson Correlation Coefficient Test
KSA	Kingdom of Saudi Arabia
AO × ES	The interaction between anger expression-out and expressive suppression subscales
AO × HVC	The interaction between anger expression-out and collectivism subscales
IPT	Interpersonal Psychotherapy
SE	Standard Error
M	Mean
CI	Confidence Interval

CASP	Critical Appraisal Skills Programme
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
SR	Systematic Review
DSM-5	Diagnostic and Statistical Manual of Mental Disorders, 5 th Edition.
ICD-10	International Statistic Classification of Diseases, 10 th Edition.

Conferences Presentation and Publications

Alrwailan, K., Schwannauer, M. (2014, 1st of February). *Anger and Depression in Saudi Adults*.

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Relationship between Anger, Emotion Regulation and Depression. Poster presented at the 9th Saudi Students Conference in the University of Birmingham, Birmingham, England, United Kingdom.

Alrwailan, K. (*In preparation*). Perceived Anger, Depression and Emotion Regulation in a clinical population in Saudi Arabia.

Alrwailan, K. (*In preparation*). Risk Factors of Depressive Disorder in a Clinical Population in Saudi Arabia The Role of Anger, Emotion Regulation and Interpersonal Factors.

Alrwailan, K. (In preparation). Maladaptive Anger Regulation in Depressive Disorder: A Systematic Review.

CHAPTER 1

1.0 Introduction

Depression is a condition characterised by a combination of emotional, social and cognitive symptoms, with low mood being the most characteristic symptom. The cognitions most strongly associated with depression are negative schematic beliefs of the self, world and the future (American Psychiatric Association, 2013). The present cognitive therapy for depression is based on the work of Beck, Rush, Shaw and Emery (1979). Beck's cognitive model assumes that early life experiences such as rejection from parents lead to the development of schema or dysfunctional assumptions. These schemas, according to the cognitive model, can remain for a long time and can be activated by a matching stressful situation, which in turn may lead to depression. However, previous literature (e.g., Busch, 2009; McEvoy, Burgess, & Nathan, 2013b) has suggested that if other explanatory factors, such as emotional and interpersonal components were added to Beck's cognitive model, depression could be understood better. In fact, the current cognitive model of depression tends to focus more on the effects of negative cognitions and does not take into account interpersonal and emotional factors, such as a maladaptive regulation of anger, particularly in interpersonal relationships (Busch, 2009; McEvoy et al., 2013b; Power, 2009; Power, 2010). These factors, according to previous studies (e.g., Besharat, Nia & Farahani, 2013; Nazir & Mohsin, 2013), may be regarded as risk factors for major depressive disorder in individuals with depressive symptoms. Thus, it is important that these components should not be overlooked when treating depression, as addressing these aspects may support individuals to reduce their level of depressive symptoms.

The purpose of the present thesis is to add to current conceptualisations of the cognitive model of depression by addressing the importance of the factors such as emotion regulation, interpersonal and cultural factors. In particular, this research will address the impact of a maladaptive regulation of anger on depression, especially in the context of interpersonal relationships, and particular cultural norms and explain more of the variance of depressive symptoms. The term "emotion dysregulation" is frequently used interchangeably with the term "maladaptive emotion regulation" to define emotion regulation strategies (Robertson, Daffern & Bucks, 2012).

While every individual gets angry, for some, it is a momentary emotion, while for others, it is gradual and can last for a long time. This depends largely on individuals' ability

to regulate their emotions in an appropriate way (Gross & John, 2003). Numerous authors have proposed that emotional disorders such as depression may be associated with impaired emotion regulation abilities (D'Avanzato et al., 2013; Joormann & D'Avanzato, 2010). For instance, although people may become disturbed, troubled, or even sick after they have been injured, lost beloved partners, or failed to achieve personal goals, in some cases these emotional disturbances may persist or not be freely expressed. Plausible explanations of such kinds of emotional disturbances in the literature include the use expressive suppression. *Expressive suppression* is a response-focused strategy in which an individual manages behavioural expression of emotions after they have been generated (Gross & John, 2003). It includes avoiding expressing emotional responses outwardly whilst still experiencing negative emotions, such as anger, in phenomenological awareness (Campbell-Sills, Barlow, Brown & Hofmann, 2006; Hofmann, Heering, Sawyer, & Asnaani, 2009). For example, Goldman and Haaga (1995) found that although individuals with depressive disorder scored significantly higher on anger experience, they expressed lower anger than healthy controls recruited from the community. This result may suggest that there is an interaction between the experience of anger and expressive suppression as a maladaptive emotion regulation strategy. This may lead to negative feelings, including developing depressive disorder, or reduced life satisfaction (Denson, Moulds, & Grisham, 2012).

However, previous literature has not examined the effect of interaction between a high level of anger, experienced phenomenologically, and an expressive suppression strategy. In the current study, the term suppression of anger refers to the result of the interaction of a combination of high levels of expressive suppression and low anger expression-out (the tendency to express a feeling of anger in aggressive behaviour, either physically or verbally, towards people or objects) ($AO \times ES$). Thus, if we bring these predictor variables together, we can explain depression better than if we focus on each in isolation.

Individuals can suppress the expression of anger for personal or societal reasons. For example, collectivist cultures discouraged explicit expression of anger, as the norms in these cultures tend to emphasise harmony, cooperation and avoidance of conflict (English & John, 2013; Ford & Mauss, 2015; Matsumoto et al., 2009). In contrast, expressions of anger might be acceptable in individualistic cultures as statements of individual liberty, or individual goal directed behaviour (Chu, 2015). However, frequently suppressing the expression of anger might play an important role in the development of depressive symptoms. For example, when individuals feel angry, they may criticize themselves for having angry feelings, as this is not according to behavioral norms in their culture. Thus, they try to suppress the expression of

their anger, and they would also turn anger towards the self in the form of harsh self-criticism, which, in turn, may contribute to depression.

Previous research has suggested that cultural orientation can influence both the expression of anger (Chu, 2015) and the symptoms of depression (Abu-Kaf & Priel, 2008; Hamilton et al., 2013). Thus, the examination of the experience and expression of anger within a particular culture, such as Saudi Arabia, which is categorized as a collectivist culture (Hofstede, 1983), can increase our understanding of depression, within this cultural context. However, according to the researcher's knowledge there is no study focusing on these interactions among adults with depressive symptoms in this collectivist culture. Hence, this thesis will examine the impact of cultural orientation on the expression of anger in individuals with depressive symptoms, which in turn may suggest better intervention plans in this context. Thus, based on previous literature (e.g., Allan & Gilbert, 2002; Chowdhury & Gupta, 2014; Mauss, Butler, Roberts & Chu, 2010), the researcher proposes that 1) there is an interaction between expressive suppression (ES) and anger expression-out (AO), and 2) an interaction between collectivism (HVC) and anger expression-out variables ($AO \times HVC$), which in turn predicts depression.

Although there is robust evidence that dysregulated anger can lead to emotional disorders (Besharat et al., 2013; Busch, 2009), there are no studies, according to the author's knowledge, which have examined the effect of the combination of high levels of anger and suppression of anger expression on depression, or that have examined anger in relation to depression among the adult Saudi population. Therefore, this thesis aims to fill this gap by examining maladaptive regulation of anger as a predictor of depressive symptoms.

Several studies have indicated that there is a positive association between frequent experiencing of anger and depression (e.g., Abi-Habib & Luyten, 2013; Besharat et al., 2013; Cheung & Park, 2010; Luutonen, 2007). However, the existing literature provides little evidence to gain a reflective understanding of the association between anger and depression. For example, Besharat et al. (2013) found a strong relationship between anger and depression in individuals suffering from depression. Similarly, they found that there is a minimal relationship between anger-out (expressions of anger directed at others or objects) and depression (Besharat et al., 2013). They concluded that emotion regulation mediates the relationship between anger and depression in a clinical population. This result suggests that depressive disorder results from impaired emotion regulation abilities. However, while pointing to the relevance of anger rumination and emotion regulation, the study did not explore

other components of emotion regulation, such as an expressive suppression strategy. Moreover, their study did not take into account other predictors of depression.

These studies suggest that if other explanatory variables, such as cultural values and interpersonal components were added, depression could be understood better. In fact, several studies (e.g., McEvoy et al., 2013b) have clearly established a strong relationship between interpersonal difficulties and depression. This association suggests that it would be productive to understand the underlying psychological mechanism of this interaction when treating depression. For example, a number of studies (e.g., Aldinger et al., 2013; Besharat et al., 2013) have now documented that depression is predicted by dysfunctional attitudes, negative schematic beliefs, interpersonal problems, maladaptive emotion regulation strategies and anger.

Surprisingly, even though the negative consequences of these predictors of depression have been well reported, the existing literature, to the author's knowledge, has not examined the variables of these predictors together in one study. Even studies of anger and emotion regulation, which have addressed the interplay of these factors, have not integrated these complexities well. This can be attributed to a number of reasons. Firstly, most of this literature focuses only on specific aspects of the relationship between anger and depression, such as anger rumination. Secondly, most of these studies looked only at anger in relation to depression without any of the other predictors of depression. Importantly, previous studies about anger and depression were interested in individuals with anger problems rather than assisting with anger regulation. For example, they did not examine maladaptive emotion regulation strategies such as expressive suppression in relation to anger in individuals with depressive symptoms. Furthermore, the current cognitive model of depression does not focus on maladaptive emotion regulation in particular in respect to anger, especially in relation to problems with interpersonal relationships (Busch, 2009; McEvoy et al., 2013b).

By looking at these known predictors in isolation, previous studies have limited our ability to reach a new and fuller understanding of depression. Against this backdrop, this thesis seeks to bring these complexities together and examine the interaction between these variables as predictors of depression. Accordingly, this thesis will examine the interaction between anger expression-out and expressive suppression strategy ($AO \times ES$), as well as the interaction between the anger expression-out and collectivism variables ($AO \times HVC$). The interaction designates the suppression of overt expressions of anger. The combination of interactions among these variables may help us to provide a greater understanding of psychological processes involved in depression, and also to understand depression better than if we examine

them separately. In other words, this research may contribute to the existing literature by potentially expanding the current theoretical model of depression by considering interpersonal aspects, especially in relation to anger as embedded within a specific collectivist cultural context. Therefore, it is believed that the identification of the dynamics beneath this interaction can enhance our understanding in the management of depressive disorders.

To the author's knowledge, this research may be the first of its kind, especially in the context of Arab countries. In addition, the majority of current studies were undertaken within American and European population samples, and social cultural differences were found to have effects on the way individuals manage their emotions (Gross, 1998b; Kwon, Yoon, Joormann & Kwon, 2013; Soto, Perez, Kim, Lee & Minnick, 2011). The proposed interactional model could contribute to explaining variances in depression better than what is already known. Thus, the present research can contribute to supporting individuals to overcome difficulties with mood by focusing on the development of skills to manage their negative emotions.

This section has introduced the background of this research. The remaining sections of this chapter will first review the relevant literature regarding depression, anger, expressive suppression, interpersonal problems and collectivism versus individualism, and how these variables are related to each other. Study One, in Chapter 2, comprises a systematic review of literature linking suppressive emotion regulation and depression. Study Two (in Chapter 3) provides a description of the cultural context of Saudi Arabia, and explains the procedures of translation and back translation of measures used into Arabic and initial evidence of validation in Saudi Arabian population. Chapter 4 reports Study Three, which involves cross-sectional analysis of anger, expressive suppression and depression in Saudi Arabia followed by General discussion chapter.

1.1. Depression

Depression is a mental health disorder (Cheng, 2015; Radden, 2000) with a chronic, recurrent course of the disease among adults (Fava, 2003). It impacts an individual's social relationships and function (Alabdani, Aldahash & AlKhalil, 2016) and causes problems not only for individuals, but also for those who look after them. Therefore, individuals with depressive symptoms may be looking for help from clinicians. Depression is widespread and prevalent in almost all societies (Radden, 2000; Sehlo & Al Ahwal, 2013).

The disorder of depression is often found to be treatable using antidepressants, especially when combining drug therapy with psychotherapy (Berlim, Fleck & Turecki, 2008; Sehlo & Al Ahwal, 2013). However, longitudinal studies have found relapse rates ranging from 19% of patients within a period of six months (Mueller et al., 1999), to up to 87% (Ingram, Trenary, Odom, Berry & Nelson, 2007). This wide discrepancies in the success of treatment suggest it is not well understood and further research is needed to better understand depression.

1.1.1. Definition of Depression

For the purpose of this thesis, a working definition of depression is that it is a common mental health disorder which is characterized by sadness, feelings of guilt or low self-worth, feeling of tiredness, loss of interest or pleasure, disturbed sleep or appetite, and poor concentration (World Health Organization, 2013).

1.1.2. Depression in Saudi Arabia

A rising trend in depressive disorders similar to that in Western countries has been observed in Saudi Arabia (Abdelwahid & Al-shahrani, 2011; Al-Gelban 2007). However, no systematic studies have examined the prevalence of depressive disorders in Saudi Arabia (Alrahili, Almatham, Bin Haamed & Ghaziuddin, 2016).

It has been suggested that mood disorders have different clinical presentations across cultures (Brintnell, Sommer, Kuncoro, Setiawan & Bailey, 2013). For example, in some cultures, such as Chinese society, depression manifests in physical symptoms, such as abdominal discomfort, rather than psychological symptoms, whereas in the United States depression manifests in both psychological and physical symptoms (Alabdani et al., 2016). These differences may be due to the influence of societal norms and values on individual behaviour in a particular culture. In fact, individuals with depressive symptoms in Saudi culture show both psychological and physical symptoms (Alabdani et al., 2016).

Accordingly, depressive disorder was chosen to be examined in the current study as a common mental disorder, especially in the Kingdom of Saudi Arabia (KSA) (Alrahili et al., 2016). Moreover, few studies are available concerning depression in the Saudi Arabian context, especially in a clinical population and most of these studies were conducted only within Primary Health Care (Alrahili et al., 2016).

1.1.3. Symptoms of Depression

Depression manifests in many ways, but the most common symptoms include changes in thinking, changes in mood and changes in activity, which continue for at least two weeks (Verduyn, Rogers & Wood, 2009). According to empirical studies and clinical observations, there are four key areas of depression in terms of symptoms, which are emotional, somatic, cognitive and interpersonal (Cheung & Power, 2012). Emotional symptoms, which include anger, sadness, guilt, anxiety and shame are more dominant in individuals with depression and have greater impact on cognitive, somatic and interpersonal aspects (Blatt, 2004; *cf.* Cheung & Power, 2012). However, previous research (e.g., Cheung & Power, 2012; Chowdhury & Gupta, 2014) has indicated the importance of the emotion of anger in depressive disorder, and suggested that anger should be considered as an emotional symptom, because the empirical evidence proposes that dysregulation of anger contributes to depressive symptoms. However, Beck's cognitive model of depression pay less attention of the emotional component (Busch, 2009; Power, 2009; Power, 2010), despite the possibility that neglecting emotional symptoms, especially anger, might reduce the effectiveness of the treatment (Busch, 2009).

Individuals with depressive symptoms also show somatic symptoms, including changes in sleep patterns, which is the most common symptom (Cheung & Power, 2012), fatigue, and a range of physical symptoms involving different parts of the body (Nakao, Yamanaka & Kuboki, 2002). Cognitive symptoms include negative schematic beliefs of the self, the world and the future (APA, 2013). Moreover, individuals with depression show interpersonal difficulties, such as low assertiveness, being less likely to talk with others, avoidance, and are more likely to speak with others in a low volume, which may indicate a lack of expression of emotion (Cheung & Power, 2012). Although the bulk of evidence suggests a strong relationship between interpersonal difficulties, emotions and depression, as important risk factors of depressive disorder (McEvoy et al., 2013b), these components are not considered in the current cognitive model of depression.

1.1.4. Diagnostic Criteria of Depression

The diagnostic criteria for major depressive disorder according to the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5) are (1) depressed mood and/ or (2) loss of interest or pleasure in almost all activities, for at least two weeks and most of the time. The individual must experience at least three additional symptoms of: (3) changes in appetite or weight, (4) changes in sleep patterns, (5) changes in psychomotor activity, (6) decreased energy, (7) feelings of worthlessness or guilt, as individuals with symptoms of depression

usually exaggerate negative things in their life more than non-depressed individuals (APA, 2013), (8) poor concentration or indecisiveness, and (9) suicidal thoughts or acts. These symptoms must furthermore cause clinically significant distress or impairment in social or other important areas of functioning (APA, 2013).

1.1.5. Cognitive Theory of Depression (Beck et al., 1979)

Studies have indicated that individuals with depressive symptoms habitually have changes in thinking as well as changes in mood, and activity (APA, 2013; Verduyn et al., 2009). In his famous article *Thinking and Depression: II. Theory and Therapy*, Aaron T. Beck used clinical evidence to establish that thought disorders, referred to as dysfunctional schematic beliefs, are often the origin of depression (Beck, 1964). Beck (1964) defined a *schema* as “a structure used for screening, coding, and evaluating impinging stimuli”. The term “schema” is frequently used interchangeably with the term “core beliefs” (Beshai, 2015). Therefore, schematic beliefs are central in the commonly used cognitive theory of depression (Beck et al., 1979; Dozois & Beck, 2008). *Cognition* is defined as “all the processes by which the sensory input is transformed, reduced, elaborated, stored, recovered, and used” (Neisser, 1967, p. 4; cf. Cheung, 2010).

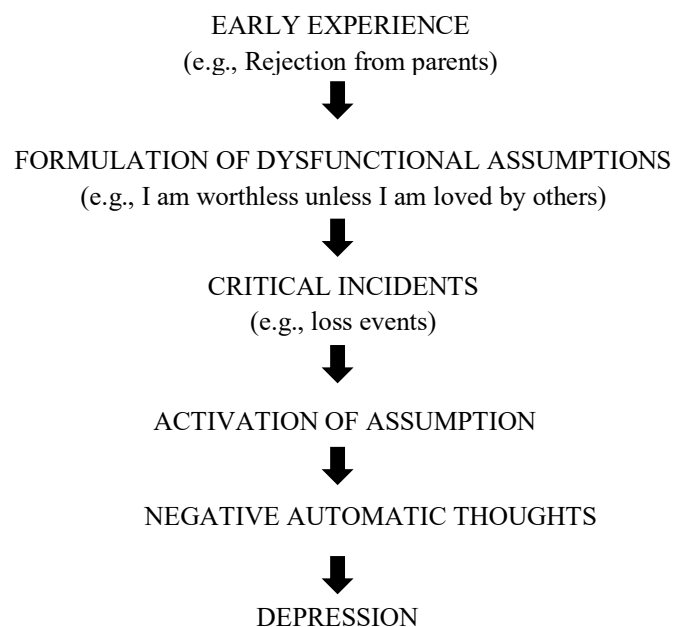


Figure 1: Beck et al.’s (1979) Cognitive Model of Depression

According to Beck's cognitive model of depression (Figure 1) three main levels of thinking, contribute to depression: depressive self-schemas, dysfunctional assumptions and negative automatic thoughts (Dozois & Beck, 2008). Depressive schemas are developed over time usually from early life experiences from family, peers and society, and can influence the information process in a negative way (Beck, 1964). These schemas remain latent for a long time in individuals who are prone to depression, and may be activated by stressful situations (e.g., a rejection experience or failure), which in turn may lead individuals to experience negative schematic beliefs that centre on themes of worthlessness, failure, loss, incompetence, defectiveness and inadequacy (Beck et al., 1979; Dozois & Beck, 2008).

These negative schematic beliefs impact on another level of thinking, which is dysfunctional thinking and assumptions (Dozois & Beck, 2008). Beck suggests that dysfunctional thinking leads to dysfunctional behaviour. For instance, individuals who are vulnerable to depression might believe that their happiness or self-worth depends on the approval of others. Thus, they have dysfunctional attitudes or assumptions that are usually represented in "if – then" statements (Dozois & Beck, 2008) such as "*if* others do not love me, *then* I must be worthless". If these dysfunctional assumptions are not fulfilled, then depression is likely to follow. When depressive schemas are activated by stressful situations, automatic negative thoughts follow (Dozois & Beck, 2008). Such thoughts defined by Beck (1967) as depression-inducing self-statements reflecting distorted thoughts. This thinking often takes the form of negative beliefs about the self, the world and the future. Beck proposed that these schemas be called a "cognitive triad". Thus, dysfunctional schemas make an individual more prone to depression and can be seen as tendencies to negative or distorted interpretations of events as difficulties or misfortunes (Oliver, Murphy, Ferland & Ross, 2007).

1.2 Emotion of Anger

Anger is one of the basic emotions (Matsumoto et al., 2009; Power & Tarsia, 2007; Power & Dalgleish, 2008), and is classified as a negative emotion associated with cognitive appraisals, physiological changes and behavioural expression (Abdolmanafi, Besharat, Farahani & Khodaii, 2011; Cha & Sok, 2014; Power, 2010). Higher levels of negative emotions, including anger, have been shown to be risk factors of psychopathology, especially depressive disorder (D'Agostino et al., 2017). Therefore, the current study will focus on the emotion of anger, because it is a negative emotion, which is related to cognitive aspects and has generally been associated with depression (Ellis, Vanderlind & Beevers, 2013). Moreover,

as mentioned above, there is no study, according to the author's knowledge, that has examined anger in relation to depression among the Saudi population.

Anger is one of the most common feelings that individuals experience from once to several times a week (Wainman, 2007) in response to unwanted and unexpected behaviour by others (Tafrate et al., 2002). The experience of anger may last from a number of minutes to a few hours (DiGiuseppe & Tafrate, 2007). Deffenbacher defines anger as an "experiential state consisting of emotional, cognitive and physiological components that co-occur, rapidly interacting with and influencing each other in such a way that they tend to be experienced as a singular phenomenon" (Deffenbacher, 1999, p. 295). That is, the emotion of anger is not only an affective state, but it is a multidimensional construct (Ingram et al., 2007). Kassino and Sukhodolsky (1995, p. 7; cf. Hamdan-Mansour et al., 2012) define anger as "a negative, phenomenological (or internal) feeling state associated with specific cognitive and perceptual distortions and deficiencies (e.g., misappraisals, errors, and attributions of blame, injustice, preventability, and/or intentionality), subjective labelling, physiological changes, and action tendencies to engage in socially constructed and reinforced recognized behavioral scripts".

Spielberger (1999) applied state-trait theory to the anger concept. *State and trait anger* were defined as measures of the amount of anger that a person has (Stimmel, Rayburg, Waring & Raffeld, 2005). *State anger* refers to a transitory emotional-physiological condition consisting of subjective feelings and physiological activation that vary in intensity from mild annoyance or irritation to intense fury. *Trait anger* or anger-proneness reflects individual differences in the disposition to perceive a wide range of stimuli in a variety of situations as annoying or frustrating and the tendency to respond to such situations by experiencing state anger (Deffenbacher et al., 1996; Spielberger, 1999). According to Spielberger (1999), trait anger consists of two components: a) an angry temperament, which is a general anger, that is, a disposition to experience anger without specific provocation, together with a tendency to overtly express anger, b) an angry reaction, which is specifically social and refers to experiencing anger frequently in situations when negatively frustrated or evaluated, criticized and treated unfairly by others.

Individuals may express their anger in different ways. The *expression of anger* refers to how anger is managed, whether it is held in, expressed outwardly or controlled. Spielberger (1999), identifies three styles of anger expression: firstly, *Anger Expression-In*, or repression, which refers to the habitual experience of anger and is directed inwards, so that it is suppressed rather than expressed, which means that individuals are directing their anger towards themselves. Secondly, *Anger Expression-Out* refers to a person who experiences anger

frequently and tends to express his/her feeling of anger in aggressive behaviour, either physically or verbally by arguing with others or/and swearing. Finally, *anger control* (anger control-out and anger control-in) describes the ability to control and regulate the experience and expression of anger. For the purpose of this thesis, *suppression of anger* means the inhibition of overt expressions of anger while feeling anger internally, even when it is appropriate to express anger (Power & Dalgleish, 2008; Spielberger, 1999).

Anger sometimes has adaptive functions and can lead to positive and healthy outcomes, especially when anger is present in the right context with appropriate levels of expression and skills. For instance, anger can provide internal signals that goals are blocked, which in turn leads to communicating to others that their actions are thwarting an individual's resources, and mobilizing protective physiological change and behaviours when dealing with perceived threats (Tafrate et al., 2002). In fact, many individuals report that the outcome of their anger tends to be positive (Kassinove, 1997; *cf.* Wainman, 2007). This is in accordance with previous research (e.g., Cha & Sok, 2014), which has indicated that expressing anger appropriately plays an important role in maintaining well-being and social relationships.

On the other hand, anger feelings could be the root of many dysfunctional behaviours and tend to have a negative effect on the life of individuals (Arslan, 2010; Averill, 1983). Therefore, the regulation of anger may need distinctive strategies. As explained above, some individuals have difficulty expressing anger appropriately, while others can express their anger in appropriate and healthy ways. In this respect, it has been reported that approximately one in ten individuals have difficulties in regulating their anger, and one in five individuals were found to have interpersonal problems due to their difficulties in regulating their anger (Mental Health Foundation, 2008; *cf.* Hamdan-Mansour et al., 2012), which in turn may contribute to depression.

1.2.1 Anger in Relation to Depression

Expectedly, anger plays an important role in the development of depression and as an emotional symptom of depressive disorder (e.g., Besharat et al., 2013; Busch, 2009; Cheung & Power, 2012; Genuchi & Valdez, 2015; Joos et al., 2012; Nazir & Mohsin, 2013). For instance, Simon and Lively (2010) found that individuals who reported more anger reported more depression than those who reported less anger. This is already reflected in the Diagnostic and Statistical Manual for Mental Disorders (DSM – 5), which indicates that some individuals with depressive symptoms may experience high levels of anger; moreover, sometimes anger or irritability are more frequent mood states than sadness (Ingram et al., 2007).

Many individuals with depressive symptoms struggle with the expression and experience of feelings of anger (Busch, 2009; Luutonen, 2007), which in turn leads to lowering self-esteem (Busch, 2009), and may result in depression. Anger in individuals with symptoms of depression may often be due to perceived or actual losses or rejection (Busch, 2009). For instance, Tafrate and colleagues (2002), found that individuals with high trait anger are more prone to dysfunctional thinking, including negative beliefs about themselves and others, than those who score low on trait anger. This possibly explains why individuals with depressive symptoms have been found to have negative self-beliefs (Galambos, Barker & Krahn, 2006; Wong, 2012). Indeed, it was found that individuals with depressive symptoms have high levels of dysfunctional schemas (Thomas & Altareb, 2012), developed from early life experiences from their family, peers and society (Beck et al., 1979). However, the literature has shown that individuals with negative beliefs cannot cope well with the difficulties in their lives, especially in the context of interpersonal relationships, whereas individuals with a positive view of themselves can handle these difficulties better (Josephs, Bosson & Jacobs, 2003; Sahin, Batigün & Koç, 2011). Perhaps it is the holding of self-critical beliefs that leads to failures in evaluating life events leading to the experience of high trait anger. This is a possible interpretation supported by previous literature (e.g., Besharat et al., 2013; Wong, 2012), which has found negative schematic beliefs to be highly positively correlated with both anger and depression, whereas positive schematic beliefs were negatively correlated with both anger and depression.

Similar results have been replicated in different countries. For example, Chowdhury and Gupta (2014) conducted research in India to understand the relation of anger with depression, as well as the relationship between dysfunctional attitudes and anger in a sample of 30 adult participants with depressive and 30 normal participants and found that depressed patients had a higher level of anger and that trait anger significantly predicted depression. Likewise, they found a strong correlation between dysfunctional attitudes and anger in the clinical group, indicating that negative cognitions were present in individuals who have high levels of anger. However, compared to the control group, individuals with depressive symptoms scored low on the anger expression-out subscale. This result may suggest that depressed individuals may make an effort to inhibit the expressive component of angry responses and maladaptive regulation of anger may play an important role in depressive disorder.

Previous studies (e.g., Besharat et al., 2013) have proposed that anger and depression are linked by maladaptive emotional regulation strategies i.e. a person's ability to consciously

not express negative emotions. Many previous studies have shown that the expression of anger (anger-out) is an important risk factor for depressive disorder in both clinical (e.g., Rude et al., 2012; Sahin et al., 2011) and normal populations (e.g., Cha & Sok, 2014). However, the lack (or the inhibition) of anger expression in relationships also seems to have detrimental effects on well-being (Rude et al., 2012). In addition, studies (e.g., Chowdhury & Gupta, 2014) have documented that individuals with depressive symptoms inhibit the overt expression of anger (by using a suppression strategy), while they feel anger internally, suggesting that there may be an interaction between the expression of anger and expressive suppression factors, which in turn may predict depressive symptoms.

Allan and Gilbert (2002) examined the relationships between anger, anger expression, social rank and depressive symptoms among 197 university students in the United Kingdom. They found that individuals who have high trait anger (as measured by the State-Trait Anger Expression Inventory (STAXI)) tended to express their anger out, but they did not express their anger towards individuals who are superior to them, indicating that individuals are more likely to change their anger expression according to their social context. Likewise, the results indicated that individuals who are prone to submissiveness (those who see themselves as subordinate) are less likely to express anger out, despite feeling anger internally. However, as this research used only undergraduate participants, its findings cannot be generalised to the more severe expressions of depressive symptoms. Similarly, Chaplin (2006), found associations between the symptoms of depression and reporting high experiences of anger (as measured by DES IV), but showing low anger with a friend.

Goldman and Haaga (1995) conducted a study to examine the experience and expression of anger in a sample of adults consisting of a clinical group and a control group. They found that individuals with depressive symptoms (as measured by BDI) scored significantly higher on trait anger (as measured by STAXI), but they expressed lower anger than the control group. They also tended to show increased symptoms of depression. This result was consistent with the recent findings of Chowdhury and Gupta (2014) (mentioned above), who found that participants with symptoms of depression showed high levels of trait anger, but scored lower on the anger expression-out subscale than the control group.

The results of these studies support the hypothesis that some individuals feel angry, but suppress it and express low anger, while may in turn increase depressive symptoms (Allan & Gilbert, 2002). This may be contributing to an attack on the self and leading to low-self-worth (Chaplin, 2006). Moreover, they suggest that anger expression is closely related to interpersonal relationships, as participants were more likely to alter the degree of anger

expression depending on their social circumstance (Matsumoto, 1999). In fact, later research (e.g., Aldinger et al., 2013) has confirmed the relationship between maladaptive regulation of anger and depression in Western countries, but so far, according to the author's knowledge, no study has examined maladaptive regulation of anger in individuals with symptoms of depression in Saudi Arabia.

All of the above studies indicate that anger plays an important role in the development of depression. Moreover, these studies indicated that maladaptive strategies in dealing with anger could be linked to depression. Therefore, examining the expression of anger in depressive disorder is important, as it has been found to be associated with high levels of depressive symptoms, lowered self-esteem, increased a risk of self-harm and poorer interpersonal relationships (Ellis et al., 2013; McEvoy et al., 2013b; Murphy, Taft & Eckhardt, 2007).

1.3 Expressive Suppression Strategy

According to the literature (e.g., Aldao, Nolen-Hoeksema & Schweizer, 2010; Gross & John, 2003), there are many strategies of emotion regulation. However, as the current study focuses on the interaction between anger expression and expressive suppression, the researcher will focus on research related to expressive suppression strategy (ES) in relation to depressive disorder.

Although prolonged expression of anger increases the rate at which individuals express other forms of negative feelings, the use of alternative strategies can reduce these feelings (Joormann & Gotlib, 2010). Such appraisal and reappraisal takes individuals away from the negative feelings and reduces both the experience and the behavioural expression of emotions (Gross, 2002). Indeed, a study carried out among university students in Norway, Australia, and the United States indicated that people who employ a reappraisal strategy have a tendency to experience well-being, and consequently less likely to experience depression (Haga, Kraft, & Corby, 2009). This finding corroborates Grosses' argument that cognitive reappraisal could lead to better management of negative emotions (Anderson & Bushman, 2002; Gross, 2002).

Emotion regulation has been classified into functional (adaptive) strategies, such as cognitive reappraisal, problem solving and acceptance, or dysfunctional (maladaptive) strategies, such as expressive suppression, rumination and avoidance (Aldao et al., 2010). Whether emotion regulation strategies can be classified as adaptive or maladaptive depends

on their effects on emotion, cognitions and behaviour, and also on their relationships to emotional disorders (Aldao & Nolen-Hoeksema, 2012).

In adaptive emotion regulation strategies, individuals contemplate the situation or what has happened and take a position, which might be negative or positive; however, it is often associated with adaptive outcomes, such as reduction in the experience of negative affective and effective interpersonal functioning (Aldao & Nolen-Hoeksema, 2010; 2012). For example, if a student fails his or her exams he or she will recast and decide that next time he or she will try to do better. This emotion regulation strategy is called *cognitive reappraisal*, which is an adaptive strategy. It refers to an antecedent focused strategy which happens prior to the generation of emotion (Gross & John, 2003), and which individuals employ to manage negative emotional feelings. Thus, the cognitive reappraisal strategy reduces both the experience and the behavioural expression of emotion (Gross, 2002). That is, an individual consciously reinterprets the meaning of a given situation in order to change the emotional response to it. This strategy has been shown in experimental studies to be associated with positive outcomes, including effective interpersonal relationships (e.g., Gross & John, 2003; Richards & Gross, 2000; Rude et al., 2012), and reductions in the experience of negative emotion, such as anger (e.g., Ellis et al., 2013; Goldin, McRae, Ramel & Gross, 2008).

On the other hand, a maladaptive strategy is the opposite of an adaptive strategy as it is often associated with a negative outcome (Gross & John, 2003). For example, it has been associated with the onset of symptoms of depression (Aldao & Nolen-Hoeksema, 2010). This kind of emotion regulation strategy resulting in a situation in which an individual fails to express his or her emotions. This is called *expressive suppression*. As explained earlier, expressive suppression is a response-focused strategy which involves controlling emotional responses whilst experiencing negative emotions (Campbell-Sills et al., 2006; Hofmann et al., 2009), which includes inhibiting the expression of anger (Denollet, Gidron, Vrints, & Conraads, 2010). Thus, the suppression strategy happens after an emotional experience has been generated and it targets the expressive component of an emotional response (behavioural expression), which is visible to others, but without changing the experience of the emotion (Butler, Lee & Gross, 2007; Gross, 2002; Gross, Richards & John, 2006; Srivastava, Tamir, McGonigal, John & Gross, 2009). Thus, the consequences of an expressive suppression strategy may extend beyond internal experience and into the social context (Srivastava et al., 2009). Expressive suppression can be seen as adaptive strategy, as it is likely to reduce direct conflict with others and therefore prevent some problems (Matsumoto, Yoo & Nakagawa, 2008). However, the frequent use of suppression strategy inappropriately to reduce angry

responses could contribute to depressive symptoms (Beblo, Fernando, Klocke, Griepenstroh, Aschenbrenner & Driessen, 2012; Rude, Chrisman, Burton, Maestas & Morrison, 2012). In the next section, the theory of emotion regulation and its strategies will be discussed.

1.3.1 Gross's Process Model of Emotion Regulation

Emotion regulation refers to the actions taken by individuals in order to achieve emotional goals (Phillips & Power, 2007). Various theoretical models have been proposed in order to explain how individuals regulate their emotions. However, it has been accepted that the emotional response (expression or suppression of emotions) follows the evaluation or appraisal of events or specific situations. The cognitive appraisal process can be conscious or unconscious, automatic or controlled and has an influence on the generation and the regulation of an emotion (Gross & Thompson, 2007). Gross (1998b) proposed the "Process Model of Emotion Regulation" (see Figure 3) based on the appraisal theories of emotion. This can be further differentiated into antecedent-focused and response-focused regulation strategies in the process model. The *antecedent-focused* strategies refer to actions taken by individuals, consciously or automatically, according to their prior emotion-response tendencies. That is, the antecedent-focused strategies occur prior to an emotion being fully generated, which in turn can alter the path of emotional experience. *Response-focused* strategies refer to actions taken by individuals while an emotion is under way and they aim to alter emotional experience and expression (Gross & John, 2003; Srivastava et al., 2009).

According to Gross's model, emotions could be regulated at five points in the emotion generative process, as follows: a) situation selection; b) situation modification; c) attention deployment; d) cognitive change; and e) response modulation (Gross, 1998b). As can be seen in Figure 2, the first four points of these processes are regarded as antecedent-focused, while the fifth point is regarded as response-focused. In a *situation selection* strategy, individuals can select the situation and consciously take actions that place them in a situation they expect will lead to desirable or undesirable emotions. The *situation modification* strategy refers to directly changing a situation itself in order to change its emotional impact; for example, changing a story that may upset visitors in a gathering. *Attention deployment* strategy refers to directing attention within a given situation so as to influence the individual's emotions. This is frequently used once the situation cannot be changed, for instance, distraction, which is the most common form of attention deployment. *Cognitive change* strategy refers to an individual changing their appraisal (thoughts) of the meaning of a given situation in order to change its emotional significance or changing their capacity to manage the situation in connection with their goals. *Response modulation* strategy occurs in the last line of the generative emotion

process, after the emotional responses have unfolded. It refers to an individual bring able to directly influence and change experiential psychological, behavioural, or physiological components of the emotional response. For example, an individual feels angry, but he or she might try to suppress his/her angry expression and try to look calm.

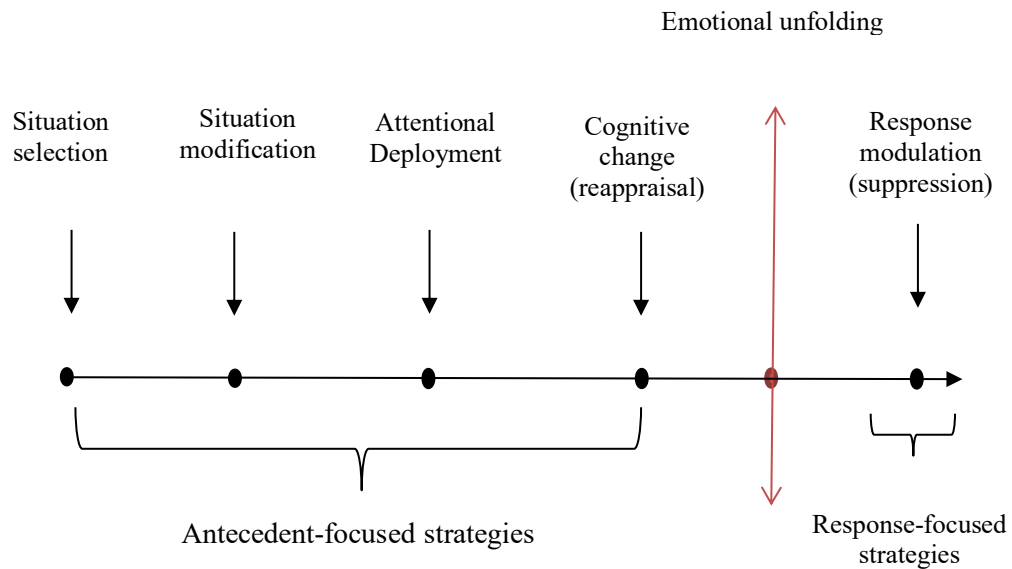


Figure 2: Gross's (Gross & Thompson, 2007) Process Model of Emotion Regulation

Although emotion regulation is a wide concept that includes a number of processes (Gross & Thompson, 2007), this thesis will focus on two types of cognitive emotion regulation strategies associated with emotional experience and expression, which are cognitive expressive suppression and reappraisal (Martin & Dahlen, 2005).

1.3.2 Expressive Suppression in Relation to Depression

The impact of emotion regulation strategies on the link between anger and depression has been well-established. For example, Besharat and his colleagues (2013) conducted a study to examine the mediating role of anger rumination and emotion regulation on the relationship between the emotion of anger and depressive disorder, using a set of self-report measures including the Farsi version of the Beck Depression Inventory (BDI), Cognitive Emotion Regulation Questionnaire (CERQ), Anger Rumination Scale (ARS) and the Multidimensional Anger Inventory (MAI). The results indicated that maladaptive emotion regulation strategies

played a mediating role on the relationship between anger and depression. Moreover, they suggested that there was a minimal relationship between anger-out (expressions of anger directed at others or objects) and depression, indicating that individuals with depressive symptoms may make an effort to inhibit the expressive component of the anger response. That is, the combination (interaction) of high anger and the inhibition of the expressive component is a risk factor of depression. This study was useful in setting the framework for the present research of this thesis to explore the link between anger and depression. However, their study did not include the expressive suppression strategy as they focused only on anger rumination and other emotion regulation strategies. Moreover, their study did not take into account the interaction effect and they point out that other variables that may contribute to depression were not included.

The findings of Besharat et al. (2013) are consistent with the previous findings of Martin and Dahlen (2005), who examined the relationship between emotion regulation, anger and depression in university students. The findings suggested that maladaptive emotion regulation strategies were positively related to dysfunctional anger and depression, while adaptive emotion regulation strategies were negatively related to maladaptive anger and depression. However, their study did not include the expressive suppression strategy to understand the relationship among these factors better. Accordingly, it is considered in this thesis that examining the role of the interaction of anger and expressive suppression strategy together with other predictors of depression, such as core negative beliefs, dysfunctional attitudes and interpersonal problems in depressive disorder, may improve our understanding of depression and the relationship between anger and depression. The complex cognitive processes may furthermore be understood better in the context of anger and depression.

In this context, Gross and John (2003) developed the emotion regulation questionnaire (ERQ) to examine individual differences in a sample of undergraduate students who used two cognitive strategies, namely cognitive reappraisal (antecedent focused) and expressive suppression (response focused). They found that individuals who tended to use the expressive suppression strategy experienced more negative emotions and lower self-esteem in comparison to individuals who tended to use reappraisal strategy, who were found to have fewer depressive symptoms and higher satisfaction with life and closer relationships, as well as better self-esteem. These results are consistent with subsequent research (e.g., Aldinger et al., 2013; Beblo et al., 2012; Campbell-Sills et al., 2006; D'Avanzato et al., 2013; Joormann & Gotlib, 2010) which showed that habitual use of expressive suppression strategy rather than cognitive appraisal is associated with depressive symptoms.

These studies indicate that it is important to consider emotion regulation strategies while dealing with depression. They also suggest that the development of skills to help individuals with depressive symptoms to overcome difficulties with mood can be useful. This is possible, as previous findings support the effectiveness of other psychological treatments, such as Acceptance and Commitment Therapy (ACT; Hayes, Strosahl & Wilson, 1999) and mindfulness-based therapies, in the reduction of depression (Liverant, Brown, Barlow & Roemer, 2008). This may be because these psychological treatments focus on adaptive emotion regulation strategies, such as acceptance (Liverant et al., 2008).

Accordingly, from these results, it can be inferred that individuals who have high trait anger and low anger expression-out might use excessive suppression strategy, which in turn may be more likely to increase depressive symptoms. In other words, these studies may suggest that there is an interaction between anger expression-out and expressive suppression strategy, and that the combination of high anger and suppression would have more impact on depressive symptoms than if we examined these variables in isolation. However, the study conducted by D'Avanzato et al. (2013) indicated that, while depressed individuals scored lower on reappraisal and higher on expressive suppression subscales, the severity of their depressive symptoms remained low. This contradicts the earlier findings and indicates that there is a need to consider other variables, such as interpersonal contexts and cultural beliefs (cultural orientation). In fact, it has been reported that anger is generated by interpersonal relationships and can have negative influences on such relationships (Averill, 1983). Thus, by also considering the interpersonal problems, the current study aims to explain more of the variance in how individuals score on the depression measure.

1.4 Interpersonal Problems

Functional interpersonal relationships have been shown to be associated with increased psychological well-being. However, interpersonal problems are shown to be a key factor in psychopathology, especially depressive disorder, and to have detrimental effects on well-being (McEvoy et al., 2013b; McEvoy, Burgess & Nathan, 2014). Indeed, interpersonal problems are a common reason for looking for psychotherapy (Holtforth, Pincus, Grawe, Mauler & Castonguay, 2007). However, although interpersonal skills would appear to be important in treating depressive disorder, according to the researcher's knowledge, most of the studies reviewed so far looked only at anger without any of the other predictors of depression. Thus, the previous literature has not combined the cognitive and interpersonal factors in one study, particularly in relation to depressive disorder. Therefore, the current research will

consider interpersonal problems as a key factor of depression, in addition to the factors mentioned so far, to obtain a more in-depth understanding of depression.

1.4.1 Definition of Interpersonal Problems

Interpersonal problems refer to persistent difficulties that individuals experience in social relationships (Horowitz, Rosenberg & Bartholomew, 1993), such as difficulties in socializing, expressing emotion or showing affection or subjugating one's own needs by prioritizing others' needs (McEvoy et al., 2013b).

1.4.2 Interpersonal Problems Theory

Harry Stack Sullivan is regarded as the father of the concept of interpersonal problems (Bjerk, 2016). Sullivan assumed that social relations are at the heart of psychopathology. He described the personality of an individual as “the relatively enduring pattern of recurrent interpersonal situations which characterize a human life” (Sullivan, 1953, pp. 110-111). Sullivan claimed that an individual who interacts with others is motivated by two fundamental needs, namely security (about receiving love or intimacy) and self-esteem (corresponding to self-worth) (Horowitz, Alden, Wiggins & Pincus, 2000). Leary (1957) developed a set of procedures to describe interpersonal variables providing the conceptual framework for subsequent theories (Horowitz et al., 2000). The essential assumption of interpersonal theory is the principle of complementarity, i.e. that individuals affect each other's behaviour when interacting in social relationships. This principle claims that the individual's behaviour when interacting with another individual invites a particular reaction from the partner. However, when the partner may or may not grant the demanded complement, this may lead to frustrating one or both individuals, which, in turn, may develop into interpersonal problems (Horowitz et al., 2000).

The Inventory of Interpersonal Problems (IIP) was developed based Leary's theory, assuming two interpersonal dimensions of affiliation and dominance exist. The affiliation dimension (along the horizontal x-axis) corresponds to Sullivan's security regarding love. This dimension ranges from warm (friendly) to cold (hostile) behaviour. The dominance dimension (along the vertical y-axis) corresponds to Sullivan's concept of self-esteem, which ranges from dominant to submissive behaviour. That is, individuals who are prone to dominance tend to be aggressive and controlling, while individuals who are prone to submission tend to be yielding, meek and non-assertive. The dimensions of affiliation and dominance can be further divided into eight octants that provide descriptors of interpersonal behaviour, as shown in Figure 3.

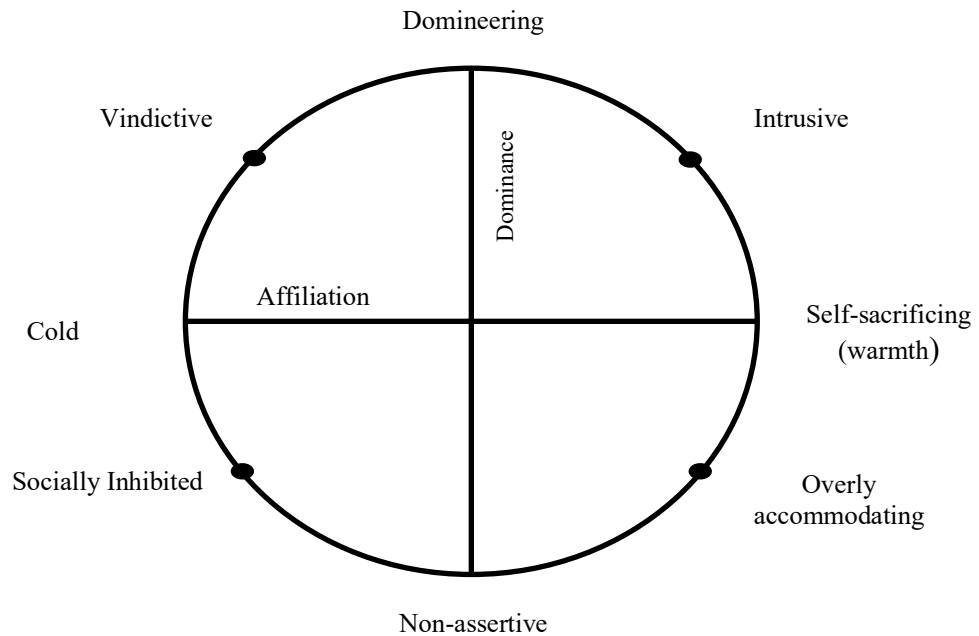


Figure 3: Interpersonal Circle, adapted from Horowitz et al. (2000).

Excessive behaviours such as being too cold, too caring, too unassertive, too inhibited, or things individuals find ‘too hard’ to do (e.g., socialize with other people; join groups), are described in the eight scales of the IIP, and are often regarded as interpersonal behavioural problems, which in turn can lead to depressive disorder. The IIP questionnaire was constructed to measure difficulties individuals experience in their interpersonal relationships. It consists of eight scales of interpersonal problems (as described later in the methodology section). According to previous studies (e.g., McEvoy et al., 2013b; 2014; Sahin et al., 2011), these interpersonal problems are strongly association with increased depressive symptoms.

1.4.3 Interpersonal problems in relation to depression

Using the Inventory of Interpersonal Problems (IIP-32), McEvoy and his colleagues (2013b) examined how interpersonal problems related to depression. They concluded that individuals’ levels of interpersonal problems were associated with more depressive symptoms, especially the variables of ‘self-sacrificing’ (which measures the degree of subjugating one’s own needs by prioritizing others’ needs), and ‘too aggressive’ (which measures a tendency to get annoyed or irritated too much). The ‘too aggressive’ variable, according to the study,

appeared to relate more with the regulation of anger. The tendency to suppress the expression of anger is regarded as a destructive response, which in turn may lead to interpersonal problems (because of either interpersonal withdrawal or vengeful rumination) (Allan & Gilbert, 2002). This proposal is supported by other studies (e.g., Aldinger et al., 2013; Gross & John, 2003; Matsumoto et al., 2008) which have indicated that the expressive suppression strategy is associated with poorer interpersonal functioning, indicating that individuals with interpersonal problems do not regulate their negative emotions well. By contrast, individuals who use a cognitive reappraisal strategy are more likely to have positive relations with others. That is, the difficulties in regulating anger together with the interpersonal difficulties may contribute to a person experiencing depression.

In fact, individuals with symptoms of depression have been found to have interpersonal difficulties, which in turn undermine their relationships (Locke et al., 2017). For instance, when depressed individuals interact with others, they tend to show shyness, less lively speech during conversation, less eye contact and low assertiveness. Thus, they are concerned about their relationships and social interactions. This finding has been replicated in many countries. This finding is consistent with the study conducted in Turkey by Sahin and his colleagues (2011), who also found that patients with depressive symptoms had significantly higher levels of anger and negative interpersonal styles than the non-clinical group. A study conducted by Nazir and Mohsin (2013) in Pakistan found that patients with depressive symptoms (as measured by the Symptom Checklist- Revised; Ali, 2008) had high levels of interpersonal problems and high levels of aggression, including anger compared to non-depressed individuals. However, the control group was using more adaptive strategies compared to the depressed individuals. This finding suggests that individuals who have fewer adaptive emotion regulation strategies will present high levels of interpersonal problems and subsequently will be more depressed. These studies were useful in highlighting the relationship between anger, interpersonal problems and depression. However, they did not include the influence of other variables, such as expressive suppression and negative beliefs to explain depression in more depth.

Accordingly, interpersonal problems are more likely to occur because of impaired emotional regulation (Sahin et al., 2011). For example, Moriya and Takahashi (2013) examined the mediating role of emotion regulation on the relationship between interpersonal stress and depression and found that maladaptive emotion regulation contributes to increasing the level of depression following stressful interpersonal events. This result is consistent with previous literature (e.g., Gross & John, 2003; Aldinger et al., 2013) which has established that

expressive suppression (as a maladaptive strategy) is associated with poorer interpersonal functioning, whereas the cognitive reappraisal strategy is associated with better interpersonal functioning. This suggests that depressed individuals with interpersonal difficulties might not regulate their emotion well when they become angry. This is possible, as most anger experiences are triggered by individuals around us (Averill, 1983), and several studies (e.g., Averill, 1983; Power, 2010; Tafrate et al., 2002) have indicated that the anger experience is a frequent emotional feeling which happens in interpersonal contexts, and the avoidance of regulation of anger might be linked to interpersonal difficulties (Wiseman Metzl & Barber, 2006). These results indicate that maladaptive regulation of anger and interpersonal problems are among the important components of depression. Moreover, they also suggest that individuals with depressive symptoms experience interpersonal problems because they do not have effective interpersonal skills.

Individuals who have interpersonal problems might develop a higher level of negative schematic beliefs about themselves and others, which may lead to depression (Aldinger et al., 2013; Eberhart, & Hammen, 2006). This is possible, as previous research has indicated that interpersonal difficulties are related to individuals' beliefs. For instance, Sahin and colleagues (2011) found a strong relationship between depression, anger, self-perception and interpersonal problems. In another study, Aldinger and colleagues (2013) found a positive correlation between expressive suppression and interpersonal problems in depressed women. They also reported that individuals with depressive symptoms use an expressive suppression strategy because they have maladaptive schemata and, thus, in order to avoid any harm, they do not express their emotions. These results are in line with the findings of Brody, Haaga, Kirk and Solomon (1999) who reported that individuals with major depression do not express their anger because they are afraid they may lose their relationship with others. That is, individuals who have negative schematic beliefs cannot regulate anger in their lives, especially in the context of interpersonal relationships, which could contribute to increased levels of depression (Sahin et al., 2011). These results highlight the importance of regulation of anger as a significant factor contributing to developing depression, especially for interpersonal problems. Therefore, in the current thesis interpersonal problems are considered as a key known factor of depression can enhance our understanding of depression.

The foregoing review has established the existence of a strong connection between anger expression, negative schematic beliefs, interpersonal difficulties and depression. It has shown that interpersonal relationships and beliefs play an important role in processing emotion and depression. That is, individuals who have negative beliefs and try to avoid or refuse to

express their anger, while feeling anger in the context of interpersonal relationships would be more prone to depression (Fava et al., 1982; Riley, Treiber, & Woods, 1989; Wiseman et al., 2006). However, it appears that little is known about the role of interpersonal difficulties in emotional regulation, although such problems are central characteristics of depressive disorder (Aldinger et al., 2013). However, the current cognitive model pays less attention to the importance of depressed patients' interpersonal functioning as an area for possible intervention, despite the possibility that neglecting to address interpersonal relationships might reduce the effectiveness of the treatment (McEvoy et al., 2013b).

However, it has also been proposed that types and degrees of emotional regulation depend on cultural orientation, which shapes the way individuals manage their emotions (Kwon et al., 2013). Therefore, the next section will examine cultural orientation as an additional factor to better explain the possible causes of depression in depth.

1.5 Collectivism versus Individualism

Individuals from different cultural backgrounds have different values, beliefs and social expectations, which in turn may lead them to experience the same event in a different way (Hofstede, 1990). Thus, the way people define themselves derives from socio-cultural constructs (Seo, 2011; Sivadas, Bruvold, & Nelson, 2008). In fact, cultural orientation shapes individuals' feelings (Chu, 2015; Ford & Mauss, 2015), indicating the importance of understanding the impact of cultural values on the process of emotion regulation. For instance, Cheung and Park (2010) found that the relationship between anger suppression and depressive symptoms was stronger in the Asian American students in comparison to the European American students. This is consistent with the findings of Matsumoto and colleagues (2008). These findings suggest that cultural orientation, measured by the degree of collectivism or individualism, may influence how individuals manage their emotions (Seo, 2011; Sivadas et al., 2008). For example, the expression of certain emotions, such as sadness or anger, is not acceptable in some cultures (Power & Dalgleish, 2008). Therefore, individuals in some cultures may tend to conceal their feelings because of social norms.

Some individuals may dysregulate their negative emotions, especially anger, by not expressing them (i.e., by using an expressive suppression strategy frequently), possibly for personal or societal reasons (Kwon et al., 2013). Moreover, it is possible that people who adhere to particular cultural norms may develop higher negative beliefs about negative emotions, such as anger, as undesirable, unwanted emotions. This behaviour may, in turn,

lead to suppressing these emotions to preserve their relationship with others, and, consequently, be more likely to contribute to emotional disorders, such as depression. It is also possible that when individuals experience anger, they then judge themselves as wrong and not fitting with cultural expectation (which itself can be a rejecting and shaming experience) and they try to suppress their anger, which in turn is more likely to contribute to depression. Thus, this self-criticism could be the factor that leads to depression (Abi-Habib & Luyten, 2013).

Hofstede (1983) conducted a survey across 40 different countries to understand and classify culture according to different dimensions. He observed that some questions dealt with the perceptions of individuals rather than their actions. Thus, he understood that these perceptions represented their values and these values could define a culture (Saffie-Robertson, 2008). Therefore, Hofstede defined culture as a collective programming of the mind which distinguishes the members of one group from another (Hofstede, 2001; 2011). For the purpose of this thesis, the researcher will adopt Hofstede's definition (2011) to refer to culture, which states that individuals in the same culture share the same beliefs and values. These beliefs and values are passed on through generations through several channels, such as religion, family structure and the educational system (Hofstede, 2001) and may affect how individuals behave (Ford & Mauss, 2015), i.e. they may behave according to their cultural norms. Hofstede defined four dimensions of culture; however, the theory based on the collectivism versus individualism dimension is the most commonly used one in the literature (Saffie-Robertson, 2008), especially in studying cultural differences (Triandis, 2004), and because of its link to psychological processes. Indeed, a degree of both individualism and collectivism exists in all cultures, but one of them is likely to be predominant (Gudykunst, Matsumoto, Ting-Toomey, Nishida, Kim & Heyman, 1996).

The labels collectivism and individualism indicate how individuals value their affiliation with a certain group (Hofstede, 2011). For instance, *Collectivism* is a cultural orientation which nurtures individuals as responsible to one another (interdependent), such that the self is viewed as part of a collective whole, and thus always has to function in the interest of the whole. Thus, individuals in collectivistic cultures see themselves as interdependent with others and prioritize in-group goals over their personal goals (Ford & Mauss, 2015). Furthermore, they tend to hide their feelings to avoid offending other individuals' feelings and behave in ways aimed to maintain their relationships with others (Sandhu & Ching, 2014; Gudykunst et al., 1996). Thus, behaving according to their cultural norms may lead them to suppress any behaviour (e.g., anger expression) that is regarded as not acceptable by their society (Ford & Mauss, 2015). *Individualism*, on the other hand, is a

social orientation that nurtures individuals with the values of personal independence, and individuals from individualistic cultures tend to behave in accordance with their private preferences (Cheung & Park, 2010; Sivadas et al., 2008). Such different cultural values regarding emotions and their expression may explain the differences in emotional responses in different cultures (Mauss et al., 2010).

Many previous studies have confirmed individualism vs. collectivism as differentiating factors of culture. However, these dimensions have been criticized as being too broad (e.g., Singelis, Triandis, Bhawuk & Gelfand, 1995; Sivadas et al., 2008; Triandis & Gelfand, 1998). The Horizontal and Vertical Individualism and Collectivism model (HVIC) developed by Triandis and colleagues (1995) addresses this issue and can explain the variation within collectivistic and individualistic cultures. In addition to the Individualism-Collectivism dimension, this model proposes an important horizontal versus vertical dimension which addresses the issue of inequality among individuals within a culture. The horizontal subscale emphasizes equality, whereas the vertical subscale emphasizes hierarchy. For example, in horizontal collectivism (HC) individuals view themselves as a part of collective, view all the members as the same, and emphasize equality. A vertical collectivism (VC) culture accepts inequalities within the collective, but views the self as a part of the collective. However, in a horizontal individualism (HI) culture, equality is stressed, whereas in a vertical individualism (VI) culture, inequalities are accepted (Sivadas et al., 2008).

Many researchers have utilized collectivism and/or individualism as an independent variable in their studies and found that these cultural factors predicted most of the behavioural patterns (Abu-Kaf & Priel, 2008; Sivadas et al., 2008; Triandis & Gelfand, 1998). Particularly, cultural orientations, such as collectivism versus individualism, affect how individuals manage their emotions (Seo, 2011; Sivadas et al., 2008). In fact, in collectivist cultures, norms are more important than attitudes; in individualist cultures, attitudes are more important than norms (Triandis & Gelfand, 1998); thus, individuals in such cultures behave according to their preferences. Based on these theoretical approaches and the previous research findings, the current research will take into account cultural values, in this case collectivism.

According to Hofstede's (2004) study, the Kingdom of Saudi Arabia (KSA) is generally categorized as a collectivistic culture as the Saudi individuals under study scored only 25 out of 100 on the individualism dimension. As a Muslim country individuals follow Islamic rule and try to apply them. For example, the family is responsible for their children and guiding them and the children have to follow their family's instructions, even regarding expressing or suppressing their emotions. Moreover, the need for constructive emotional

expression is described in the holy Quran, where Allah says that "Those who spend (of that which Allah has given them) in ease and in adversity, those who control their wrath and are forgiving toward mankind; and Allah loves the doers of good" (verse 134, Aal Imran). In addition, the messenger of Allah encouraged people to regulate their anger when he said: "The strong person is not the good wrestler. Rather, the strong person is the one who controls himself when he is angry" (Sahih al-Bukhari, Book 73, #135). Thus, Islam explicitly instructs its followers to regulate their anger. This explains how cultural orientations, such as collectivism, shape emotion regulation.

Previous research (e.g., Chu, 2015; Matsumoto et al., 2008; Ramzan & Amjad, 2017; Smith, Easterbrook, Celikkol, Chen, Ping & Rizwan, 2016) has established clear links between collectivism and emotion regulation, especially an expressive suppression strategy. For example, Matsumoto and his colleagues (2008) conducted a study to examine cultural differences in emotion regulation in a sample of 3018 university students from 23 different countries. They found that expressive suppression strategy (as measured by Grosses' measure) was more frequent in cultures high on the collectivism dimension (as measured by Hofstede (2001)). Similar results were found in studies of Chinese and American participants by Davis et al. (2012), English and John (2013) and Mauss et al. (2010) among a sample of female adults (Butler, Lee and Gross, 2007). For all these studies, the Americans holding Asian values reported suppressing emotion more often in daily life than Americans holding Western-European values. These results indicate that cultural orientation (i.e., collectivist vs, individualist thinking) influences people's beliefs and, consequently, their choice of emotion regulation strategy.

Moreover, previous studies have shown that cultural orientation can influence the symptoms of depression. For example, Hamilton and colleagues (2013) conducted a study to determine whether psychosocial factors predict depression among older African American patients with cancer. They found that collectivism combined with other variables explained 52% of the variance in depression, and they proposed that collectivism may increase the risk of depression. This finding corroborates the work of Abu-Kaf and Priel (2008) who also found that collectivism plays a moderating role in depression. In another recent study, Chu (2015) conducted a study of 159 adult participants from Taiwan to examine the relationship between cultural values, emotion expression and mental health. The results indicated that Americans of Asian descent (holding collectivist values) tend to suppress (not express) their negative emotions, believing that they should keep their emotion under control.

This result suggests that cultural values may influence individuals to develop negative beliefs about negative emotions, which in turn impacts on the expression of negative emotion, and consequently may lead to depressive disorder. This is possible, as Chu (2015) found that individuals' cultural values can influence their mental health, and the negative attitude towards emotional expression mediates the relationship between cultural values and depression. These results also indicated that it is not only membership of a cultural group shapes emotion regulation. Rather, individuals' own orientation toward collectivism impacts on how they manage their emotions (Chu, 2015; Ford & Mauss, 2015; Kwon et al., 2013; Seo, 2011; Sivadas et al., 2008).

These findings demonstrate that cultural values, such as collectivism, can influence how individuals think, feel and behave (Ford & Mauss, 2015), which may lead individuals to develop a higher level of negative beliefs (Valiente, Romero, Hervas & Espinosa, 2014), which, in turn, can lead them to suppress their anger and subsequently they may develop depression (Valiente et al., 2014).

These results discussed above indicate that individuals from what are regarded as collectivist cultures, are more likely to suppress the expression of anger and use expressive suppression strategy than those from more individualist Western backgrounds. In other words, individuals who are collectivists in their appraisal values may have a high tendency to not express their anger and may thus be more likely to develop depression. Accordingly, the present research predicts that anger expression-out interacts with the collectivism variable, and this interaction (as a suppression of anger) may contribute to depressive disorder. That is, a person from a collectivist background might suppress his or her anger expression if this would ensure collective harmony of interests; similarly, a person from an individualist culture may express his or her anger, without considering potential consequences on other individuals.

1.6 Identification of a research gap and Conceptual Framework

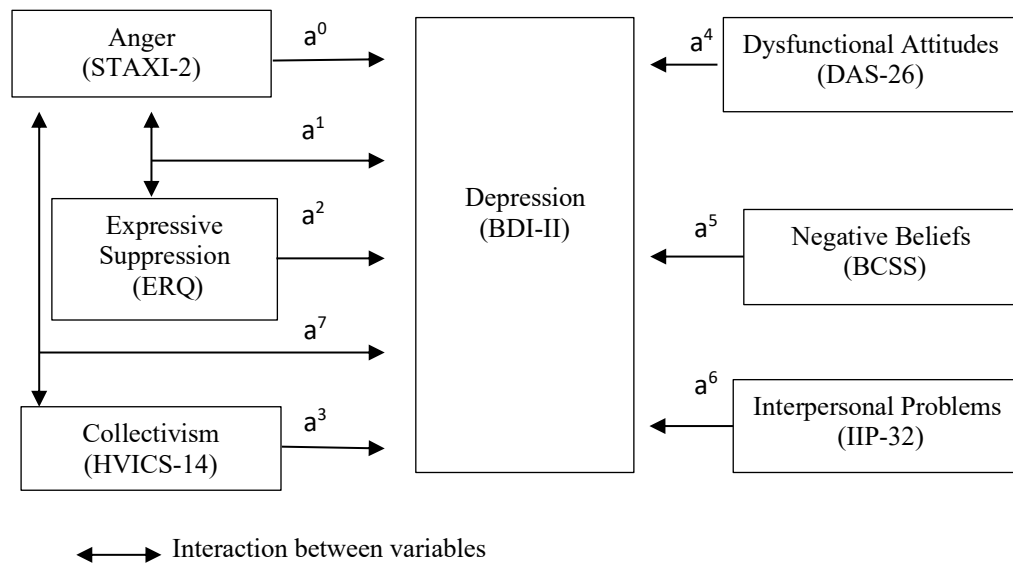


Figure 4: A Schematic Model of the Analysis of Anger and Depression

Figure 4 presents a cognitive model of depression and an interpersonal model with the key concepts of anger (trait anger and anger expression-out), emotion regulation (expressive suppression/reappraisal), negative schematic beliefs, cultural orientation (collectivism), dysfunctional attitudes, and depression, with arrows showing the direction of association. This model represents the four independent hypotheses of this thesis (see below). Each of these hypotheses will be tested separately (as described below).

The acronyms in parentheses within each box (see Figure 6) indicate the measures of each variable in question. The State-Trait Anger Expression Inventory (STAXI-2) will be used to measure the level of individuals' anger. It is considered an appropriate and reliable measure of anger, as all its subscales have been shown to have good internal consistency (Spielberger, 1999). Since the focus here is on trait anger and anger expression-out variables, the other variables of the STAXI-2 will not be used. Trait anger and anger expression-out variables are consistently associated with depression (Goldman & Haaga 1995). It is expected that there is an interaction of anger expression-out and expressive suppression factors (as indicated by the a^1 arrow), which in turn predicts depressive disorder.

The connection between anger and depression can be direct (as indicated by the a^0 arrow) or by the interaction (combination) of anger expression-out and expressive suppression

factors (as indicated by arrow a¹). The interaction variable designates the suppression of overt expression of anger. If suppression of anger and depression correlate as proposed in the literature (e.g. Besharat et al., 2013), then a pattern of association would occur where there is expressive suppression and less utilisation of reappraisal. In other words, when individuals become emotionally provoked by surrounding events, they tend to employ other methods, such as expressive suppression, to manage their feelings (Gross, 1998a).

The above discussion of the findings from the literature suggests that the tendency of an individual to become depressed depends largely, but not exclusively, on their tendency to habitual use of expressive suppression strategy to hide their experience and expression of anger (Chu, 2015). In this regard, expressive suppression strategy will be measured using Gross and John's measure of Emotion Regulation Strategy (ERQ; 2003). Previous studies have shown that the ERQ scale is reliable and valid, and it is suitable for use with adults (Gross & John, 2003). It is an appropriate scale to use in this research, as it focuses on two types of cognitive strategies, which are cognitive reappraisal as an adaptive strategy and expressive suppression as a maladaptive strategy.

However, as explained above, emotion regulation strategies differ, and the ways in which they are used vary among individuals. Some individuals use emotion regulation strategies based on beliefs and their cultural orientations (values). The connection between expressive suppression and depression can be direct (as indicated by arrow a²).

Individuals who are collectivists in their appraisal values may have a greater tendency to suppress the expression of their anger, in contrast to individualists (Ramzan & Amjad, 2017; Seo, 2011; Sivadas et al., 2008). Thus, in this research it is also expected that there is an interaction between anger expression-out and collectivist variables (as indicated by arrow a⁷), which may contribute to depression. Therefore, to measure the orientation of culture, especially collectivism, the Horizontal and Vertical Individualism and Collectivism Scale (HVICS-14) (Sivadas et al., 2008) was employed (as shown by arrow a³). This scale is a reduced version consisting of 14 items, and it is considered to be appropriate to measure the orientation of culture.

Depression, as the dependent variable, will be measured using Beck's Depression Inventory (BDI-II), which is well-established in assessing and screening for depression among clients and screening for potential depression in normal populations (Beck et al., 1996) and it emphasises cognitive symptoms (Gilbert, 2004; Cheung & Power, 2012). The measure has retained its psychological and clinical reliability and validity over time, as indicated by the

frequent revalidation of the scale from BDI to BDI-IA and now BDI-II is an indication of its utility (Lipps et al., 2010).

However, according to the cognitive theory of depression discussed in previous section, individuals who are prone to depression have dysfunctional schemata developed from early life experiences from their family, peers and society and there is a strong relationship between dysfunctional attitudes and depression (D'Alessandro & Burton, 2006; Ebrahimi, Samouei, Mousavii & Bornamanesh, 2013; Seeds & Dozois, 2010; Thomas & Altareb, 2012). It has also been established that high trait anger is related with highly dysfunctional schemata (Tafrate et al., 2002). Therefore, the dysfunctional schemata that individuals have about their environment are regarded as predictive variables to depression (as indicated by arrow a⁴) and to measure these dysfunctional schemata, the reduced Dysfunctional Attitudes Scale (DAS-26) will be used. This is because the BDI-II does not cover all cognitive aspects of depression, such as dysfunctional appraisal. Moreover, considering dysfunctional attitudes will enhance our understanding of depression and the relationship between anger and depression. That is, if we see the variances of depression explained by the DAS, it will help us to understand depression over and above what is already known. The DAS is a self-report scale derived from Beck's cognitive theory of depression to measure an individual's rigid, negative and perfectionistic attitudes. The DAS-26 is reliable and has been validated in both clinical and normal samples (Ebrahimi et al., 2013b), and performs similar functions to its former version DAS-A.

Regarding emotion processing and expressive suppression, it has been established in the previous section that individual differences in the beliefs that individuals have about self and negative emotions may impair emotion regulation abilities and consequently may lead them to develop depression. Thus, if we take the negative schematic beliefs about self into account, more of the variance in how individuals score on the depression measure can be explained, which in turn will provide a greater understanding of the mechanism of the development of depression. Accordingly, negative schematic beliefs that individuals have about their self are regarded as predictive variables for depression (as indicated by the a⁵ arrow). Therefore, to measure individual schemata, the Brief Core Schema Scale (BCSS) (Fowler et al., 2006) will be employed. This measure seems an appropriate measure to use in this thesis as it examines the negative schema about self and others and has good psychometric properties for all its subscales (Fowler et al., 2006). It is a self-report scale designed to measure beliefs about the self and others held by an individual. The measure comprises 24 items rated on a 5 point Likert scale (0 – 4).

In addition, it has been found that depressed individuals have interpersonal difficulties (Eberhart & Hammen, 2006; McEvoy et al., 2013a; McEvoy et al., 2013b), as discussed in the preceding sections, and that these difficulties appeared to be related with the regulation of anger. In the literature, several measures of interpersonal problems are used, especially the short version of IIP, but all these short measures are driven by other theoretical orientations (Hughes & Barkham, 2005). Moreover, to translate the questionnaire into Arabic, the researcher would have had to contact the owner of the IIP-32, which is a company called “Mind Garden”. For that reason, it has been decided to use the Inventory of Interpersonal Problems (IIP-32; Horowitz et al., 2000) to examine interpersonal difficulties. The IIP-32 scale is appropriate, as it seems more suitable than other scales for use with clinical populations and all its subscales are consistent at predicting depressive symptoms across groups (McEvoy et al., 2013a). In addition, this scale seems a robust, valid and reliable measure of interpersonal problems, as several studies have used it to explore the difficulties that depressed individuals experience in their interpersonal relationships (Alden et al., 1990; McEvoy et al., 2014; Renner et al., 2012).

The developed framework considers the interaction and interpersonal components as psychological predictive factors of depression, which in turn can help the understanding and management of depression in depth, particularly in Saudi Arabia. That is, the proposed interaction model could suggest better intervention plans designed to target maladaptive strategies in individuals suffering from depressive disorder. More importantly, it will reveal the relationship between anger and depression in a clinical population in the Saudi community. It is anticipated that the developed model will explain a significant amount of the variance in depression scores and serve as a good indicator of associated risk factors.

1.7 Aims of the thesis

This thesis aims to examine how 1) the interaction between expressive suppression (ES) and anger expression-out (AO) as well as 2) the interaction between collectivism (HVC) and anger expression-out provides an enhanced understanding of depression compared to these predictors (ES, AO and HVC) in isolation. The interaction denotes the inhibition of overt expression of anger. The purpose is to add to the current explanations of the cognitive model of depression, which tends to focus more on the effects of negative cognitions and does not take into account maladaptive emotion regulation strategies and interpersonal problems. This is very significant, as it will assist Saudi psychologists and psychiatrists to adopt different medical and cognitive therapies in the management of depressed patients. The fact that this

thesis appears to be the first of its kind, especially in Saudi Arabia, makes it more than timely. The following statements summarize the objectives of this thesis:

- a) To examine whether the combination of these predictors explains depression over and above what is already known.
- b) To examine the impacts of the interaction between *expressive suppression* and *anger expression-out* variables on depression.
- c) To examine the impacts of the interaction between *collectivism* and *anger expression-out* on depression.
- d) To examine whether the interaction between *expressive suppression* and *anger expression-out* variables as well as the interaction between *anger expression-out* and *collectivism* is associated with depression over and above what is predicted by these predictors in isolation.

1.8 Research Hypotheses

Based on the previous literature, the following Pre-hypotheses were formulated. It was hypothesised that 1) the interaction between *expressive suppression* and *anger expression-out* ($AO \times ES$), as well as 2) the interaction between *collectivism* and *anger expression-out* ($AO \times HVC$) factors would contribute to the variance in depression over and above what has predicted by these known predictors in isolation. These hypotheses were examined separately with predictors of the cognitive model of depression, and then with predictors of the interpersonal problems of depression. After that, simple slopes analyses (PROCESS method) were used to follow up and interpret the significant interaction effects. Therefore, hypotheses 1 and 2 refer to the predictors of the cognitive model of depression, whereas hypotheses 3 and 4 refer to the interpersonal predictors.

1.8.1 First Hypothesis

The interaction between high expressive suppression and low anger expression-out ($AO \times ES$) will contribute to the variance of depression over and above what is predicted by expressive suppression and anger expression-out variables in isolation.

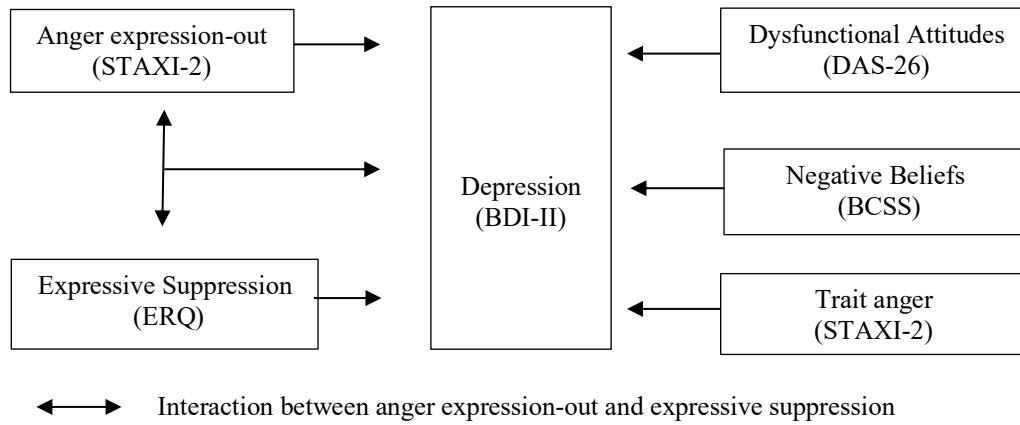


Figure 5: First Hypothesis

In order to test this hypotheses, hierarchical multiple regression will be employed to determine which of these variables best predicts depression, so the dysfunctional attitudes subscales (DAS-26) will be entered in the first step, because previous research indicates that DAS-26 significantly predicts depression and it is consistently associated with depression (Beshai, Dobson, Adel & Hanna, 2016; Seeds & Dozois, 2010; Thomas & Altareb, 2012). In the second step, negative core schema beliefs (BCSS) subscales will be entered, because these are also another key predictor that consistently predicts depression (e.g., Beshai et al., 2016; Wong, 2012). In the third step, trait anger and anger expression-out will be entered, to examine how it explains depression (Balsamo, 2013). In the fourth step, the expressive suppression variable will be entered, as it is consistently associated with depression (Beblo et al., 2012; D'Avanzato et al., 2013), and also to examine how it explains depression. In the fifth step, the interaction variable (expressive suppression $\times$ anger expression-out) will be entered in order to examine how it explains depression.

If the interaction terms are significant contributors to the variance in depression scores (i.e. showing evidence of moderation), these will be further interpreted using simple slopes analyses (PROCESS Macro method) to aid interpretation of the interaction effects.

1.8.2 Second Hypothesis

The interaction between high collectivism and low anger expression-out ($AO \times HVC$) will predict depression over and above what is predicted by collectivism and anger expression-out variables in isolation.

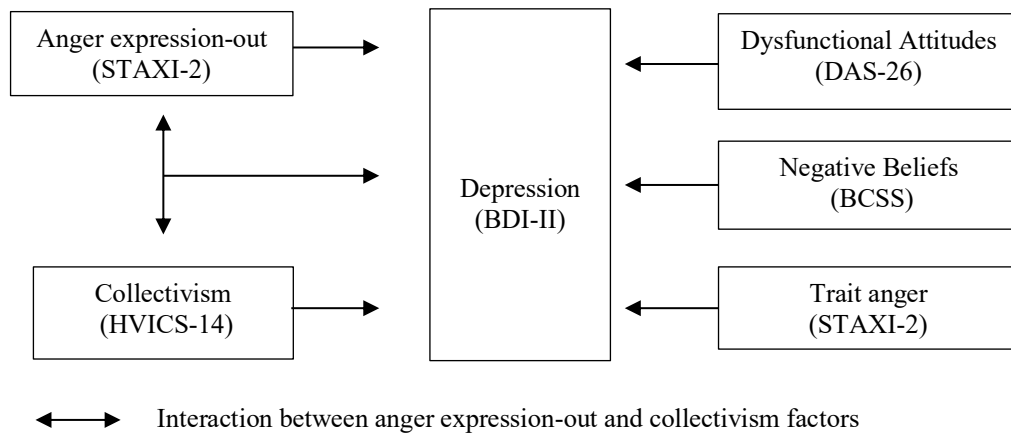


Figure 6: Second Hypothesis

In the first step of the hierarchical multiple regression, the dysfunctional attitudes (DAS-26) subscales will be entered, as mentioned above, as a key predictor of depression. In the second step, the negative core schema beliefs (BCSS) subscales will be entered because these are also another key predictor that consistently predicts depression. In the third step, trait anger and anger expression-out will be entered to examine how it contributes to depression. In the fourth step, the collectivism variable will be entered to examine how it explains depression. In the fifth step, the interaction variable ($AO \times HVC$; interaction between anger expression-out and collectivism variables) will be entered. Similarly, If the interaction variable contributed significantly to the variance of depression, it will be plotted using simple slopes analyses to interpret the interaction effect.

1.8.3 Third Hypothesis

The interaction between high expressive suppression and low anger expression-out ($AO \times ES$) will contribute to the variance of depression over and above what has been predicted by collectivism and anger expression-out variables in isolation.

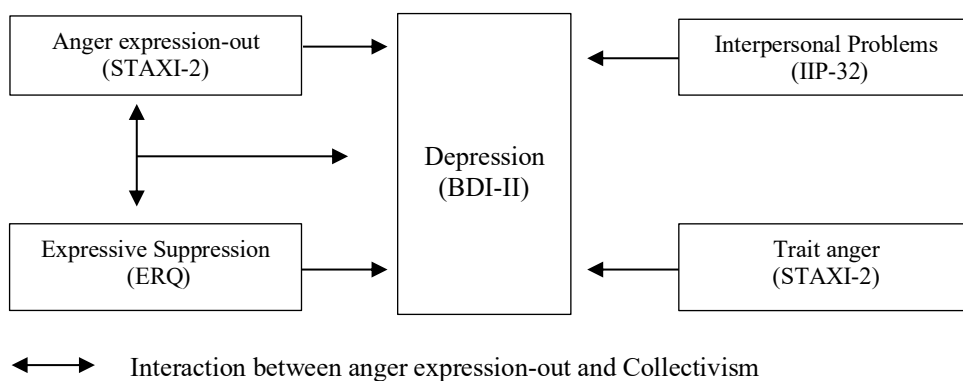


Figure 7: Third Hypothesis

A hierarchical multiple regression will be employed to test this hypothesis. In the first step, the inventory of interpersonal problems (IIP-32) subscales will be entered, as this aspect has consistently been associated with depression (McEvoy et al., 2013; 2014). In the second step, trait anger and anger expression-out will be entered to examine how they contribute to depression. In the third step, the expressive suppression variable will be entered to examine how it explains depression. In the fourth step, the interaction variable ($AO \times ES$; interaction between anger expression-out and expressive suppression) will be entered. Again, if the interaction variable significantly contributed to the variance of depression, it will be plotted using simple slopes analyses to interpret the interaction effect.

1.8.4 Fourth Hypothesis

The interaction between high collectivism and low anger expression-out ($AO \times HVC$) will contribute to the variance of depression beyond what has been predicted by the collectivism and anger expression-out subscales in isolation.

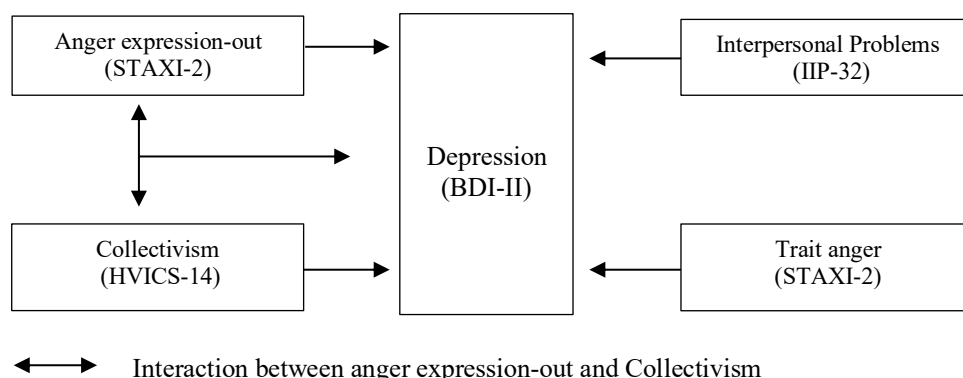


Figure 8: Fourth Hypothesis

In order to test this hypothesis, a hierarchical multiple regression will be employed. In the first step, the inventory of interpersonal problems (IIP-32) subscales will be entered. In the second step, trait anger and anger expression-out will be entered. In the third step, the collectivism variable will be entered to examine how it explains depression. In the fourth step, the interaction variable ($AO \times HVC$) will be entered.

1.9. Conclusion

To sum up, an empirical examination of these dynamics is long overdue and the literature examining the relationships between anger and depression has not yet integrated these other predictors of depression. The empirical evidence suggests that anger, maladaptive regulation of emotion and interpersonal problems increase individuals' susceptibility to depression. However, most of the previous studies about anger and depression were interested in individuals with anger problems and did not focus on the role of anger regulation in reducing the level of depressive symptoms.

Likewise, the above studies indicated that interpersonal problems are associated with depressive symptoms, suggesting that one of the reasons why individuals with depressive symptoms experience interpersonal problems may be that they do not manage their anger effectively (e.g., Ingram et al., 2007; Sahin et al., 2011). Thus, taken together, these studies indicate that the combination of the emotion of anger, an inappropriate suppression strategy together with interpersonal problems plays an important role in depression, although these aspects are neglected in the current model of depression.

Furthermore, previous studies, to the author's knowledge, have not examined the interaction between anger expression (anger expression-out) and expressive suppression as a maladaptive strategy or examined these predictors together in the context of cultural orientation.

Importantly, there is no study which has examined these variables together in one study, especially in relation to depressive disorder among Saudi adults (see Systematic review section). It appears that all these variables are linked with each other in predicting adults' depression. Therefore, against this backdrop, this thesis will bring all these risk factors of depression together in one study and examine the interactions between anger expression and expressive suppression, as well as the interactions between anger expression and collectivism factors (difficulties in regulating anger) among individuals with symptoms of depression in Saudi Arabia.

It is hoped that the findings of this thesis will contribute to the current explanations of the cognitive model of depression. Moreover, this study takes into consideration various risk factors of depression and their respective interaction, which, in turn, could help in the management of depressive disorder. In addition, by focusing on emotion regulation and anger it could help to better understand the impact of maladaptive regulation of anger on depression. It is hypothesised that there is an interaction between anger (anger expression-out) and both

collectivism and the expressive suppression strategy and that this interaction could contribute to a significant amount of variance in depression over what is already known. This is particularly important, as scholars are debating which factors inhibit emotion regulation and how people manage emotional disorders. Thus, the proposed interactional model could highlight potential intervention strategies relating to emotion regulation in individuals with symptoms of depression, supporting individuals to overcome difficulties with mood and focus upon the development of skills to manage their emotion. Moreover, this thesis will also provide instruments translated from English into Arabic for the Arab world, which can be used in the future. In the next chapter, the outcome of a systematic literature review will be presented and discussed.

CHAPTER 2

Study 1: Maladaptive anger regulation in depressive disorder: A Systematic Review

2.0 Introduction

This chapter provides a systematic review of the existing literature on maladaptive anger regulation in adults with or without depressive disorder. This is relevant to the current study in exploring the relationship between anger, maladaptive emotion regulation strategies and depression. However, the existing literature is not entirely clear about the exact relationship between anger, use of expressive suppression strategies and depression. Therefore, a systematic search was required to find out what is the impact of maladaptive anger regulation strategies on the experience of depression symptoms. The aim here is to examine the existing literature to establish whether the maladaptive anger regulation, especially in interpersonal context, plays an important role in the development of depressive symptoms. Moreover, gaining a more in-depth understanding of depression, may add other factors to the explanations of the cognitive model of depression by showing the importance of emotion regulation strategies and interpersonal problems as factors in the cognitive model, as these factors are absent from the current cognitive model of depression.

As explained above, anger can be expressed in different ways. For example, *Anger Expression-Out* (AO) refers to a person who experiences anger frequently and tends to express his/her feeling of anger in aggressive behaviour or in verbal expression of anger towards people or objects, whereas *Anger Expression-In* (AI) refers to the habitual experience of anger and is directed inwards, rather than being expressed outwardly.

In recent decades, there has been an increased interest in empirically exploring the link between anger, maladaptive emotion regulation and depressive disorder. However, there are few studies that have explored the relationships between these factors. In addition, such previous studies (e.g., Beblo et al., 2012; Koh, Kim, Kim & Park, 2005) have examined these known predictors in isolation, and consequently these studies did not add sufficient new insights about depression to provide a fuller understanding of its mechanisms. Moreover, the previous literature, according to the author's knowledge, has not provided a systematic review on the link between anger regulation and depression, considering other known predictors. Therefore, this section provides a systematic review on the link between anger regulation and

depression, including all these predictor variables together, which in turn will explain depression better than if we were to focus on each predictor in isolation.

2.1 Objective of Systematic Review

The systematic review aims to review the existing literature on anger, maladaptive emotion regulation and depression. The objective of the review is to evaluate the evidence for maladaptive regulation of anger as being associated with depressive symptoms in individuals with or without major depression.

It was decided to include studies with a non-clinical sample in the current review for a number of reasons. Firstly, there are only six studies on only clinical participants with major depression, which would not be regarded as sufficient research. Secondly, depressive symptoms in the population are dimensionally distributed rather than categorically, and the criteria for major depression are relatively arbitrary. In addition, it is likely that the processes of psychological factors that predict and influence depressive symptoms are not qualitatively different in individuals above the major depressive disorder criteria and below. Therefore, the current review will also include studies with a non-clinical sample to study the experience across the dimensionality of depressive symptoms to obtain a more in-depth understanding of depression.

2.2 Research Question for the Systematic Review:

Are maladaptive anger regulation strategies associated with the severity of depressive symptoms?

2.3 Methods

In the current systematic review, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA; Moher, Liberati, Tetzlaff & Altman, 2009) methodology was employed in order to assess and critically appraise the quality of the papers included. The PRISMA statement is a reporting guideline for methods of systematic review. It is a checklist tool designed to help researchers improve the reporting of systematic review, and critically think about the validity of the research, results and implications (Moher et al., 2009). The PRISMA statement comprises of a 27-item checklist and a four-phase flow diagram, as follows: Phase one: "Identification"; Phase two: "Screening"; Phase three:

“Eligibility”; Phase four: “Included”. The PRISMA statement covers the following areas: the study’s methodology, its sample representative population and its outcome (see Appendix 46). The PRISMA checklist tool was chosen because it is widely used for systematic review (SR) (Hutton et al., 2015) and recommended by previous studies (Liberati et al., 2009; Voorberg, Bekkers & Tummers, 2015; Brandao, Tavares, Schulz & Matos, 2016) and can be used to assess the most relevant issues in the included papers.

2.3.1 Eligibility Criteria

The published articles were examined to ascertain whether they meet the criteria to include them in the current study or whether to exclude them. The following inclusion criteria were applied for the selection of studies.

2.3.1.1 Inclusion criteria were:

- 1) Studies where the outcome variable was depressive symptoms.
- 2) Studies assessing anger.
- 3) Studies assessing maladaptive emotion regulation strategies.
- 4) Studies with adult samples aged 18 years and above based upon Saudi Ministry of Health guidelines.
- 5) Studies with a clinical sample (individuals with depressive symptoms), and/or a Student sample or other non clinical sample.
- 6) English language since 1985, as according to Aldao and colleagues (2010) and Aldao and Nolen-Hoeksema (2012), there are no studies that consider emotion regulation before this date.

2.3.1.2 Exclusion criteria were:

- 1) Studies without an English translation available.
- 2) Studies with an adolescent sample (between 11 and 17 of age).
- 3) Theoretical or review articles without empirical data, case studies, unpublished articles, Masters or Doctoral theses, and books.
- 4) Studies with a clinical sample with neurological conditions (as this could affect emotion regulation and depression).

2.3.2 Search Strategy

A systematic search was conducted using the following electronic databases: PsycINFO, Ovid MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed

Citations and Ovid MEDLINE(R), and EMBAS (from 1st January 1985 to 4th November 2019). The database PsycINFO covers journal research in the field of psychology and psychological aspects of related disciplines from 1806 to the present date and more than 2400 journals written in over 25 languages. Likewise, the database MEDLINE covers medical research, policy issues and clinical practice from 1966 to the present date. It covers 3200 journals published in the USA and approximately 70 other countries. The EMBASE database covers about 3300 journals over about 110 countries with strong coverage of European journals. Thus, these electronic databases were used in the current study as they are considered by the researcher to cover health issues and relevant literature as past research in clinical psychology is published in each of these electronic databases.

In addition, the researcher included only studies that were published between 1985 and 2019. This cut-off date was chosen according to previous studies in the same field. For example, Aldao and colleagues (2010); and Aldao and Nolen-Hoeksema (2012), reported that there were no studies before 1985 that consider emotion regulation. The keywords used in this search strategy are explained in the Table 1 as follows: (1) anger or angry or aggress* or violen*; (2) suppress* OR express* OR maladaptive OR “emotion regulation” OR “emotion dysregulation” OR “affect regulation” or “affect dysregulation” or “regulation of emotion” or “dysregulation of emotion” or “self- regulation”; (3) “depress*”.

Table 1: Key term words used within search

Key search words		
1	Anger	(Combined with OR) Anger or angry or aggress* or violent*
2	Maladaptive Emotion Regulation	(Combined with OR) suppress* or express* or maladaptive or “emotion regulation” or “emotion dysregulation” or “affect regulation” or “affect dysregulation” or “regulation of emotion” or “self- regulation”
3	Depression	depress*
Combined search words		
1	1 AND 2 AND 3	(Combined with AND) Anger AND maladaptive emotion regulation AND depression

* An asterisk after an abbreviated noun means any term beginning with that noun.

2.3.3 Study Selection

After removing duplicates, titles and abstracts of all search results were screened to identify relevant studies. This process conducted by the researcher and by another independent PhD student, in order to reduce the possibility of rejecting relevant studies, and to avoid researcher bias. If there were differences and/or discrepancies between the investigators’ study selections, the investigators met and came up with one consensus agreement. It was planned that if consensus was not reached, studies would be rescreened by a third investigator. However, there were no differences between the two investigators in their selection of the studies. After that the full text was obtained for relevant studies. Moreover, reference lists were manually searched for further relevant studies, but no relevant studies were found.

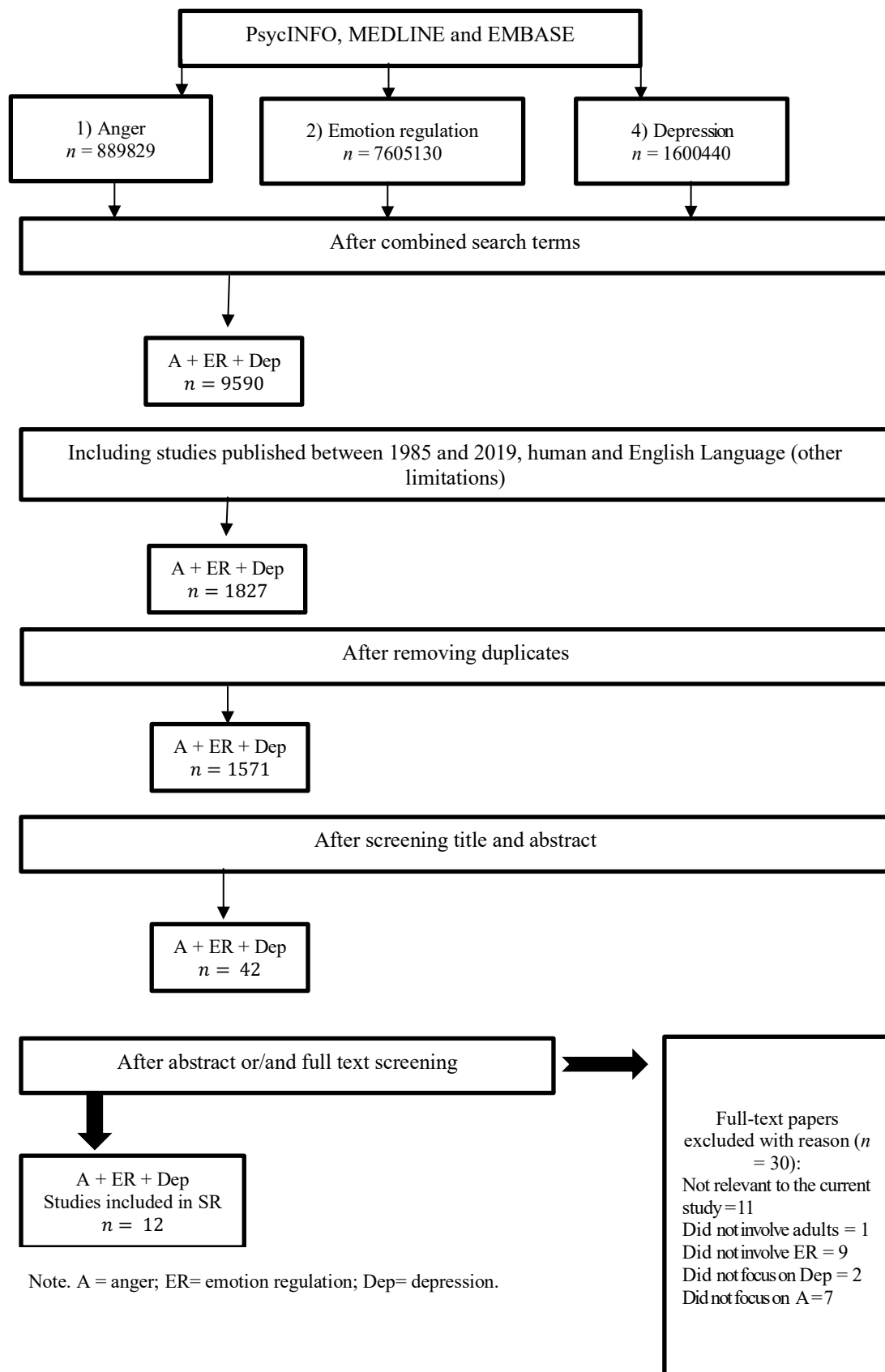


Figure 9: PRISMA flow diagram of the study selection process.

Figure 9 shows the study selection process. As it can be seen, twelve studies were included in the systematic review section as they met the inclusion criteria (described below). A number of studies were excluded from the ones identified in the search, as it was found after reviewing them that they did not fully meet the inclusion criteria. The full-text papers excluded with reason amounted to 30 papers. Of these, eleven papers were not relevant to the current study, while one paper had a sample outside the current research age range and nine papers had not involve emotion regulation strategies. Two papers had not focused on depression among adults as a dependent variable, while seven papers did not focus on anger.

2.3.4 Synthesising the literature

The study characteristics were then identified and synthesised in a comparative table (Table 2). The papers were then critically appraised and evaluated using the Critical Appraisal Skills Programme (CASP), as detailed in section 2.4.2 below and in Appendix 38. The results of the appraisal were then presented in table form (Table 3) and described and discussed in the subsequent section.

In the current review, a narrative synthesis was conducted to synthesise the literature. Although meta-analysis is desirable (Campbell et al., 2020), where possible, it was not considered appropriate in the current review, because of the diversity of the studies. For example, these studies focus on one or two emotion regulation strategies only, and are heterogeneous in design, making it difficult to compare findings across them (Aldao et al., 2010). Moreover, there is also heterogeneity in the study samples within the individual studies and, in some case, poor quality of individual studies using different types of methodology. In addition, there were not enough studies examining the research question of the present work.

2.4 Results

2.4.1 Study selection

As it can be seen in flow diagram (Figure 9), the search of PsycINFO, MEDLINE and EMBAS databases provided a total of 889829 citations for anger term, a total of 7605130 citations for emotion regulation terms, and a total of 1600440 citations for depression term. Ultimately, twelve studies were included in the systematic review section as they met the inclusion criteria.

Table 2: Study Characteristics of the papers reviewed

Details Studies		Country	Sample size (N)	Prior Sample calculation	Age <i>M SD</i>	Sample details	Gender M/F	Design	Measures	Psychometrics proprieties	Key Findings
1	Balsamo, 2010.	Italy	Adults <i>n</i> = 353	No	Age 18 - 68 year (<i>M</i> = 32.6, <i>SD</i> = 11.44). Men sample <i>n</i> = 123 (<i>M</i> = 34.2, <i>SD</i> = 12.1). Women sample <i>n</i> = 230 (<i>M</i> = 31.8, <i>SD</i> = 10.9).	Normal sample Recruited from the community	M=123 F = 230	Cross-sectional, analysis: Path analyses	BDI-II, STAXI-2 (only trait anger) and the Padua Inventory's Tendency to Doubt and to Ruminare subscale (Sanavio, 1988).	Trait anger α = .88. The BDI-II α = .88. The Padua Inventory α = .89.	Trait anger and depression were strongly associated (r = .13, p < .014). Rumination as a maladaptive strategy was significantly associated with both of trait anger (r = .59, p < .001) and depression (r = .54, p < .001). Rumination was mediating the relationship between anger and depression.
2	Greenberg et al., 2009.	USA	Adults <i>n</i> = 39	No	Clinical group: aged range 19-35; <i>M</i> = 24.25, <i>SD</i> = not reported. Non-clinical group:	The samples were recruited from the counselling centre at Midwestern university.	Men only	Cross sectional, analysis: ANOVA	The BDI-II, Toronto Alexithymia Scale-20 (TAS-20; Bagby et al., 1994; Bagby et al., 1994); Conformity to Masculine Norms Inventory (CMNI; Mahalik et al., 2003);	the BDI α = .94; the TAS-20 α = .86; the CMNI α = .92. The RSQ's subscales as follows: rumination α	Depression score for clinical (<i>M</i> = 26.75; <i>SD</i> = 9.0) and for non-clinical (<i>M</i> = 7.30; <i>SD</i> = 3.01). Rumination score for clinical (<i>M</i> = 53.88; <i>SD</i> = 15.11; range 33-75) and for

Details Studies		Country	Sample size (N)	Prior Sample calculation	Age <i>M</i> <i>SD</i>	Sample details	Gender M/F	Design	Measures	Psychometrics properties	Key Findings
					aged range 18-22; <i>M</i> = 19.09, <i>SD</i> = not reported.				Response Styles Questionnaire (RSQ; Nolen-Hoeksema & Morrow, 1991) and the STAXI-2	= .94, distraction α = .82, and problem-solving α = .73. The STAXI-2 α ' range from .71 to .93.	non-clinical (<i>M</i> = 43.51; <i>SD</i> = 10.62; range 26-64); Distraction score for clinical (<i>M</i> = 23.78; <i>SD</i> = 7.46; range 9-36) and for non- clinical (<i>M</i> = 28.20; <i>SD</i> = 3.94; range 19-34). TA score for clinical (<i>M</i> = 20.94; <i>SD</i> = 6.69; range 14- 38) and for non-clinical (<i>M</i> = 15.70; <i>SD</i> = 3.17; range 10-21); AO score for clinical (<i>M</i> = 16.00; <i>SD</i> = 4.55; range 10-23) and for non-clinical (<i>M</i> = 15.27; <i>SD</i> = 2.82; range 9-19). Depressed group reported significantly higher levels of rumination ($F = 6.35, p$ = .16), and significantly lower levels of both distraction ($F = 5.80, p$ = .021), and problem-

Details Studies		Country	Sample size (N)	Prior Sample calculation	Age <i>M SD</i>	Sample details	Gender M/F	Design	Measures	Psychometrics proprieties	Key Findings
											solving ($F = 24.78$, $p < .001$) than a control group.
3	Besharat et al., 2013.	Iran	Adults $n = 88$	No	Aged range 18-58 years $M = 33.61$, $SD = 9.28$	Participants with MDD. Did not report from where recruited.	M = 20 F = 86	Cross sectional, analysis: path analysis	The BDI (13-items), the Cognitive Emotion Regulation Questionnaire (CERQ), the Anger Rumination Scale (ARS) and the Multidimensional Anger Inventory (MAI)	Cronbach's alpha for the BDI $\alpha = .78$; the CERQ $\alpha =$ not reported, the ARS $\alpha =$ not reported, the MAI $\alpha = .80$.	Depression score ($M = 21.70$; $SD = 6.90$); anger-out score ($M = 13.16$; $SD = 2.43$); MER score ($M = 26.48$; $SD = 12.72$). There were positive relationships between anger, maladaptive emotion regulation and depression at $p < 0.05$.
4	Beblo et al., 2012.	Germany	Adults $n = 80$	No	MDD group $M = 38.9$, $SD = 10.2$. Comparison group $M = 37.7$, $SD = 8.9$	Inpatient participants with MDD and Comparison group from community	MDD M = 21 F = 18 Comparison M = 18 F = 23	Cross sectional, analysis: ANOVA	The BDI, the Emotion Acceptance Questionnaire (EAQ; Beblo et al., 2011), the Difficulties in Emotion Regulation Scale (DERS; Ehling et al., 2008; Gratz & Roemer, 2004) and the ERQ (Abler & Kessler, 2009; Gross & John, 2003).	the BDI $\alpha =$ not reported, the EAQ $\alpha = .93$; split half = .89, the DERS $\alpha = .93$, the ERQ for both subscales $\alpha = .88$.	Depression score ($M = 26.0$; $SD = 13.2$); ERQ suppression score for patients ($M = 16.0$; $SD = 5.7$) and for comparison group ($M = 10.7$; $SD = 4.9$). More suppression of negative emotions was related to more severe symptoms of depression ($r = -.37$, $p = .019$).

Details Studies		Country	Sample size (N)	Prior Sample calculation	Age <i>M SD</i>	Sample details	Gender M/F	Design	Measures	Psychometrics proprieties	Key Findings
											The more fear of negative emotions was related to more suppression in patients group ($r = -.41, p < .01$), and in healthy group ($r = -.57, p < .001$).
5	Brody et al., 1999.	USA	Adults $n = 50$	NO	Did not report age range. RD sample ($M=37.28, SD=12.18$). ND sample: ($M=40.04, SD=13.08$).	Recruited from the community. Recovered depressed (RD) $n=25$ Never depressed (ND) $n=25$	RD: $M = 6$ $F = 19$ ND: $M = 6$ $F = 19$	Cross sectional, analysis: correlation; ANOVA & ANCOVA	The BDI, STAXI (TA, AI & AO), Anger Attacks Questionnaire (AAQ; Fava et al., 1991), The Silencing the Self Scale (STSS; Jack and Dill, 1998), and the Fear of Expression Questionnaire (FEQ; Goldman and Haaga, 1995).	Did not report any information	Depression score for RD group ($M = 3.88; SD = 2.65$) and for ND group ($M = 2.04; SD = 3.01$). TA score for RD group ($M = 16.33; SD = 5.22$) and for ND group ($M = 12.79; SD = 3.21$), and AO score for RD group ($M = 14.47; SD = 4.38$) and for ND group ($M = 13.12; SD = 2.44$). Silencing the self (inhibiting expression) score for RD group ($M = 23.32; SD = 7.03$) and for ND group ($M = 18.36; SD = 6.30$). The FEQ score for RD group ($M = 22.00; SD =$

Details Studies		Country	Sample size (N)	Prior Sample calculation	Age <i>M SD</i>	Sample details	Gender M/F	Design	Measures	Psychometrics proprieties	Key Findings
											4.80) and for ND group ($M = 14.54$; $SD = 5.32$). The RD group reported higher experience of anger than ND group ($t = 1.95$, $df = 40$, $p < .06$), but they reported expressing anger overtly equally as much as the ND participants ($t = 1.31$, $df = 42$, $p < .20$), suggesting that they suppressed the expression of anger.
6	Gilbert et al., 2004.	United Kingdom	Adults $n = 50$	No	Age range = not reported. Male age $M = 44.8$, $SD = 8.8$; female age $M = 42.1$, $SD = 7.4$.	Inpatient participants with depressive symptoms	M = 27 F = 23	Cross-sectional, analysis: Chi-Squared	The BDI-II; Anger Inhibition questionnaire (Gilbert et al., 2004), and the reason for not expressing anger questionnaire (Gilbert et al., 2004).	Did not report any information	Depression score ($M = 33.7$; $SD =$ not reported), anger experience score ($M = 1.8$; $SD = 0.9$; range 0-3). Most of depressed (41 – 82%) felt angry with others but do not express it or tell them. 56% of participants acknowledged they

Details Studies		Country	Sample size (N)	Prior Sample calculation	Age <i>M SD</i>	Sample details	Gender M/F	Design	Measures	Psychometrics proprieties	Key Findings
											inhibiting the expression of anger before getting depressed. Dysregulated anger linked to interpersonal context.
7	Nazir & Mohsin, 2013.	Pakistan	Adults <i>n</i> = 128	Yes	Age 18 - 35 years (<i>M</i> = not reported)	The samples were recruited from psychiatric and medicine departments of 4 different hospitals of Lahore. Participants with depression (<i>n</i> = 64) and comparison group (<i>n</i> = 64)	Did not report any information.	Cross-sectional, analysis: ANOVA & logistic regression analyses	25-item depression subscale of the Symptom Checklist-Revised (SCR; Ali, 2008), Brief Coping Inventory (BCI; Carver et al., 1989), Aggression Questionnaire (AQ; Javaid, 2011) and the Bergen Social Relationship Scale (BSRS; Bancila & Mittelmark, 2009)	The BCI α = from .59 to .70, the AQ α = .75; the SCR α = .96 and the BSRS α = .85 and the test-retest reliability r = .75.	Did not report mean scores for depression. Depressed participants reported significantly higher level of aggression than non-depressed group ($t = 5.81, df = 98.9, p < 0.01$). Depressed group significantly used less adaptive coping style compared to the non-depressed.
8	Chue et al., 2017.	USA	Adults <i>n</i> = 102	NO	Did not report any information.	Students recruited from a university.	<i>M</i> = 20 <i>F</i> = 82	Follow up four months analysis: PROCESS analyses	Depression scale (CES-D; Radloff, 1977); the Ecological momentary assessment (focused on NE: anger, sadness & anxiety). Coping strategies reliance	The CES-D α = .89. Did not report any information for other scales.	The baseline CES-D score ($M = 16.0; SD = 9.88$), and for the follow-up score ($M = 15.14; SD = 9.48$) Depression scores were significantly correlated with anger intensity ($r = .29, p$

Details Studies		Country	Sample size (N)	Prior Sample calculation	Age <i>M SD</i>	Sample details	Gender M/F	Design	Measures	Psychometrics proprieties	Key Findings
											< .001), and frequency of anger ($r = .32, p < .001$) In general, the expression of anger in adaptive way is related to low levels of depression, and has a great impact on emotional well-being.
9	Rude et al., 2012.	USA	Adults $n = 56$	NO, and small sample	Age 19 - 63 year ($M = 35.4, SD = 10.8$).	Recruited from the community. Participants with depression ($n = 56$) Part 2 follow-up group ($n = 23$)	women only	Observational; follow up 6-18 months analysis: MHR analyses	A conflict interaction task, the BDI-II, ERQ, Hostility and Direct Anger, Emotional Self-Disclosure Scale (ESDS; Snell et al., 1988), and the Emotional Approach Coping Scales (EACS; Stanton, Kirk, Cameron, & Danoff-Burg, 2000).	The BDI-II $\alpha = .88$, the ERQ $\alpha = .78$ & .88, the ESDS $\alpha =$ not reported as it 1 item; the EACS $\alpha = .92$ & .94	Depression score ($M = 11.04; SD = 5.06$); observed direct anger score ($M = 4.30; SD = 1.11$). ES correlated negatively with direct anger at $p < 0.05$. Adaptive expression of anger was negatively related to subsequent depressive symptoms ($\beta = -.55, p < .01$). However, maladaptive expression of anger was positively related to subsequent depressive symptoms ($\beta = .68, p < .01$).

Details Studies		Country	Sample size (N)	Prior Sample calculation	Age <i>M SD</i>	Sample details	Gender M/F	Design	Measures	Psychometrics proprieties	Key Findings
10	Kwon et al., 2013.	USA & Korea	Adults <i>n</i> = 764	NO	US age 17 - 28 year (<i>M</i> = 18.82, <i>SD</i> = 1.43). Korea age 18 - 26 year (<i>M</i> = 20.96, <i>SD</i> = 1.94).	Students recruited from universities. American sample (<i>n</i> = 384) Korean sample (<i>n</i> = 380)	US: <i>M</i> =130 <i>F</i> =254. Korea: <i>M</i> =199 <i>F</i> =181	Cross sectional, analysis: correlation; ANOVA	Depression scale (CES-D; Radloff, 1977); ERQ (ES & CR subscales); RRS: Nolen-Hoeksema & Morrow, 1991; STAXI-2 (AI subscale)	The CES-D α' range from .88 to .90. ERQ α' range from .75 to .85. The RRS α' range from .79 to .84. STAXI-2 – AI α' range from .58 to .73.	There was a stronger relationship between anger suppression and depressive symptoms in the American sample compared to the Korean sample ($z = 4.14, p < .001$). There was a significant cultural differences in the level of depression and in the use of maladaptive ER strategies, suggesting the importance of the impact of culture on emotion regulation.
11	Neacsiu et al., 2018.	USA	Adults <i>n</i> = 44	Yes	Aged range 19-70 years <i>M</i> = 35.55, <i>SD</i> = 12.43	Participants with MDD (<i>n</i> = 22); primary diagnoses MDD (<i>n</i> = 14); dysthymic disorder (<i>n</i> = 11). The sample was recruited from the community.	<i>M</i> = 15 <i>F</i> = 29	Follow up 6 months analysis: regression & PROCESS analyses	The Difficulties in Emotion Regulation Scale (DERS); STAXI (AO & AI subscales), Experience of Shame Scale (EES; Andrew et al., 2002); Disgust Propensity and Sensitivity Scale–Revised (DPSS-R; van Overveld et	The DERS α = .82; Anger-In α = .68; Anger-Out α = .85; EES α = .94; and the OQ-45 α = .90;	The DBT-ST treatment reduced suppressed anger and emotion dysregulation, but did not significantly reduce anger expression. Anger suppression (as measured by AI) significantly correlated with

Details Studies		Country	Sample size (N)	Prior Sample calculation	Age <i>M SD</i>	Sample details	Gender M/F	Design	Measures	Psychometrics proprieties	Key Findings
									al., 2006); and Outcome Questionnaire-4 (OQ-45; Lambert et al., 1996)		emotion dysregulation ($r = .58, p < .001$). There was no relationship between expression of anger (AO) and emotion dysregulation.
12	Asberg, 2013.	USA	Adults $n = 160$	NO	Age 18 - 26 year ($M = 18.6, SD = 1.71$).	Student sample recruited from the university in the southeastern United States	M = 45 F = 115	Cross sectional, analysis: correlation matrix; regression question for a mediation, and Sobel test.	1) the Counseling Center Assessment of Psychological Symptoms-62 (CCAPS-62; Center for Collegiate Mental Health, 2010); 2) ER-reduction subscale of the Emotion Amplification and Reduction Scales (TEARS; Hamilton et al., 2009)	The Depression subscale $\alpha = .76$, ER-reduction subscale $\alpha = .91$, hostility/anger subscale $\alpha = .85$	ER-reduction related negatively with depression ($r = -.37, p < .01$). There was a positive relationship between hostility/anger and depression ($r = .55, p < .01$). Hostility/anger mediated the relationship between ER and depression. The results suggested that Hostility/anger and MER were important key variables to be addressed when deal with depression

Details Studies	Country	Sample size (N)	Prior Sample calculation	Age <i>M SD</i>	Sample details	Gender M/F	Design	Measures	Psychometrics properties	Key Findings
Note: M = mean; SD = standard deviation; MDD = Major depressive disorder; BDI-II = Beck Depression Inventory; TA = trait anger; AO = anger expression-out; ES = expressive suppression; MER = maladaptive emotion regulation; ERQ = Emotion Regulation Questionnaire; SCR = Symptom Checklist-Revised; α = Cronbach's alpha coefficient; MHR = Multiple Hierarchical Regression analyses; DBT-ST = Dialectical Behaviour Therapy Skills Training; CES-D = Center for Epidemiological Studies Depression; NE = Negative Emotion.										

2.4.2 Critical Appraisal

In the current study, the Critical Appraisal Skills Programme (CASP) methodology was employed to assess and critically appraise the quality of the papers included (see Appendix 38). The CASP is a checklist tool designed to help researchers critically think about the validity of the research, results and implications (Krainovich-Miller, Haber, Yost & Jacobs, 2009). The CASP tool comprises of three sections, as follows: Section A: “Are the results of the study valid?”. Section B: “What are the results?”. Section C: “Will the results help locally?”. The CASP tool consists of twelve questions rated on three categories as follows: Yes, Can’t tell, and No (see Appendix 38). That is, it covers the study’s methodology, its sample representative population and its outcome. The CASP checklist tool was chosen because it is widely used for systematic review (SR) (Zeng et al., 2015) and recommended by previous studies (Cronin, Ryan & Coughlan, 2008; Zeng et al., 2015) and can be used to cover the most relevant issues in the included papers.

The included studies were read in full and were assessed for quality by the researcher and by another independent PhD student in order to avoid researcher bias. The independent rater reviewed 30% of the included studies in order to determine the reliability of the researcher’s evaluation of the studies’ quality. If there were differences and/or discrepancies between the raters’ evaluations, the raters met and came up with one consensus agreement. It was planned that if consensus was not reached, studies would be re-valued by a third rater. The pre-consensus percentage of agreement was 92%, and only one study (Gilbert et al., 2004) revealing disagreement between the raters ($n = 1$; 8%). This study was re-evaluated to reach 100% agreement following discussion. Consequently, there were no differences between the two raters in their appraisal of the studies.

Table 3: Evaluation of the papers reviewed based on CASP checklist

Study	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Comments
Balsamo, 2010.	Yes	Yes	Yes	Yes	No	Not relevant	Robust	Strong	Yes	Yes	Yes	Positive association between anger, MER and depression at $p < 0.05$.	They found small to moderate effect There is also a confounding factor (e.g. gender)
Greenberg et al., 2009.	Yes	Yes	Yes	Yes	Yes	Not relevant	Robust	Strong	Yes	Yes	NO	No significant association between anger and depression. Positive association between MER and depression at $p < 0.05$.	They found small to moderate effect. Only men sample.
Besharat et al., 2013.	Yes	Yes	Yes	Yes	Yes	Not relevant	Robust	Strong	Yes	Yes	Yes	Positive association between anger, MER and depression at $p < 0.05$.	They found small to moderate effect
Beblo et al., 2012.	Yes	Yes	Yes	Yes	Yes	Not relevant	Robust	Robust	Yes	Yes	Yes	Suppress negative emotions associated with depression ($r = -.37, p = .019$).	They just reported significances, but not effects. They also did not focus on anger

Study	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Comments
Brody et al., 1999.	Yes	Yes	Yes	Can't tell	Yes	Not relevant	Robust	Robust	Yes	Yes	Yes	No differences between the tow groups in terms of tendency to express anger overtly.	They found small to medium effect, and the CI not given.
Gilbert et al., 2004.	Yes	Yes	Can't tell	Can't tell	No	Not relevant	Robust	Robust	Yes	Yes	Yes	Maladaptive regulation of anger linked to depression ($r = .53, p < .01$). Most of depressed participants (82%) felt angry with others, but do not express it or tell them.	He just reported significance, but not the effect. There are also a number of confounding factors (e.g. medication, beliefs)
Nazir & Mohsin, 2013.	Yes	Yes	Yes	Yes	No	Not relevant	Robust	Robust	Yes	Yes	Yes	ER, anger and IIP play an important role in depression. Depressed group reported higher level of aggression than non-depressed group ($t = 5.81, df = 98.9, p < 0.01$).	They found small to medium effect, and the CI not given. There are also a number of confounding factors (e.g. age & gender)

Study	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Comments
Chue et al., 2017.	Yes	Yes	Yes	Can't tell	No	Yes	Robust	Robust	Yes	Yes	Yes	Maladaptive regulation of anger associated positively with depressive symptoms ($p < .001$).	They found small to medium effect, and the CI not given. There are also a number of confounding factors (e.g. age & gender).
Rude et al., 2012.	Yes	Yes	Yes	Can't tell	Yes	Yes	Robust	Robust	Yes	Yes	Yes	Maladaptive regulation of anger associated with depressive symptoms ($\beta = .68$, $p < .01$).	They reported the final regression model, which is account for 40% (medium effect)
Kwon et al., 2013.	Yes	Yes	Yes	Yes	Yes	Not relevant	Robust	Robust	Yes	Yes	Yes	There was a significant cultural differences in the level of depression and in the use of MER ($z = 4.14$, $p < .001$).	They found small to medium effect, and the CI not given.
Neacsu et al., 2018.	Yes	Yes	Yes	Yes	No	Yes	Robust	Robust	Yes	Yes	Yes	The DBT-ST treatment reduced maladaptive regulation of anger,	They found small to medium effect. There are also a number of confounding factors

Study	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Comments
												but did not reduce anger expression.	(e.g. Gender, age & medication)
Asberg, 2013.	Yes	Yes	Yes	Yes	No	Not relevant	Robust	Robust	Yes	Yes	Yes	Positive association between maladaptive regulation of anger and depression at $p < 0.01$.	He just reported significance, but not the effect. There is a confounding factor (e.g. gender)
Note: CI = Confidence Intervals, ER = Emotion Regulation strategies; MER = Maladaptive Emotion Regulation; CASP = Critical Appraisal Skills Programme; DBT-ST = Dialectical Behaviour Therapy Skills Training.													

2.4.3 General methodological quality of included studies

The general quality of the included studies was relatively high and they were found to have a focused research question and appeared to use an appropriate methodology. The sample size was provided in all of the included studies. However, four studies did not report range of age, while the mean values of age were not provided in two studies. In addition, the majority of the included studies ($n = 10$; 83%) did not conduct a-priori sample size calculation to determine how large the sample size had to be, which may have influenced their findings.

The majority of the included studies used validated assessments, and reported the psychometric properties of these instruments. Two studies did not report the measures' psychometric properties, while two studies reported psychometric properties for some instruments that used in their study, but not all. Regardless of the quality judgment, there were consistent findings. These studies reported relatively strong findings, and these findings were in accord with previous evidence. Thus, some confidence can be placed in their results.

However, there are a number of confounding factors in the included studies, such as medication, age and gender, which may have influenced the outcome. Moreover, some of these studies included an unbalanced number of participants for the clinical and comparison groups, which may have influenced their findings.

In general, the conceptualization of anger and maladaptive emotion regulation strategies in relation to depression were different between studies. The reviewed studies did not link expressive suppression strategy to the specific emotion of anger to examine its association with depressive symptoms.

2.4.4 Study Characteristics

Characteristics of included studies are presented in Table 2. The studies were conducted in the following different countries: the United States ($n = 6$), the United Kingdom ($n = 1$), Iran ($n = 1$), Italy ($n = 1$), Germany ($n = 1$), and Pakistan ($n = 1$). One study examined a sample in both Western and Eastern countries (Korea and the USA). The size of the samples ranged from 39 to 764, with a total sample size of $n = 1914$ participants. The majority of studies were cross-sectional ($n = 9$; 75%), while the remaining studies were longitudinal ($n = 3$; 25%). Six studies were conducted within a clinical population and the participants were exhibiting depressive symptoms. Two studies were conducted within formerly depressed participants. One study was conducted within a healthy sample recruited

from the community. The remaining studies ($n = 3$; 27%) were conducted within a student sample. In the next section, all the relevant studies of the systematic review will be discussed.

2.4.4.1 Clinical Studies (6 Studies)

Six studies with a clinical population were included in the review as follows: Greenberg et al., 2009; Besharat et al., 2013; Beblo et al., 2012; Gilbert et al., 2004; Nazir & Mohsin, 2013; and Neacsiu et al., 2018. Participants in these studies were exhibiting depressive symptoms.

Previous literature (e.g., Besharat et al., 2013) has proposed that depressive symptoms may be due to a high level of anger and less adaptive regulation strategies (dysregulation of anger). This view was supported by the results of several studies in the current review. Greenberg and colleagues (2009) carried out a study in the United States to examine the unique clinical and personality features of a sample of men diagnosed with depression. The sample consisted of 39 adult participants (16 depressed patients and 23 normal control). The depressed patients' ages ranged between 19 and 35 years (mean age 24.25 years, SD = not reported), and the control sample age between 18 and 22 ($M = 19.09$, SD = not reported). The samples were recruited from the counselling centre at Midwestern university in the USA. Participants completed a range of questionnaires including Beck Depression Inventory (BDI-II; Beck et al., 1996), Toronto Alexithymia Scale-20 (TAS-20; Bagby et al., 1994; Bagby et al., 1994), Conformity to Masculine Norms Inventory (CMNI; Mahalik et al., 2003), Response Styles Questionnaire (RSQ; Nolen-Hoeksema & Morrow, 1991) and State-Trait Anger Expression Inventory (STAXI-2; Spielberger et al., 1999). The results indicated that depressed group reported significantly higher levels of rumination ($F = 6.35$, $p = .016$), and significantly lower levels of both distraction ($F = 5.80$, $p = .021$), and problem-solving ($F = 24.78$, $p < .001$) than a control group. These findings suggested that maladaptive emotion regulation is an important key factor for depressive disorder.

Importantly, the authors hypothesized that the depressed participants would score higher on anger-out subscale than the comparison group. However, although the clinical group scored higher on trait anger subscale ($M = 20.94$, $SD = 6.69$) than the non-clinical group ($M = 15.70$, $SD = 3.17$), this hypothesis was not supported, as the results revealed that the mean values for anger expression in the two samples were found to be similar. These results suggested that patients with depressive symptoms may make an effort to inhibit the expressive components of angry responses while feeling anger internally. However, this study was of limited use, as it did not include the expressive suppression subscale to find out if the

participants use an expressive suppression strategy to suppress the expression of anger. In addition, it examined only men; thus, the results cannot be extrapolated to depressed women. Moreover, the sample size was small, which may have influenced the study's findings.

These findings are consistent with the findings of Besharat and his colleagues (2013) who conducted a study in Iran to examine the mediating role of anger rumination and maladaptive emotion regulation strategies on the relationship between the emotion of anger and depressive disorder. The study's sample consisted of 88 patients (68 females and 20 males) suffering from depressive disorder in Tehran, Iran. The age of participants ranged from 18 to 58 years (mean age 33.61, $SD = 9.28$). The sample completed a series of self-report measures, including the Farsi version of the Beck Depression Inventory (BDI), the Cognitive Emotion Regulation Questionnaire (CERQ), the Anger Rumination Scale (ARS) and the Multidimensional Anger Inventory (MAI). The Pearson correlation results indicated a significant positive correlation between depression and both maladaptive emotion regulation strategies ($r = .44, p < .01$) and the diminution of anger, as follows: anger arousal ($r = .67, p < .01$), hostile outlook ($r = .44, p < .01$), and anger-eliciting situations ($r = .53, p < .01$), indicating that individuals with depressive symptoms had high levels of anger. Moreover, the anger-in factor was positively correlated with depression ($r = .38, p < .01$), but they found that there was a minimal relationship between anger-out (expressions of anger directed at others or objects) and depression ($r = .11$), indicating that participants with depressive symptoms are more likely to turn their anger inwards and may make an effort to inhibit the expressive component of their angry response.

This result indicated that there is an interaction between expressive suppression and the anger expression-out factor. Likewise, anger arousal and anger-eliciting situations were positively associated with less adaptive emotion regulation, indicating that the combination of high anger and maladaptive strategies may contribute to depressive symptoms. The standardized path coefficients showed that less adaptive emotion regulation and anger rumination played a mediating role in the relationship between anger and depression. All these indirect coefficients were significant at $p < .05$. This study was useful in setting the framework for the present research to explore the link between anger and depression. The study suggested that anger and depression are linked by maladaptive emotional regulation strategies. This result was robust, but the authors found only a small to medium effect. However, this study conceptualised the maladaptive regulation strategies as mediating factors and examined their role in the relationship between anger and depression, which is different from the aim of the current study. Moreover, it did not include the expressive suppression strategy, as it focused

only on anger rumination and other maladaptive emotion regulation strategies. In addition, this study was unbalanced in terms of gender (68 women vs. 20 men), which may have influenced its findings. Although other variables, such as suppression strategy and interpersonal context were not included, the study indicates that these may, nevertheless, contribute to depression.

This result is consistent with recent work of Beblo et al. (2012) in Germany who investigated whether individuals with depressive symptoms suppress both negative and positive emotions, and to assess the relationship between the suppression of emotions and depressive symptoms. The researchers also proposed that suppression might be associated with fear of emotions. The study sample consisted of 39 patients with depression and 41 healthy controls. The mean age value for the depressive group was 38.9 years ($SD = 10.2$), while the mean age value for the healthy controls was 37.7 years ($SD = 8.9$). The sample completed a set of German versions of measures, including Beck's Depression Inventory (BDI; Beck & Steer, 1994), the Emotion Acceptance Questionnaire (EAQ; Beblo et al., 2011), Difficulties in Emotion Regulation Scale (DERS; Ehring et al., 2008; Gratz & Roemer, 2004) and the Emotion Regulation Questionnaire (ERQ; Abler & Kessler, 2009; Gross & John, 2003). The independent *t*-test results showed that participants with depression reported increased suppression of both negative and positive emotions compared with the control group. The Pearson correlation results revealed that greater suppression of negative emotions was related to more severe depressive symptoms ($r = -.37, p = .019$).

From this result the researchers proposed that the combination of high anger and use of suppression strategies predicts depressive symptoms. Similarly, the Pearson correlation results also revealed that higher ratings of fear of negative emotions were associated with more suppression of negative emotions ($r = -.41, p < .01$), indicating that depressed participants did not express their negative emotions because they were more fearful of negative emotions than the control group, and the fear of negative emotions was highly related to emotion suppression. This study focused only on the suppression of negative emotions in relation to depression, which is already known.

In another study, Gilbert et al. (2004) conducted a study in the United Kingdom to explore aroused but unexpressed anger in individuals with depressive symptoms. The sample consisted of 50 participants with depressive symptoms (27 men, mean age = 44.8 years; $SD = 8.8$ and 23 women, mean age = 42.1 years; $SD = 7.4$). The participants completed a set of measures, including the Anger Inhibition questionnaire (Gilbert et al., 2004), the reason for not expressing anger questionnaire (Gilbert et al., 2004) and the Beck Depression Inventory

(BDI-II; Beck et al., 1996). The results showed that most of participants with depressive symptoms (82%; 41/50) answered yes to the question “*Have there ever been any occasions when you felt angry with someone but were unable to tell them?*”, indicating that the majority of depressed patients suppressed their anger. Moreover, 56% reported that they were inhibiting their anger before becoming depressed. This result is consistent with previous results on anger and depression (e.g. Brody et al., 1999). In fact, Brody et al. (1999) found that anger suppression and fear of anger expression still existed in individuals who had recovered from depression, suggesting that taking into consideration the inhibition of anger expression when treating depression could help to reduce the level of depressive symptoms.

This result suggests that there is an interaction between high anger and expressive suppression factors. In other words, the study proposed that the inhibition of overt expressions of anger while feeling anger internally may be among the important components of depression. The study’s result is strong, but only the significance is reported, without the effect size. Moreover, in this study, there were a number of confounding factors (e.g. medication, beliefs), which may have influenced the outcome. Hence, less weight should be placed upon its findings. However, importantly, the result also indicated that major reasons for individuals with depressive symptoms suppressing their anger were that they blamed external circumstances or other individuals (as measured by LEDS; Brown et al., 1978; Brown et al., 1987). Thus, examining the experience and expression of anger in the interpersonal context can enhance our understanding of depressive disorder and could add to the current cognitive model of depression by showing the importance of the interpersonal context and emotion regulation as key risk factors for depressive disorder.

This is possible, as numerous authors (e.g. Sahin, Batigün & Koç, 2011) have highlighted a strong relationship between anger, interpersonal problems and depression, and documented that depressive disorder was predicted by these factors. However, insufficient studies, to the author’s knowledge, bring these predictors (maladaptive anger and interpersonal problems) together in one study to examine these factors in individuals with depressive symptoms, even though patients with depression have been found to have interpersonal problems, which in turn can affect their relationships and subsequently may contribute to depression.

Nazir and Mohsin (2013) conducted a study in Pakistan to explore the level of aggression, coping style and interpersonal difficulties in participants with depressive symptoms compared to participants without depressive symptoms. The sample consisted of

64 patients (gender was not reported) with depressive disorder and 64 participants (gender was not reported) without depression. The age of participants ranged between 18 and 35 years (M = not reported). Participants completed a set of Urdu versions of questionnaires, including the 25-item depression subscale of the Symptom Checklist-Revised (SCR; Ali, 2008), the Brief Coping Inventory (Carver, Scheier & Weintraub, 1989), Aggression Questionnaire (Javaid, 2011) and the Bergen Social Relationship Scale (Bancila & Mittelmark, 2009) to measure the interpersonal problems. The independent t -test results showed that patients with depressive symptoms had higher levels of aggression than non-depressed participants ($t = 5.81$, $df = 98.9$, $p < 0.01$). Moreover, patients with depressive symptoms had high levels of interpersonal problems than non-depressed participants ($t = 5.43$, $df = 126$, $p < 0.01$). However, depressed patients used significantly less adaptive coping compared to non-patients. That is, the comparison group was using more adaptive strategies compared to the depressed participants, and had lower levels of interpersonal problems compared to depressed participants. This evidence suggests that maladaptive emotion regulation is associated with high levels of depressive symptoms and interpersonal problems.

Again, this finding suggests that the dysregulation of anger is linked to interpersonal problems. However, the independent t -test results showed that there were no differences between the depressed and comparison group in the use of maladaptive (denial and avoidance) coping styles. This result, according to the authors, is inconsistent with the previous literature, suggesting that the emotion regulation strategies may be affected by cultural orientations. The binary logistic regression analysis revealed that the coping styles, aggression and interpersonal problem variables significantly predicted depressive symptoms. The final model accounted for 47% of the variance in depression. This study was useful in showing the importance of regulation of anger as well as effective interpersonal skills in helping depressed individuals to reduce the level of depressive symptoms.

In another study, Neacsiu and colleagues (2018) conducted a study in the United States to examine the efficacy of dialectical behaviour therapy skills training (DBT-ST) as a treatment for emotion dysregulation in a transdiagnostic sample of depressed and anxious adults. The sample consisted of 44 patients, aged of patients between 19 and 70 years ($M = 35.55$, $SD = 12.43$). The sample completed a set of measures, including Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004); State-Trait Anger Expression Inventory (STAXI; Spielberger et al., 1988 - AO & AI subscales), Experience of Shame Scale (EES; Andrew et al., 2002), Disgust Propensity and Sensitivity Scale-Revised (DPSS-R; van Overveld et al., 2006), and Outcome Questionnaire-4 (OQ-45; Lambert et al., 1996). The

results indicated that the DBT-ST treatment reduced suppressed anger and emotion dysregulation, but did not significantly reduce anger expression. Moreover, they found that treatment for dysregulation of emotion improves problems with negative emotion with depression disorder. This finding indicated that anger and maladaptive emotion regulation strategies were important key variables to be addressed when deal with depression. However, this study had a very small sample size.

2.4.4.2 Community Studies (3 studies)

Balsamo (2010) conducted a study in Italy to examine the rumination as a mediator between anger and depression. The sample consisted of 353 participants (230 women and 123 men) without depressive symptoms recruited from a local community. The participants' age ranged from 18 to 68 years (mean age 32.6 years, $SD = 11.44$). Participants completed a set of measures, including depression scale (BDI-II; Beck et al., 1996), State-Trait Anger Expression Inventory (STAXI-2; Spielberger et al., 1999; only trait anger subscale), and the Padua Inventory's Tendency to Doubt and to Ruminate subscale (Sanavio, 1988). The results indicated that there was a strong relation between trait anger and depression ($r = .13, p < .014$). Likewise, rumination as a maladaptive strategy was significantly associated with both of trait anger ($r = .59, p < .001$) and depression ($r = .54, p < .001$). Moreover, the path analysis results revealed that the rumination was mediating the relationship between anger and depression. These results suggested that anger and depression are linked by rumination as a maladaptive emotion regulation. The author suggests that clinicians should employ cognitive training to reduce the tendency to ruminate and thus reduce depressive symptoms and probability of relapse.

However, this study was of limited use, because it only measures anger as a feeling (by including the trait anger subscale) and did not include anger expression measures. Additionally, the study used a normal community sample, which may limit ability of the results to be generalised to a clinical sample.

These results support earlier findings by Brody and colleagues (1999) who examined whether anger suppression and fear of anger expression still existed in recovered depressed individuals and in individuals who had never been depressed. The sample consisted of 25 participants (19 female and 6 male) who had recovered from depression in the last three years; and 25 participants (19 female and 6 male) with no history of depression. The sample completed a range of questionnaires, including Beck Depression Inventory (BDI; Beck et al., 1979), State-Trait Anger Expression Inventory (STAXI; Spielberger et al., 1985; trait anger,

anger in and anger out subscales), anger attacks questionnaire (AAQ; Fava et al., 1991), Silencing the Self Scale (STSS; Jack and Dill, 1998), and the fear of expression questionnaire (FEQ; Goldman and Haaga, 1995). The results showed that the recovered depressed (RD) group scored a significantly higher mean ($M = 3.88$, $SD = 2.65$) on the BDI scale than the never depressed (ND) group ($M = 2.04$, $SD = 2.44$); ($t = 2.55$, $df = 48$, $p < .02$). Moreover, the recovered depressed (RD) participants reported higher experience of anger (as measured by trait anger subscale – STAXI) than never depressed (ND) participants, but the difference was not significant ($t = 1.95$, $df = 40$, $p < .06$). However, there was no difference between the two groups in term of their tendency to express anger overtly. Given that they reported higher feelings of anger, it is of note that the recovered depressed participants also reported greater fear of expressing their anger ($t = 4.76$, $df = 41$, $p < .001$), and also had a greater overall tendency to silence themselves than ND participants ($t = 2.90$, $df = 45$, $p < .01$). This evidence suggests that even after recovery from depressed mood, maladaptive emotion regulation around anger and its expression may continue. Whilst this research is not conclusive, it is hypothetically possible that this continues to constitute a vulnerability to further depressive episodes.

This result suggests that the regulation of anger should be considered in the treatment of depression, as these ongoing difficulties may be regarded as risk factor for subsequent depressive episodes. However, this study was of limited use, because it conceptualised anger expression as maladaptive anger; thus, it did not include other psychological variables such as maladaptive emotion regulation strategies and interpersonal problems to explore more about anger in social context. Moreover, this study was unbalanced in terms of gender (19 women vs. 6 men), which may have influenced its findings and used a non-clinical sample; thus, its findings cannot be generalised to depressed patients.

This finding is consistent with the finding of Rude and colleagues (2012) who conducted an empirical study to distinguish between maladaptive and adaptive expressions of anger and to examine their effects on subsequent depressive symptoms. The sample consisted of 56 women (30 with low depression-vulnerability and 26 highly depression-vulnerable). The age of the sample ranged between 19 and 63 years (mean age 35.4 years, $SD = 10.8$). This study consisted of two parts: in part one, participants (with no history and with a recent history of depression) completed a conflict interaction task with their male romantic partners (Heyman, 2001). The authors developed scales which described as the expression of anger as Hostility (conceptualised as a maladaptive expression of anger) and Direct Anger (conceptualised as an adaptive expression of anger in the absence of destructive or demeaning behaviour). The

sample also completed the following questionnaires: depression scale Beck Depression Inventory (BDI; Beck et al., 1961), emotion regulation (ERQ; Gross & John, 2003), Emotional Self-Disclosure Scale (ESDS; Snell, Miller, Belk, Garcia- Falconi, & Hernandez-Sanchez, 1988), and the Emotional Approach Coping Scales (EACS; Stanton, Kirk, Cameron, & Danoff- Burg, 2000). In part two, 23 of the female participants who had a recent history of depression were followed up after approximately one year and were asked to complete the BDI.

The results indicated that both observed hostility (maladaptive anger expression) and direct anger (adaptive: expressions of anger directed at others) were associated with depression. The multiple regression results showed that direct anger was negatively related to subsequent depressive symptoms ($\beta = -.55, p < .01$). However, low levels of direct (non-expression) anger (as measured by the hostility subscale) were associated with increased depressive symptoms ($\beta = .68, p < .01$). Likewise, high levels of hostility (maladaptive anger) were associated with increased symptoms of depression. The regression model was significant and accounted for 40% of the variance in BDI scores.

This finding indicated that the suppression of anger expression in relationships seems to have detrimental effects on well-being. These results are consistent with previous studies that showed that individuals who do not express (i.e. suppress) their negative emotions have impaired social relationships and experience increased negativity (Gross & John, 2003; John & Gross, 2004). Likewise, these results corroborate the results of Goldman and Haaga (1995), who also found that depressed individuals express lower anger than a control group [as measured by the State-Trait Anger Expression Inventory (STAXI; Spielberger et al., 1985)]. These results suggest that the inhibition of overt expressions of anger, while feeling anger internally, may be among the important components of depression. However, this study used only women in the sample and its results cannot be related to depressed males. In addition, this literature focused specifically on anger expression in romantic relationships. Moreover, this study neither included emotion regulation scales to find out whether the sample frequently use expressive suppression strategy, nor did it take into account the cultural orientation and its impact on emotion regulation.

2.4.4.3 Student Studies (3 Studies)

These results are consistent with the findings of the community studies. In the United States, Chue and colleagues (2017) conducted a study to examine the impact of frequency of anger and reliance on social expression of anger on follow-up depression. The sample

consisted of 102 undergraduate students (82 women and 20 men) (age was not reported). Participants completed a range of questionnaires including depression scale (CES-D; Radloff, 1977), the Ecological momentary assessment (focused on negative emotion (NE): anger, sadness & anxiety) and Coping strategies reliance. The results indicated that depression scores were significantly correlated with anger intensity ($r = .29, p < .001$), and frequency of anger ($r = .32, p < .001$). The results also indicated that for participants who were low in anger frequency, a high reliance on social expression of anger predicted low levels of follow-up depression, as there was a significant negative relationship between anger expression and depression, suggested that the expression [not suppression] of anger in an adaptive way was related to fewer symptoms of depression. However, when frequency of anger is high, a high reliance on social expression of anger predicted an increase in follow-up depressive symptoms. The authors also found that the expression of sadness and anxiety to others did not impact on follow-up depressive symptoms, suggesting that, compared to expression of other negative emotion, the expression of anger has a great impact on emotional well-being. These results indicate that the regulation and expression or suppression of anger is an important variable to be taken into account when dealing with depression, especially in social contexts. However, this study was of limited use, because it used a student sample, which may not be able to be generalised to more severe expressions of depressive symptoms, and it is possible that above a certain threshold of depressive symptoms these findings may not hold.

Individuals from different cultural backgrounds have been found to regulate their emotions in accordance with their cultural norms. Kwon and colleagues (2013) carried out a study to explore the relationship between the use of emotion regulation strategies and symptoms of depression in America (an individualist culture) and Korea (a collectivist culture) as two different cultures. The sample consisted of 764 undergraduate student participants recruited from America and Korea. The American group was composed of 384 participants (254 women and 130 men; mean age = 18.82; $SD = 1.43$), while the Korean group was composed of 380 participants (181 women and 199 men; mean age = 20.96; $SD = 1.94$). The age of participants ranged between 17 and 28 years. Participants completed a range of questionnaires, including depression scale (CES-D; Radloff, 1977), emotion regulation (ERQ; Gross & John, 2003), Ruminative Responses Scale (RRS; Nolen-Hoeksema & Morrow, 1991), State-Trait Anger Expression Inventory (STAXI-2; Spielberger et al., 1999; only Anger-In subscale).

The results indicated that maladaptive emotion regulation strategies (rumination, expressive suppression and anger-in) were associated with more symptoms of depression in

both cultures, whereas cognitive reappraisal was associated with less depressive symptoms. The results showed significant cultural differences in the level of depression and in the use of maladaptive emotion regulation strategies. For example, the zero-order correlation results showed that there was a stronger relationship between anger suppression and depressive symptoms in the American sample ($r = .414, p < .001$) compared to the Korean sample. However, the analysis of variance (ANOVA) results revealed that Korean participants reported significantly higher levels of depressive symptoms than Americans, $F(1, 760) = 61.20, p < .001$. This study is useful, indicating that cultural factors alter individuals' feelings and expressions of emotion.

However, the results also revealed that the Koreans and Americans did not differ significantly on the expressive suppression subscale. Additionally, the relationship between expressive suppression and symptoms of depression did not differ between cultures. These findings are inconsistent with previous research (e.g. Ramzan & Amjad, 2017; Chu, 2015; Soto et al., 2011; Cheung & Park, 2010; Matsumoto, 2008; 2006) which demonstrated that participants from a collectivist culture would be more likely to use an expressive suppression strategy than those who are from an individualist culture. Similarly, Soto and colleagues (2011) found that there was a significant positive correlation between expressive suppression and symptoms of depression in European American participants, but these were not significantly correlated for Chinese participants. This difference could be due to the sample differences, and also to cultural differences.

However, this study examined only students; thus, the results cannot be generalised to depressed patients. Moreover, it links the suppression strategy to negative emotions in general, and did not link suppression to the specific emotion of anger. In addition, this study did not include a cultural orientation scale to explore more about its impact on emotion regulation and depression.

In another study in the United States, Asberg (2013) conducted a study to examine hostility/anger (conceptualised as hostile attitudes) as a mediator between emotion regulation abilities and depression, social anxiety and generalized anxiety in a student sample. The sample consisted of undergraduate student group ($n = 160$). The sample age between 18 and 26 years (mean age 18.6 years, $SD = 1.71$). Participants completed a set of measures, including depression and hostility/anger subscales of the Counseling Center Assessment of Psychological Symptoms-62 (CCAPS-62; Center for Collegiate Mental Health, 2010), ER-reduction subscale of the Emotion Amplification and Reduction Scales (TEARS; Hamilton et al., 2009). The correlation results revealed that ER-reduction (ability to regulate emotions by

reducing them) was negatively related with depression ($r = -.37, p < .01$), suggesting that developing adaptive emotion regulation may help to reduce the level of depressive symptoms. There was a positive relationship between hostility/anger and depression ($r = .55, p < .01$), indicating that higher levels of hostility/anger were associated with more depressive symptoms and that hostility/anger mediated the relationship between emotion regulation and depression.

However, there were some limitation in this study. Firstly, the author only conceptualised anger as a feeling and did not measure the behavioral expression of anger. Secondly, the study did not include other maladaptive emotion regulation strategies, as the study examined only the perceptions of an individual's adaptive emotion regulation abilities to reduce or soften emotions, but not their strategies. Moreover, the study only used a student sample; thus, the findings may not be generalized to a clinical group.

2.5 Discussion

The findings of the reviewed studies indicate the importance of the maladaptive emotion regulation strategies, with anger as a significant associate of depressive symptoms.

The overall results of the reviewed studies suggest that depressive symptoms may be associated with a high level of anger and less adaptive regulation strategies (e.g. Greenberg et al., 2009; Besharat et al., 2013). Compared to healthy individuals, participants with depressive symptoms, along with participants who had recovered from depression, reported using more maladaptive emotion regulation strategies, including dysregulated anger and suppression. These findings are consistent with previous studies (e.g. Aldao & Nolen-Hoeksema, 2010; Gross & John, 2003), which found that the maladaptive emotion regulation associated with depression. In line with previous studies (e.g. Sahin et al., 2011; Moriya & Takahashi, 2013), the reviewed studies established a strong relationship between maladaptive anger, interpersonal difficulties and depression (e.g. Chue et al., 2017; Nazir & Mohsin, 2013).

The results of the reviewed studies suggest that clinicians should focus on and address maladaptive emotion regulation, especially maladaptive anger, cognitive and interpersonal components as linked variables together, rather than focusing on each of cognitive and interpersonal risk factors separately (Dobson et al., 2014).

In addition, the results of the reviewed studies reveal that cultural orientation affects individuals' feelings and behaviours. This is consistent with recent studies (e.g. Chu, 2015; Ford & Mauss, 2015; Matsumoto et al., 2008) which found cultural differences in emotion

regulation strategies, especially in an expressive suppression strategies. This indicates that understanding the impact of the particular cultural orientation on the experience and expression of negative emotions and depressive disorder could help clinicians to understand depressive disorder in more detail, to help in designing appropriate mental health interventions and also help their patients to improve their skills to regulate their emotions (Brintnell et al., 2013).

However, these studies used varied and restricted definitions of emotion regulation with no unified definition of emotion regulation. The current review provides support to the association between suppression of anger and depressive symptoms and that individuals with depressive symptoms have difficulties in regulating their anger and may make an effort to inhibit the expressive components of angry responses, suggesting that there is an interaction between anger expression and suppression. However, it is not clear what is the impact of the interaction between anger expression-out and both expressive suppression and collectivism factors on depression. It was not possible to answer this question from the available literature, as no studies, to the researcher's knowledge, directly address this question.

Based on this review, it is proposed that the development of adaptive emotion regulation skills may help individuals with depressive symptoms to reduce the feeling of anger, which in turn may reduce the level of depressive symptoms (Rude et al., 2012; Ellis et al., 2013). Thus, further research should be conducted to explore the role of the ability to regulate emotion regulation on depression. Suppression of anger may be the core component of depression. Moreover, suppressed anger was found to be associated with interpersonal difficulties, and consequently a greater risk of depression. Accordingly, it is possible that by focusing on strategies to regulate anger and improve social skills, clinicians could help clients to reduce their depressive symptoms. Future longitudinal studies could examine this possibility.

2.6 Limitations of Systematic Review

The previous literature has limitations, because none of the studies examined the relationship between anger, expressive suppression strategy, interpersonal problems and depression together in one study. That is, these studies have examined these known predictors of depression in isolation. In addition, the conceptualizations of anger and emotion regulation in relation to depression differed between studies.

Moreover, most of these studies were conducted in the United States and Europe countries; thus, findings have limited generalisability for other countries and culture, especially

Arab countries. No study according to the researcher's knowledge has examined anger in relation to depression among the Saudi population. Individuals from European and Asian cultural backgrounds are expected to differ in anger feelings and expression due to cultural values. In addition, these studies were of limited use, because none of them examined the impact of cultural orientation on the expression of anger in individuals with depressive symptoms, even though all the results of the above studies indicated that cultural contexts shape the way individuals manage their emotions. Therefore, examining the experience and expression of emotion in relation to depression within a particular culture could increase our understanding of depression and ability to design relevant mental health treatments as well as prevention strategies.

In addition, the majority of the included studies used a cross-sectional design; thus, the causal interpretations of the results are limited; and reverse causality may exist between the studies variables.

In addition, the psychometric measures used in all of the reviewed studies were self-report; thus, the presented results are based on these measures, which are affected by social desirability. That is, participants may tend to respond to the questionnaires in a certain way that may be due to cultural pressure (Nichols & Maner, 2008).

However, the current systematic review also has several limitations that should be considered in future studies. For example, it focuses only on studies where the outcome variable was depressive symptoms. On reflection, it would be better to have included more studies with other different disorders, such as anxiety as an outcome variable, as previous studies reported that suppression strategy is related also to the disorder of anxiety.

Another limitation is that the current systematic review yielded a small number of studies. For instance, applying the study criteria identified, only six studies focusing solely on only clinical participants with major depression, which would not be regarded as a sufficient body of research. Similarly, only six nonclinical studies were identified. Thus, future study should loosen the inclusion/exclusion criteria to find a broader range of studies. For example, the current review only included studies with adult sample, and it would be useful to include other age groups to find out how children and teenagers deal with the expression of anger and how that links to depression. In addition, the systematic review was limited to peer-reviewed studies and English-language, thus, some relevant studies may not be included in the current review.

The current review focuses on studies that assess anger. However, it would be interesting to include studies that focus on other negative emotions, such as sadness, to see if suppressing the expression of these negative emotion is linked to depressive symptoms. Thus, future studies could include other negative emotions in the search terms, to assess emotional responses in different disorders.

2.7 Conclusion of Systematic Review

As has been pointed out, the general methodological qualities of the included studies were relatively high. Thus, some confidence can be placed in their results. The findings of the reviewed studies indicated the importance of the dysregulation of negative emotions, with anger as a significant associate of depressive disorder, and that suppression of anger was associated with interpersonal contexts and problems. Moreover, these studies established that both maladaptive emotion regulation, especially maladaptive anger, and interpersonal difficulties were associated with depressive symptoms.

The current review provides support to the association between dysregulation of anger and depressive symptoms, indicating that individuals with depressive symptoms have difficulties in regulating their anger and may make an effort to inhibit the expressive components of angry responses, suggesting that there is an interaction between anger expression and suppression. However, it was not possible to answer the initial review question (Are maladaptive anger regulation strategies associated with the severity of depressive symptoms?) from the available literature, as no studies directly address this.

CHAPTER 3

Study 2: Methods

3.0 Introduction

This chapter provides a description of the study design and the methodological procedures. Section 3.1 introduces the study design. This is followed by participants, sample size and sample calculation in section 3.2. Section 3.3 outlines the measures used for the current study. This is then followed by translation of the instruments in 3.4. Section 3.5 describes the procedure of translation and the pilot study in 3.6. Subsequently, the method of data collection is described, with this section explaining the inclusion and exclusion criteria and recruitment in section 3.7. This is then followed by a discussion of the main ethical issues in the current study in 3.8 and the analysis plan in 3.9.

3.1 Research Design

The current study is a cross sectional design. To achieve the study objectives, a clinical sample was recruited which included outpatient participants with symptoms of depression.

3.2 Participants

This section introduces the study's population, sample calculation and sample size. It explains the characteristics of the sample and the locations from where the participants were recruited.

3.2.1 Study population

The study population consisted of Saudi outpatient participants with clinical depression who were treated in mental health hospitals in Saudi Arabia. Participants were already interviewed by clinicians in hospitals and depression diagnosis was already confirmed using DSM-5. However, some of the potential participants had co-morbidities; for example, participants with mixed anxiety-depression. Therefore, only participants with a primary diagnosis of depression were included, as mentioned later in the inclusion criteria. This thesis focuses on the adult population because there is a paucity of research focusing on the relationship between anger, emotion regulation and depression among adults. In addition, to the author's knowledge, this thesis is the first of its kind in the field of mental health, particularly in the Kingdom of Saudi Arabia (KSA).

According to the researcher's knowledge, the existing literature does not contain an accurate estimate of the prevalence of depression or of the total number of individuals with symptoms of depression in the KSA (Almutairi, 2015). However, there have been some studies conducted on depression in different regions in Saudi Arabia; for example, a study conducted in eastern Saudi Arabia to determine the prevalence of depression among males attending a primary health care centre found that the overall prevalence of depression was 32.8% (Al-Shehri et al., 2012). This finding was consistent with previous research (e.g., Becker, Al Zaid, & Al Faris, 2002) conducted at primary health care centres in Riyadh (Middle region) in Saudi Arabia, where the prevalence of depression was found to be 20%. Likewise, the Ministry of Health (MoH) reported that in 2012, the percentage of depressive disorder was 35% of the total number of visitors to public mental health clinics in Saudi Arabia.

3.2.2 Sample size calculation

In order to determine the sample size for the current study, the statistical calculation software G*Power 3.1 (Faul, Erdfelder, Buchner & Lang, 2009) was used prior to the study. The researcher used this G*Power software as it was recommended by previous literature (e.g., Faul, Erdfelder, & Buchner, 2007; Faul et al., 2009; Field, 2009). An alpha (error probability) of 0.05 is commonly recommended in behavioural science research in order to reduce the risk of committing a Type 1 error, which is falsely rejecting the null hypothesis (Cohen, 1992). Likewise, in psychology research, a power level of 0.8 is commonly recommended in order to reduce the risk of committing a Type II error, which occurs when we believe there is no effect in the population when in reality there is an effect (Field, 2009). Previous studies (e.g., Cha & Sok, 2014; Chu, 2014; Nazir & Mohsin, 2013), when focusing on the psychological factors of depression, have used a medium effect size ($f = 0.15$) to estimate the likely size of the effect in the population in hierarchical multiple regression. Thus, an estimation of medium effect size is considered acceptable in social science. Accordingly, based on the previous research, the current study expects to find medium effect correlations between the independent and dependent variables. Moreover, the researcher used a medium effect size ($f = 0.15$) for multiple regression to determine the sample size.

Therefore, based on thirteen study predictors, with an α (error probability) of 0.05, a power level of 0.80 and an effect size of ($f = 0.15$) to detect, the suggested minimum sample size for a hierarchical multiple regression analysis is 195 participants. Thus, the researcher aimed to achieve a study sample size of more than 195 participants, since increasing the sample

size would provide more robust results. This aim was achieved, as the sample size gathered was approximately double the required sample size, as described below.

3.2.3 Study sample size

The actual sample size for the current study, as mentioned above, included a clinical sample comprising 305 outpatient participants (183 males and 122 females) with depressive symptoms, who were recruited from the outpatient departments (OPDs) of five mental health hospitals in the KSA. The participants' ages ranged from 18 to 59 years, with a mean age of 34.27 years ($SD = 8.4$).

3.3 Assessment Instruments

There are many different measures of depression that assess different aspects of depression. These include the Hospital Anxiety and Depression Scale (HADS), the Depression, Anxiety and Stress Scales (DASS) and the Beck Depression Inventory (BDI) (Cheung & Power, 2012). There are also many measures of emotion, each with a different focus or emphasis. In this section, the researcher refers to the measures that were used in the current study. All of the measures used were translated into Arabic using the translation and back translation technique (see below). Their psychometric properties were examined and showed good internal consistency ranging from $\alpha = .70$ to $\alpha = .88$ (see the Results section).

3.3.1 Demographic questionnaire

In the current study, the participants' demographic information such as age, gender, marital status, medication, living arrangement, education and employment status was collected. All of the questions used to obtain this information were closed questions (see Appendix 23).

3.3.2 The Beck Depression Inventory Second Edition (BDI-II; Beck et al., 1996)

The BDI-II measure is a revised version of the original test. It contains 21 items and has high reliability and validity (Cronbach's $\alpha = 0.91$) (Seeds, & Dozois, 2010). It is one of the most commonly used self-report measures of depression (Beck, Steer, & Carbin, 1988). Scholars, such as Ghareeb (2000) have translated the BDI-II measure into the Arabic language and it was modified by Asma Abd Alazeez Husien (2002).

The Arabic version of the BDI-II is similar to the original version and consists of 21 items rated on a Likert scale ranging from 0 to 3 (see Appendices 5 & 6). The respondents selected their answers according to how they had felt during the previous two weeks. The

Arabic version of the BDI-II is currently in use in mental health hospitals in Saudi Arabia. Therefore, many researchers have used an Arabic version of the BDI-II in their published articles (e.g., Alansari, 2005; 2006; Al-Otaibi et al., 2007; Beshai et al., 2016; Soliman, 2014; Thomas Al-Menhali & Humeidan, 2016) and in their PhD theses (e.g., Abuhajar, 2013; Albrazi, 2012; Alzahrani, 2012; Beshai, 2015) and found it to have acceptable validity and consistency (as described below). In their study, Al-Otaibi and colleagues (2007) used the BDI-II with Arabic-speaking participants and categorised the depressed patients into three groups, according to their scores on the BDI-II. A total score of 15–20 indicates mild depression, a score of 21–29 indicates moderate depression and a score of 30–63 indicates severe depression. However, for the current study, the researcher did not follow these categories as the participants had already been diagnosed with depression.

In his PhD thesis, Beshai (2015) used an Arabic version of the BDI-II with depressed participants ($n = 29$) and student samples ($n = 29$) in Egypt. The results showed that the Arabic translation of the BDI-II had good internal consistency ($\alpha = .94$). Likewise, Soliman (2014) also employed the Arabic version of the BDI-II with an Egyptian student sample (adults) of 321 participants (152 males and 169 females), where the internal consistency was 0.80 and the test-retest reliability was 0.78. In another PhD research study, Abuhajar (2013) administered the Arabic translation of the BDI-II on a Libyan adult sample ($n = 169$; 77 males and 92 females) from the urban population. The results showed that the Arabic BDI-II had good internal consistency, with a Cronbach's alpha of 0.91. Similarly, Alansari (2006) administered an Arabic version of the BDI-II to university students in the context of 18 Arabic-speaking nations, including Saudi Arabia, Jordan, Egypt, Iraq and Lebanon, and found that the Arabic BDI-II had good internal consistency, with Cronbach's alpha coefficients ranging from 0.82 to 0.93. All of these studies indicate that the Arabic version of the BDI-II has a high internal consistency (Cronbach's alpha = 0.86) (Abdel-Khalek, 1998; Al Husien, 2002).

In this thesis, an examination of reliability revealed a high Cronbach's alpha ($\alpha = .80$). This obtained alpha result was slightly low compared to Beck et al.'s original study which developed this scale ($\alpha = .91$). However, this result indicated that the BDI-II has good internal consistency in the present study. This finding is consistent with previous research (e.g., Beshai et al., 2016; Soliman, 2014; Thomas et al., 2016) which used the same Arabic version of the BDI-II.

3.3.3 The Dysfunctional Attitudes Scale (DAS-26; Ebrahimi et al., 2013b)

The Dysfunctional Attitudes Scale (DAS) was developed by Weissman and Beck in 1978 to measure the presence of beliefs (dysfunctional beliefs) among individuals which are reflected in their cognitive schemata. The original DAS consists of 100 items, but in a revised version developed by Weissman in 1979 this was reduced to 80 items, split between DAS-A and DAS-B, both of which contain 40 items. The DAS-A consists of 40 items to measure the presence and intensity of dysfunctional attitudes. These items assess the present implicit rules and conditions for self-acceptance with high standards of perfectionism for the self and a rigid expectation of how other people should act. These rules are rigid and represent an unrealistic attitude; therefore, they are considered as dysfunctional (e.g. 'I must be a useful, productive, creative person or life has no purpose'). The DAS-A was translated into Arabic by Thomas and Altareb (2012). The Arabic version of the DAS-A is similar to the original version; it is a self-report questionnaire rated on a 7-point Likert scale ranging from 1 = 'fully agree', to 7 = 'fully disagree'. The Arabic version of the DAS-A has been used in many studies (e.g., Beshai et al., 2016; Thomas & Altareb, 2012) with Arabic speaking populations. These studies reported that the Arabic translation of the DAS-A had good internal consistency. Higher scores (ranging from 40 to 280) indicate the frequent use of dysfunctional attitudes.

The latest revised version of the DAS-A was developed by Ebrahimi et al. (2013b) after they ran a factor analysis and item-total correlations for each of the 40 items of the DAS-A. Following this, they used a correlation cut-off point of 0.40 to determine item omission. As a result, they further reduced the measure to 26 items (DAS-26) (see Appendices 17 & 18), after finding that 14 of the original 40 items were judged to be candidates for omission (Ebrahimi, Neshatdoost, Mousavi, Asadollahi & Nasiri, 2013a). Ebrahimi and his colleagues (2013a) validated the DAS-26 in both a clinical sample comprising 160 patients and in a non-clinical sample of 160 non-patients. Consequently, the validity of the DAS-26 was reported through correlation with the total score from the General Health Questionnaire-28 (GHQ-28) ($r = 0.56$) and with depressive disorders, as diagnosed by a psychiatrist ($r = 0.55$). Moreover, an examination of the Cronbach's alpha coefficient revealed that the DAS-26 as a whole had a high internal consistency of $\alpha = .92$, which is more favourable than the DAS-A (40 items) (Ebrahimi et al., 2013b). It also has a higher Cronbach's alpha score than other, shorter versions such as those by Weich et al. (2003), Chioqueta and Stile (2004) and Kaviani et al. (2005), in which the obtained alpha values were $\alpha = .86$, $\alpha = .85$ and $\alpha = .75$ respectively (Ebrahimi et al., 2013b), indicating that the DAS-26 is a valid version for the study of clinical populations. Likewise, the DAS-26 subscales have good psychometric properties (Ebrahimi

et al., 2013b). The internal consistency scores for the different subscales were as follows: *success perfectionism* subscale, $\alpha = .73$; *need for approval* subscale, $\alpha = .80$; *need for satisfying others* subscale, $\alpha = .73$, and *vulnerability performance evaluation* subscale, $\alpha = .90$.

The revised version of the DAS-26 has been used in many different research studies (e.g., Ebrahimi et al., 2013b; Ebrahimi, Nasiri-Dehsorkhi & Mousavi, 2015; Mehdipour, Rafiepoor & Alizadeh, 2017) with clinical populations. Thus, for this thesis, the DAS-26 was used, as it has been validated in clinical populations (Ebrahimi et al., 2013b; Mehdipour et al., 2017). The shorter Arabic version of the DAS-26 is similar to the original version. However, four items from this scale have been reverse-coded (items 13, 19, 20 and 26). The total obtainable score across the 26 items ranges from 26 to 182, with higher scores indicating a high level of dysfunctional attitude.

In the current study, an examination of Cronbach's alpha coefficient revealed that the reliability of the Dysfunctional Attitudes Scale (DAS-26) was high ($\alpha = .88$) in estimating the internal consistency of the items. These alpha results were slightly low compared to the original finding of Ebrahimi and his colleagues (2013b), who developed and used the DAS-26 with 160 psychiatric patients and found a Cronbach's alpha of ($\alpha = .92$) for the DAS-26. The Cronbach's alpha values for each of the subscales were as follows: the *Need for Approval* subscale had a lower alpha value of ($\alpha = .70$) compared to that in Ebrahimi et al.'s original study ($\alpha = .80$). Similarly, both the *Vulnerability Performance evaluation* and the *Need for Satisfying Others* subscales obtained lower alpha scores of $\alpha = .70$ and $\alpha = .71$, respectively, compared to the Ebrahimi et al.'s original study at $\alpha = .90$ and $\alpha = .73$, respectively. However, the *Success Perfectionism* subscale had a higher alpha score ($\alpha = .75$) compared to the original study ($\alpha = .73$).

3.3.4 The State-Trait Anger Expression Inventory (STAXI-2; Spielberger, 1999)

The STAXI-2 is a self-report questionnaire consisting of 57 items divided into six subscales. The *State Anger* subscale assesses the extent to which the person feels inclined to express their angry feeling 'here and now'. It contains 15 items rated on a 4-point Likert scale ranging from 1 = 'not at all' to 4 = 'very much so'. *Trait Anger* measures anger generally, i.e., how often the individual feels angry in general. It contains 10 items with two subscales, as follows: a) angry temperament (T-Ang/T) which measures the individual's disposition to react and experience anger without provocation, and b) angry reaction (T-Ang/R), which measures the disposition of the individual to express anger when provoked. Trait anger is rated on a 4-

point Likert scale ranging from 1 = ‘almost never’ to 4 = ‘almost always’. The *Anger Expression-Out* subscale comprises 8 items and measures the extent to which a person experiences and expresses anger, in the form of verbally or physically aggressive behaviour, towards people or objects. *Anger Expression-In* measures the extent to which a person holds in or suppresses their anger rather than expressing it, and the *Anger Control-Out* and *Anger Control-In* subscales refer to the normal control of anger. The Anger Expression-Out, Anger Expression-In, Anger Control-Out and Anger Control-In subscales each contain 8 items and are scored using Likert-type questions (1 = ‘almost never’ to 4 = ‘almost always’). The seventh subscale is the Anger Expression Index, which is a combined arithmetic scale of Anger Expression-Out, Anger Expression-In, Anger Control-Out and Anger Control-In. Since the focus in the present study is on trait anger and anger expression (anger-out), it was decided to use only these two subscales and exclude the other subscales of the STAXI-2 (see Appendices 7 & 8). Higher scores indicate a high level of anger. An examination of the Cronbach’s alpha coefficients revealed that the Trait anger (TA) and anger expression out (AO) subscales have good internal consistencies of $\alpha = .86$ and $\alpha = .84$ respectively (Spielberger, 1999).

In this thesis, the reliability for these two subscales was also examined using the Cronbach’s alpha coefficient, estimating the internal consistency of the items. The alpha value for the *trait anger* (TA) subscale was ($\alpha = .87$), indicating a better alpha compared to the original study in which the scale was developed ($\alpha = .86$), while alpha value for *anger expression-out* (AO) subscale had a high Cronbach’s alpha ($\alpha = .84$), which was similar to the one reported in the original study (Spielberger, 1999). These results indicate the reliability of these Arabic subscales of the STAXI-2.

3.3.5 The Emotion Regulation Questionnaire (ERQ; Gross & John, 2003)

The ERQ is a self-report measure that contains 10 items rated on a 7-point Likert scale ranging from 1 = ‘strongly disagree’ to 7 = ‘strongly agree’ (see Appendices 9 & 10). The measure assesses individual differences in two emotion regulation strategies, namely expressive suppression (4 items) with scores ranging from 4 to 28, and cognitive reappraisal (6 items), with scores ranging from 6 to 42. A higher score indicates more frequent use of the strategies. The emotion regulation subscales have good psychometric properties (Gross & John, 2003). The internal consistency for the expressive suppression scale was $\alpha = .73$, and for the cognitive reappraisal scale it was $\alpha = .79$. Test-retest reliability was measured over three months and was .69 for both subscales (Gross & John, 2003), indicating that the ERQ scale is stable and reliable.

In the current study, the two subscales showed good internal consistency, with the *cognitive reappraisal* subscale having an alpha coefficient of .73, whereas the *expressive suppression* subscale had an alpha of .72. The emotion regulation subscale had a lower alpha compared to the results that were reported in the original study in which the scale was developed (Gross & John, 2003).

3.3.6 The Brief Core Schema Scale (BCSS; Fowler et al., 2006).

The BCSS measure is a self-report scale designed to measure beliefs about the self and others held by an individual. The measure comprises 24 items rated on a 5-point Likert scale (ranging from 0 to 4) (see Appendices 13 & 14). The measure has four subscales, as follows: *negative self* (e.g. I am bad), *negative others* (e.g., other people are harsh), *positive self* (e.g. I am good) and *positive others* (e.g., other people are fair). Each subscale contains six items. Respondents are asked to indicate in a dichotomous YES/NO format whether they hold each belief. If they answer yes, they are asked to indicate the degree of their conviction in the belief by circling a number from 1 = ‘believe it slightly’ to 4 = ‘believe it totally’. Higher scores indicate a greater endorsement of the item. The BCSS and its subscales have good psychometric properties (Fowler et al., 2006). The internal consistency scores were as follows: positive-self schema, $\alpha = .79$; negative-self schema, $\alpha = .84$; positive-other schema, $\alpha = .84$; and negative-other schema, $\alpha = .87$.

The BCSS scale has also been used in several studies with both clinical (e.g., Collett, Pugh, Waite & Freeman, 2016; Freeman et al., 2014) and non-clinical samples (e.g., Provencio, Vázquez, Valiente & Hervas, 2012) to evaluate the negative schematic beliefs held by individuals, with good internal consistency reported. Therefore, this measure seems to be an appropriate measure for use in the current study as it examines the negative schemata about self and others, which are more related to depressive symptoms (Wong, 2012).

In this study, the Brief Core Schema Scale (BCSS) had high Cronbach’s alphas. The values for the four subscales were as follows: the *Negative Self-Beliefs* (NSB) subscale obtained a lower alpha ($\alpha = .80$) than in the Fowler et al.’s original study ($\alpha = .84$). However, Cronbach’s alpha for the *negative others beliefs* (NOB) subscale was $\alpha = .88$, which is better than the alpha obtained in the original study ($\alpha = .84$). Similarly, the *positive self-beliefs* subscale (PSB) obtained a better alpha score ($\alpha = .84$) compared to the original study ($\alpha = .79$). The *positive other beliefs* subscale (POB) also obtained a higher alpha score ($\alpha = .86$) than in the original study ($\alpha = .84$; Fowler et al., 2006).

3.3.7 The Horizontal and Vertical Individualism and Collectivism Scale (HVICS-14; Sivadas et al., 2008).

This measure is a self-report scale designed to measure the orientation (values) of culture. The Horizontal and Vertical Individualism and Collectivism Scale-14 (HVICS-14) measure is a reduced version adapted from the original 32-item scale, developed by Singelis and his colleagues (1995). The original 32-item scale has been criticised for its inconsistent reliability and has not been proven to be robust across different cultural samples (Sivadas et al., 2008; Zhang, Mandl & Wang, 2011). For this reason, a number of researchers reduced the number of items in the scale in a bid to improve its reliability (e.g., Sivadas et al., 2008; Triandis & Gelfand, 1998). It was Sivadas and his colleagues (2008), however, who reduced the 32 items to 14 items rated on a 9-point scale from 1 = 'never' to 9 = 'always' (see Appendices 11 & 12). The HVICS-14 measure contains four subscales, as follows: horizontal collectivism (HC; containing four items), vertical collectivism (VC; containing four items), horizontal individualism (HI; containing three items) and vertical individualism (VI; containing three items). The horizontal subscale emphasizes equality, whereas the vertical subscale emphasizes hierarchy.

Sivadas et al. (2008) examined the validity of the HVICS 14-items across six different cultural samples across different countries, namely the United States, India, Denmark and China, concluding that the HVICS 14-item scale is reliable and robust across different cultural samples and that all of the HVICS 14-items's subscales have good psychometric properties (Sivadas et al., 2008). An examination of the Cronbach's alpha coefficients revealed the following values for the different subscales: HC, $\alpha = .64$; VC, $\alpha = .74$; HI, $\alpha = .80$, and VI, $\alpha = .70$, thus indicating internal consistency for the HVICS items and the measure's reliability. Moreover, Sivadas et al. claimed that the HVICS-14 scale had a higher Cronbach's alpha coefficient compared to the 32-item scale of Singelis et al. (1995) and the 16-item scale of Triandis and Gelfand (1998) (Sivadas et al., 2008). Therefore, this scale appears suitable for use in the current study to measure the orientation of culture.

In the current study, the Horizontal and Vertical Individualism and Collectivism Scale (HVICS) subscales also had a high Cronbach's alpha, which was comparable to the results of the original study in which the scale was developed (Sivadas et al., 2008) in estimating the internal consistency of the items. The *Horizontal Collectivism* (HC) subscale obtained a better alpha score ($\alpha = .79$) compared to the original study ($\alpha = .64$), while the *Vertical Collectivism* (VC) subscale obtained a better alpha score ($\alpha = .81$) than in the original study ($\alpha = .74$). The *Vertical Individualism* (VI) subscale also had a better alpha score ($\alpha = .74$) compared to the

original study ($\alpha = .70$). However, as was mentioned earlier, only the *Horizontal Individualism* (HI) subscale obtained a lower alpha score ($\alpha = .74$) compared to the original study ($\alpha = .80$).

As mentioned above, the current study is interested in the interaction (combination) between collectivism and the expression of anger. Therefore, to measure the collectivism factor, the HVICS-14 scale (Sivadas et al., 2008) was employed. The two collectivism subscales within the measure were employed; the HC subscale, which contains four items that focus on equality, and the VC subscale, which contains four items that emphasise hierarchy (Triandis & Gelfand, 1998). However, a number of previous researchers (e.g., Wang & Gane, 2012; Woo, 2009) have combined these two subscales to represent collectivism when measuring it, due to the high correlation between the two subscales. Therefore, in this thesis the two subscales were combined for two reasons: firstly, this thesis focuses on collectivism as a whole. Secondly, the researcher found a high correlation between the subscales (see the Correlation section). Accordingly, the collectivist orientation was measured using eight items, which reflect both horizontal and vertical collectivism (HVC). Higher scores indicate higher levels of collectivism.

3.3.8 The Inventory of Interpersonal Problems (IIP-32; Horowitz et al., 2000).

The IIP-32 is a self-report scale to measure the difficulties that individuals experience in their relationships with others (see Appendices 15 & 16), which can in turn help clinicians to understand the interpersonal difficulties that individuals face within the context of their current interpersonal functioning and previous experience. The IIP is based on the theoretical assumption that an individual's interpersonal experience contributes to cognitive and emotional representations and subsequently influences his/her thoughts, behaviour and feelings in interpersonal relationships (Horowitz et al., 2000).

The IIP-32 consists of 32 items, with each item rated on a 5-point scale from 0 = 'not at all' to 4 = 'extremely'. The first 20 items measure things that individuals may 'find hard to do' with other individuals; for example, '*I find it hard to let other people know when I am angry*'. The remaining 12 items measure the behaviours that an individual may do 'too much'; for example, '*I put other people's needs before my own too much*'. The IIP-32 has eight subscales (4 items each), in order to identify the primary areas of a person's interpersonal problems. According to the scale's manual, calculating the items' scores for each subscale provides a raw score. The raw scores are then transformed into T scores, with higher scores

(defined as a *T* score of 70 or higher) indicating a higher level of interpersonal problems (ranging from 0 to 128). The subscales are as follows:

- 1) **Domineering/Controlling** ($\alpha = .73$) – a high score on this subscale indicates that the individual finds it difficult to relax control over other individuals. Individuals with high scores (defined as a *T* score of 70 or higher) have described themselves as too controlling or manipulative.
- 2) **Vindictive/Self-Centred** ($\alpha = .83$) – a high score on this subscale indicates problems of hostile dominance. The individual easily experiences and expresses anger and irritability, is preoccupied with getting revenge and fights too much with other individuals.
- 3) **Cold/Distant** ($\alpha = .87$) – this subscale indicates minimal feeling of affection for and little connection with other individuals.
- 4) **Socially Inhibited** ($\alpha = .82$) – a high score on this subscale is indicative of feelings of anxiety, timidity or embarrassment in the presence of other individuals.
- 5) **Non-assertive** ($\alpha = .83$) – a high score on this subscale indicates a severe lack of self-confidence and low self-esteem.
- 6) **Overly Accommodating** ($\alpha = .70$) – a high score on this subscale indicates an excess of friendly submissiveness.
- 7) **Self-Sacrificing** ($\alpha = .78$) – this subscale measures the degree to which an individual subjugates his/her own needs by prioritising others' needs, with a high score indicating that the individual is excessively affiliative.
- 8) **Intrusive/Needy** ($\alpha = .68$) – a high score on this subscale indicates problems with friendly dominance. Individuals with a high score on this subscale describe themselves as excessively friendly, outgoing and sociable and prone to excessive divulgence of personal matters.

As can be seen, all of these subscales have satisfied psychometric properties, with their Cronbach's alpha scores ranging from $\alpha = .68$ to $\alpha = .87$, while the IIP-32 as a whole shows good internal consistency, with a Cronbach's alpha of .93 (Horowitz et al., 2000). The IIP-32 has been found to be robust, valid and reliable and is suitable for use with both non-clinical and clinical samples. It is appropriate for use with individuals with depression as it is associated with depressive symptoms (McEvoy et al., 2013; 2014). Thus, the IIP-32 is a useful scale to explore the difficulties that individuals with depression experience in their interpersonal relationships.

In the current study, the Inventory of Interpersonal Problems' (IIP-32) total scale had a high value of Cronbach's alpha ($\alpha = .94$), which was comparable to the results of the original study results in which the scale was developed ($\alpha = .93$; Horowitz et al., 2000). Similarly, the *Overly Accommodating* subscale had a better alpha of 0.80 than in the Horowitz et al.'s original study ($\alpha = .70$). The *Self-sacrificing* subscale showed also a high value of Cronbach's alpha ($\alpha = .80$) compared to the original study ($\alpha = .78$). The *intrusive/needy* subscale obtained an alpha of .74, making it slightly higher than the one in the original study ($\alpha = .68$). However, the *domineering/controlling* subscale had a lower alpha ($\alpha = .71$) than in the original study ($\alpha = .73$). For the *vindictive/self-centred* subscale, the alpha value was ($\alpha = .73$), which was a lower value than in the original study ($\alpha = .83$). The *cold/distant* subscale obtained a lower alpha ($\alpha = .72$) than in the original study ($\alpha = .87$). Likewise, the *socially inhibited* subscale had a lower alpha ($\alpha = .80$) compared to the one that was reported in the original study ($\alpha = .82$). Finally, the *non-assertive* subscale obtained a lower alpha score ($\alpha = .80$) in this study compared to the result of the original study ($\alpha = .83$). However, these differences were not significant, and the differences may be due to the cultural differences (as a collectivist culture). These results indicate the reliability of IIP-32 and its subscales across Saudi individuals who are suffering from depressive disorder.

3.4 Translation of the instruments

This thesis was conducted in Saudi Arabia and used the seven questionnaires described above (BDI-II, DAS-26, BCSS, STAXI, ERQ, HVICS and IIP-32). These questionnaires were translated from English into Arabic with the aim of reproducing the same meaning in the Arabic language that could be understood by the respondents. This is one of the major contributions of this research, as it will be the first to provide Saudi mental hospitals with an updated version of these questionnaire tools.

To achieve the aim of this thesis, the researcher was granted permission from the original developers of the questionnaires to translate them into the Arabic language. The developers of the STAXI-2 and the IIP-32 granted their permission for translation separately, upon payment for the instrument's manual. Similarly, the developers of the ERQ, HVICS and BCSS gave their permission to translate the questionnaire into Arabic. The BDI-II and DAS-A had already been translated into Arabic and are currently in use in several Arab countries, all of which share the same Arabic language. Currently, most of the mental health hospitals in Saudi Arabia use the Arabic version of the BDI-II. Moreover, many researchers (e.g., Beshai et al., 2016; Joury et al., 2014; Thomas & Altareb, 2012) have used the Arabic translations of the BDI-II and DAS-A in their research and have found the BDI and DAS questionnaires to

have good internal consistency (Beshai et al., 2016). Therefore, no further translation was required for the BDI-II and DAS-A questionnaires. Despite the fact that these two questionnaires are available online and are free to use, the researcher asked for and was granted the authors' (who translated them into Arabic) permission to use the Arabic versions of the DAS and BDI-II in the current study.

The researcher had a specific time to do this study. Therefore, during translation and evaluation of measures it was not possible to explore the measures' validity. Thus, these measures would benefit from further validation studies including confirmatory factor analyses (CFA).

The adaptation of psychological measures requires careful planning in terms of its content maintenance, reliability and validity for the intended population (Cassepp-Borges, Balbinotti, & Teodoro, 2010; *cf.* Borsa, Damásio & Bandeira, 2012). The term "adaptation" is commonly used, as it comprises all the processes of cross-cultural adaptation, while the term "translation" refers to the first stage of the adaptation process (Borsa et al., 2012).

There are many methods that can be used to translate questionnaires, including direct translation from the original language to the target language. However, this procedure of translation is not usually sufficient, as it does not fully consider the quality of the translated version (Guillemin, Bombardier & Beaton, 1993). Thus, the translation and back translation method is one of the commonly used methods for translation of self-report measures. Back translation refers to the translation of the synthesized and revised instrument version into the original (source) language (Borsa et al., 2012). A number of the translation and back translation methods are discussed below:

I) Cross-Cultural Adaptation of Psychological Instruments (Borsa et al., 2012)

In a recent study, Borsa and colleagues (2012) proposed six stages of the cross-cultural adaptation of psychological measures, as follows: Stage 1) Initial translation: this stage includes the translation from the source language into the target language by at least two bilingual translators. Stage 2) Synthesis of the translated versions: at this stage, the researcher should have at least two translated versions and assess their semantic (same meaning of the word), idiomatic (not changing the cultural meaning of the item), experiential (how applicable the item is in the new culture) and conceptual (whether a given term assesses the same concept in different cultures) differences, and then integrate these translated versions into one version. Stage 3) Synthesis evaluation: in this stage the synthesized version will be evaluated by expert

judges. Stage 4) Instrument evaluation: this stage is an evaluation of the instrument by the target population, to make sure the instructions are clear and the items are appropriate for the target population. Stage 5) Back translation: at least two native translators, other than those who took part in the first stage, are included in this stage to translate the instrument into the original language. Stage 6) a pilot study: the aim of this stage is to assess whether the instrument is ready to be used.

II) American Association of Orthopaedic Surgeons (Beaton et al., 2002)

The authors in this article propose five stage processes to adapting self-report measures for cross-cultural use. Stage 1) Initial translation: should involve at least two bilingual translators to translate the self-report measures from the original language into the target language. One of those translators should be informed in terms of the concepts being examined in the instrument being translated, whereas the other translator should not be aware or informed of the concepts in the questionnaire being translated. Stage 2) Synthesis of the translated versions to integrate the two translated versions into one version, in which a third bilingual person mediates a discussion between the two translators. Stage 3) Back translation: this stage should involve at least two independent translators to back translate the translated version into the original language. Stage 4) Expert committee review: this committee should evaluate the original and the target version in terms of semantic equivalence, idiomatic equivalence, experiential equivalence and conceptual equivalence. Stage 5) Pretesting: to check the understanding of the self-report measure and its reliability, the translated version should be tested in a sample of 30 - 40 individuals from the target population.

III) Brislin Translation and Back Translation (Brislin et al., 1973)

In the Brislin method, the following four-stage processes of cross-cultural adaptation of self-report measures are used. Stage 1) Initial translation of the measure from the original language into target language. Stage 2) Back translation of the instrument into the original language. These stages should be performed independently by two bilingual translators. Stage 3) Team review: the translation and back translation should be reviewed by a team (i.e., translator and/or a research team) to check if there are any differences and/or discrepancies in the meaning of any items in both versions. Stage 4) Pretesting: the translated version should be pretested in a sample from the target population.

Brislin's method of translation and back translation (1973) is one of the most commonly used methods for translation. The translation and back translation method has many

advantages. For example, it aims to preserve the semantic, idiomatic, experiential and conceptual equivalence. The back-translation stage in this method may help to increase the quality of the final version. Moreover, the researcher can pre-test the translated version in a sample from the target population in order to discover any item which is likely to cause misunderstanding. Therefore, the current study followed the translation and back translation guidelines, as recommended by several researchers (e.g., Borsa et al., 2012; Brislin, 1986).

3.5 Procedure of translation

As a result, all of the questionnaires that had not yet been translated into Arabic were translated from English into Arabic using the translation and back translation method, as recommended by the previous literature (e.g., Ebrahimi et al., 2013; Guillemin et al., 1993; Van de Vijver & Tanzer, 2004), in order to avoid any translator bias. In the current thesis, five-stage processes were undertaken to adapt the self-report measure for cross-cultural use. In addition, fourteen experts were involved in the processes of translation and back translation in the first four stages. In stage five, all the questionnaires were piloted with a number of participants. The translation process was carried out as described below.

3.5.1 First Stage: Initial translation of the instruments into Arabic

In the first stage, four translators were involved. The questionnaires were translated from English into Arabic by an official translation office in Saudi Arabia and also by three native Arabic speakers who read and speak English (bilingual translators). The questionnaires were sent by E-mail to the translators after their agreement to translate them from English into Arabic language. One translator holds PhD in psychology, and the other two translators hold PhDs in different subjects and they live in Edinburgh in the United Kingdom. The translation included five questionnaires, as follows: (I) State-Trait Anger Expression Inventory (STAXI-2; Spielberger, 1999), (II) the Inventory of Interpersonal Problems (IIP-32; Horowitz et al., 2000), (III) the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003), (IV) the Horizontal and Vertical Individualism and Collectivism (HVICS-14; Sivadas et al., 2008), and (V) the Brief Core Schema Scale (BCSS; Fowler et al., 2006). The researcher then received the translated version from the translators. This process produced five new translated versions of the original questionnaires. The researcher had arranged two meetings with the three translators. The translator from the official translation office was not involved in these meetings, as he was too busy and could not give the researcher an appointment. All these meetings took place at Edinburgh Central Mosque. Each meeting lasted approximately 90

minutes to review each scale and its items. During each meeting, the researcher brought the printed copy of the five new translated versions (three translated versions for each scale) to compare the translated version of each scale to find out if any differences in meaning existed. No differences and/or discrepancies in the meanings of any items were found between the three versions of each scale. However, there were small differences found between the Arabic items. Thus, some words were changed (see Table 4). Accordingly, the bilingual translators agreed upon one an Arabic version by consensus.

Table 4: Agreed an Arabic version by consensus.

The Original Items	Arabic Translation	Translators' Consensus	Final Arabic Version
If do not do well at the time, people will not respect me.	إن لم أفعل الأشياء في الوقت المحدد وكما ينبغي فلن يحترمني الآخرون	إن لم أفعل الأشياء في وقتها وكما ينبغي فلن يحترمني الآخرون	إن لم أفعل الأشياء في وقتها وكما ينبغي فلن يحترمني الآخرون
Let other people know when I am angry.	أجعل الآخرين يعلمون حين أكون غضباً	أخبر الآخرين يعلمون عندما أكون غضباً	أخبر الآخرين يعلمون عندما أكون غضباً
Be assertive without worrying about hurting the other person's feelings.	أكون حازماً دون الاهتمام بجرح مشاعر الآخرين	أكون حازماً دون القلق بجرح مشاعر الآخرين	أكون حازماً دون القلق بجرح مشاعر الآخرين
I am bad	أنا سيء	أنا غير جيد	أنا غير جيد

3.5.2 Second Stage: Judgement

In the next stage, the questionnaires, which now contained the English and Arabic items alongside each other, were presented in table format to a panel consisting of two specialist assessors in the psychology department at King Saud University in Riyadh in Saudi Arabia, for their measurement and evaluation of the translation. The experts were asked to evaluate each translated item by choosing one of four options: appropriate, not appropriate, and clear or not clear. The experts (judges) were also given the opportunity to reword items to ensure that each item was appropriately captured in order to be equivalent to the original questionnaire. This process is recommended in the previous literature (e.g., Borsa et al., 2012; Gullemin et al., 1993) to ensure that the translation fits the target culture and maintains the general concepts of the original questionnaires. There were no differences between the experts in their evaluation of the translated items and both chose appropriate and clear for all items.

3.5.3 Third Stage: Back translation

The Arabic versions of the questionnaires were then back-translated into the English language by a professional translation office (Alpha Translation & Interpreting service) in Edinburgh in the United Kingdom, in addition to two other independent native English speakers who read and speak Arabic and who live in Edinburgh in the United Kingdom, in both cases without looking at the original questionnaires. Moreover, the translators were not experts in Psychology. This process produced three new independent English versions of the instruments. The researcher then arranged two meetings at Edinburgh Central Mosque with the two translators. Each meeting took around 90 minutes to review the translations of each questionnaire and its items. No differences and/or discrepancies in the meanings of any items were found between the two versions of each scale. Thus, the two translators agreed upon one English translation by consensus. The translator from the official translation office was not involved in these meetings, as he was also too busy to give the researcher an appointment.

3.5.4 Fourth Stage: Back Translation Review

In this stage, five experts were involved, as follows: two experts from the academic staff of the University of Edinburgh, one expert from the *PAR* Company, who reviewed the back-translated version of the STAXI-2, and two experts who hold PhDs. Afterwards, the original and back-translated versions were compared for equivalence. This was to check the translated items to improve the accuracy of translation. There were small differences found

between them. Therefore, following the suggestions by the reviewers, some words were changed (see Table 5).

Table 5: Suggestions by the reviewers

The Original	Back		
Items	Translation	Experts' Comments	Final Version
	I feel angry		I feel angry
Get angry when slowed down by other's mistakes	when <i>I slow down</i> because of other people's mistakes	Should be when "I'm slowed down" or when "I have to slow down"	when I am slowed down because of other people's mistakes
Say nasty things	I utter <i>indecent</i> expression	Should be "nasty" Could try "mean" or "abusive"	I utter abusive expressions
I would do what would please my family, even if I detested that activity	I <i>want</i> to do whatever pleases my family even if I do not like it	would	I would do whatever pleases my family even if I do not like it

3.6 Fifth Stage: Pilot Study

Before conducting the pilot study, an ethical approval letter was obtained from the School of Health in Social Science Research Ethics Committee at the University of Edinburgh (see Appendix 1). Ethical approval was also granted by the Ministry of Health in Saudi Arabia (see Appendix 2) to carry out the current pilot study in its mental health hospitals.

As the next step after the translation process, the questionnaires were piloted with a total sample size of $n = 40$ participants with depressive symptoms (28 males and 12 females) to support their validity and reliability. This sample size was chosen as recommended by previous literature (e.g., Beaton et al., 2002). The pilot sample participants were between 19 and 58 years of age, with a mean age of 36.8 years ($SD = 9.7$), and the sample was recruited from the same five hospitals as mentioned above.

Each mental health hospital received 10 questionnaire packs. The questionnaire pack contained two return envelopes, as follows: one envelope for the completed Consent Form, while the other one was for completed questionnaire. The way in which the participants consented to and completed the study was as follows:

The mental health workers (psychiatrists and psychologists) of the OPD in each hospital were asked to identify those individuals with depression who met the inclusion and exclusion criteria. After that, the clinician provided the clients with the Information Sheet during the first meeting and then asked them in the following meeting whether they were interested in participating by providing an envelope containing a Consent Form, Participant Information Sheet and the questionnaire. Each participant had to sign the Consent Form before participating. After that, the participants were asked to read and answer all the items in their own time, independently of both the researcher and their clinician.

Out of the 50 questionnaires distributed, a total of 40 were returned, with a response rate of 80%. All of the returned questionnaires were included, as they were all completed. Following this, the psychometric properties for the whole set of questionnaires were examined. All of the questionnaires were found to have good psychometric properties, with the results showing that the current study instruments had high Cronbach's alpha scores for internal consistency, which ranged from $\alpha = .70$ to $\alpha = .88$ (see the Results chapter), thereby indicating these measurements were reliable across Saudi culture.

3.7 Data Collection Procedure

The data were gathered between January 2015 and August 2015 from five mental health hospitals in different regions of Saudi Arabia (see Appendix 3) in order to ensure that the sample was representative of the Saudi population. The hospitals used for the data collection are as follows:

Al-Amal Mental Health Hospital in Al-Gurayyat city (North region) (73 participants); *Al-Amal Mental Health Hospital* in Al-Jouf city (North region) (43 participants); *Al-Amal Mental Health Hospital* in Dammam city (Eastern region) (27 participants); *Al-Amal Complex for Mental Health* in Riyadh city (Middle region) (83 participants); and *Al-Amal Mental Health Hospital* in Jeddah city (Western region) (79 participants). The percentages of participants from each city are given in Figure 10 (below). In fact, the Ministry of Health (2012) in Saudi Arabia reported that in 2012, Riyadh mental health hospital recorded the highest number of outpatients, with Makkah (Western region) and Dammam occupying the next two positions, respectively. Therefore, the sample was selected from these different mental health hospitals to ensure a balanced representation. All of these hospitals are public institutions. The researcher recruited participants with depressive symptoms from these five hospitals who met the inclusion and exclusion criteria.

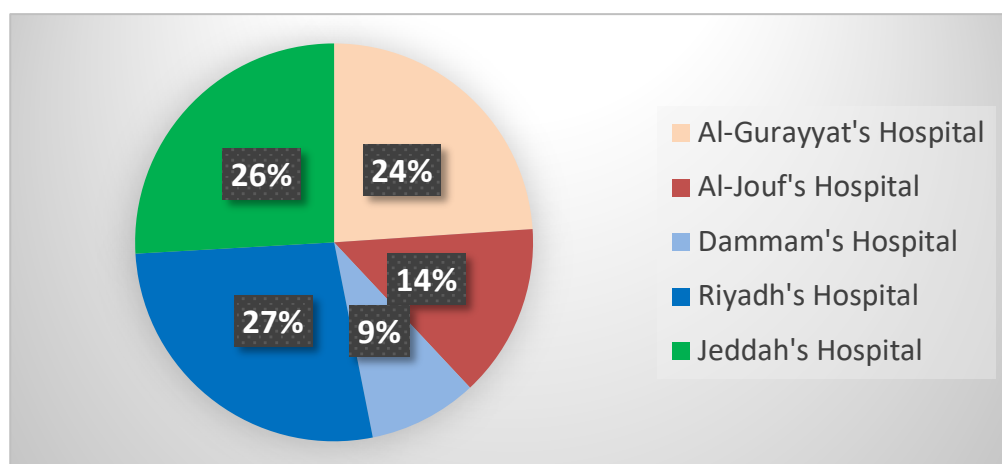


Figure 10: Diagram of the percentage of participants from each hospital.

3.7.1 Inclusion criteria:

The following inclusion criteria were used when recruiting participants to the study:

- 1) A primary diagnosis of depression
- 2) Literate in the Arabic language and Saudi citizen
- 3) Aged 18–60
- 4) Meet the clinical criteria for depression (either mild, moderate or severe) in Saudi Arabia, with a diagnosis by the consultant psychiatrist at the respective psychiatric hospital.

3.7.2 Exclusion criteria:

The exclusion criteria were as follows:

- 1) Those with other diagnoses that were considered to be primary over depression
- 2) Individuals with psychotic symptoms

3.7.3 Recruitment

Each mental health hospital received 100 questionnaire packs. Each questionnaire pack consisted of 15 pages, including a Participant Information Sheet and Consent Form. Thus, the researcher distributed a total of 500 questionnaire packs to the five mental health hospitals. The questionnaire pack contains two return envelopes as follows: one envelope for completed Consent Form, while the other one for completed questionnaire. Out of the 500 questionnaires distributed, a total of 309 were returned, with a response rate of 61.8%. However, four questionnaires were excluded as they were not completed.

The mental health workers (psychiatrists and psychologists) of the OPD in each hospital were asked to identify those individuals with depression who met the inclusion and exclusion criteria. After that, there were two ways in which the participants consented to and completed the study:

(I) Firstly, the clinician provided the clients with a Participant Information Sheet and, at their next appointment (approximately two weeks later), asked for the clients' permission to allow the researcher to approach them. If the participants agreed, the researcher then contacted the potential participants and arranged to meet with them, if they wished to introduce the study and its purpose prior to obtaining the participants' consent. However, the researcher did not meet with any of the patients. The participants were provided with an envelope containing a Consent Form, Participant Information Sheet and the questionnaire. Each participant had to sign the Consent Form before participating. After that, the participants were asked to complete the questionnaires in their own time, independently of both the researcher and their clinician. The questionnaire took around 60 minutes to complete. Separate envelopes were provided for the participants to return their consent forms and completed questionnaires.

(II) Alternatively, the clinician (for each potential participant) provided the clients with the Information Sheet during the first meeting and then asked them in the following meeting whether they were interested in participating by providing an envelope containing a Consent Form, Participant Information Sheet and the questionnaire. The participants were

asked to complete the questionnaires at home in their own time, independent from the clinician, and return them to the clinic. Separate envelopes were provided for the return of the Consent Forms and completed questionnaires. Thus, the participants were asked to return the envelopes to their psychotherapists/ psychiatrists, who in turn locked them in a secure place (i.e., in his or her locker in his/her clinic). After that, the researcher collected the questionnaires from the patients' psychotherapists/psychiatrists.

3.8 Ethical Considerations

In the current study, a number of ethical issues were considered, including ethical approval, causing potential distress to the participants, informed consent, confidentiality and obtaining permission from the original developers to translate their questionnaires into Arabic. These ethical issues are discussed below.

3.8.1 Ethical approval

For the period of data collection of the current study, an ethical approval letter was obtained from the School of Health in Social Science Research Ethics Committee at the University of Edinburgh (see Appendix 1). Ethical approval was also granted by the Ministry of Health in Saudi Arabia (see Appendix 2) to carry out the current study in its mental health hospitals once the researcher's proposal had been reviewed and accepted by the scientific and ethical reviewing committees at the Saudi Ministry of Health.

3.8.2 Potential distress to participants

Completion of the questionnaires was deemed unlikely to cause any distress to the participants. However, the participants were provided with the contact details for their doctors and the researcher should they need any help with the questionnaires or if they found the process of completing the study to be distressing. Moreover, the participants were informed that they could stop the completion of the questionnaire and withdraw from the study if they so wished. The completion of the questionnaires did not cause distress to any of the participants.

3.8.3 Informed consent

Each participant received a separate Information Sheet (see Appendices 19 & 20) describing the study and why he or she had been asked to participate, in addition to a Consent Form upon which to indicate his or her acceptance to participate in the current study (see

Appendices 21 & 22). Therefore, informed consent granted by all of the participants and witnessed by their signatures.

3.8.4 Confidentiality and anonymity

Separate sheets were designed for the participants' demographic data and informed consent so that each participant's personal information could be collected and kept separately from the questionnaires. No identifying information was recorded on the questionnaires. Each participant was allocated a number to allow the completed questionnaires to be matched with the corresponding consent forms. This therefore enabled the researcher to maintain the participants' anonymity and ensure confidentiality.

During the period of data collection, all of the questionnaires were kept securely in locked cabinets in the hospital building. Data that was participant-identifiable (e.g. signed consent forms) were stored separately from the questionnaires. Each hospital provided a locker for the researcher to use for storing the data. A locker key was given only to the researcher, and only the researcher was able to open the locker.

To transfer the data from Saudi Arabia to Edinburgh, all of the questionnaires and the participants' consent forms were kept and locked by the researcher. That is, the questionnaires were collected from the hospital prior to departure and placed in two briefcases. These then travelled with the researcher in the Aircraft cabin prior to being taken directly to the researcher's lockers at the University of Edinburgh. This process was agreed by the Saudi Arabian Health Ministry (see Appendix 4). Therefore, the patient consent forms were stored separately from the questionnaires.

The data were entered into the Statistical Package for Social Sciences (SPSS) prior to being analysed. Both the papers and electronic data were stored and locked on the researcher's computer and in the researcher's lockers at the University of Edinburgh, with access restricted to the researcher and for a period of three to four years following completion of the thesis. Summary feedback of the overall findings was offered to be provided by email to any participant who requested.

3.9 Analysis plan

The Statistical Package for Social Sciences (SPSS) Version 22 was used to analyse the study's data. After the data had been entered into the Statistical Package for Social Sciences

(SPSS), a number of analyses were performed to achieve the study's aims. These included mean, standard deviation, skewness and kurtosis values for the group, in addition to the correlations between the variables. This thesis has one dependent variable (depression) and multiple predictive variables; therefore, hierarchical multiple regression was used in order to examine the research's objectives. This statistical technique is more suitable for testing the study hypotheses in order to answer the research question, since it allows us to examine the impact of the interaction factor on depression. Moreover, hierarchical multiple regression allows us to simultaneously examine the relationship between one or more independent variables and one dependent variable (depression), to determine which variable best predicts the symptoms of depression (Field, 2009). This statistical technique helps us to enter the study's variable in blocks based on previous research, which indicated the most important variables that are consistently associated with depression. For example, a hierarchical multiple regression was run for the first hypothesis as follows: the dysfunctional attitudes' predictors were entered in the first step, as the past studies showed that they are important predictors that are consistently associated with depression. The negative schematic beliefs are also key predictors consistently associated with depression; thus, they were entered in the second step. In the third step, trait anger was entered to examine how it contributes to depression. In the last step, the $AO \times ES$ was entered in order to examine how it explains depression. Similarly, another hierarchical multiple regression was ran for the second hypothesis with the same order as above, but the $AO \times HVC$ variable was added as independent predictors of depression in the last step instead of the $AO \times ES$ variable. In other words, hierarchical multiple regression allowed the researcher to examine the association between depression as the dependent variable and the predictors of dysfunctional attitude, negative beliefs, expressive suppression, interpersonal difficulties and anger.

CHAPTER 4

Study 2 Results

This chapter provides a description of the study sample and the study's statistical results, including correlations, reliability analysis, regression results and analysis for research hypotheses.

4.0 The Study's Hypotheses:

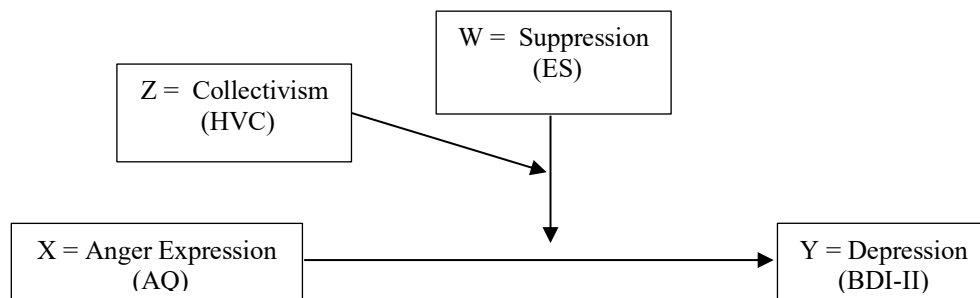


Figure 11: Conceptual Diagram of moderation effect with cognitive predictors (Hayes, 2013). Note. X = Independent variable; Z = Moderator variable; W = Moderator variable; Y = Dependent variable.

This study stated two hypotheses to establish if 1) *anger expression will significantly predict depression, and this will be moderated by expressive suppression*; as well as whether 2) *anger expression will significantly predict depression, and this will be moderated by collectivism*. The combination of these predictor variables will explain depression better than if we focus on each predictor in isolation. The interaction designates suppression of anger.

These hypotheses were examined separately with cognitive predictors, and with interpersonal predictors. That is, hypotheses numbers 1 and 2 refer to the predictors of the cognitive model of depression, whereas hypotheses numbers 3 and 4 refer to the interpersonal predictors. If the researcher included all the cognitive and interpersonal predictors in one regression analysis, they might compete with each variance and also could increase the risk of committing a Type I error. However, additional analyses were performed (see below “*Additional Analyses*” section) to examine the first and second hypotheses separately with

both cognitive and interpersonal predictors together, in one regression, to find out whether they make a contribution to depression. As a result, a higher proportion of variance in depression was obtained.

Moreover, all predictors' variables, for all steps of the analyses, were centred. This is to be able to interpret the interaction terms, and to also reduce problems of multicollinearity and problems of lack of invariance of regression coefficients. Moreover, for these reasons, each regression model included only one an interaction term. That is, four linear hierarchical multiple regression analyses were performed to examine the associations between the interaction terms ($AO \times ES$ and the $AO \times HVC$) and the BDI-II as a continuous dependent variable.

4.1 Sample characteristics

4.1.1 Participants

Participants were recruited from Mental Health hospitals in the Kingdom of Saudi Arabia. All participants were outpatients. They were recruited from five Mental Health hospitals from different regions, as follows: (1) Al-amal Mental Health Hospital in Al-Gurayyat (North region), (2) Al-amal Mental Health Hospital in Al-Jouf (North region), (3) Al-amal Mental Health Hospital in Dammam (Eastern region), (4) Al-Amal Complex for Mental Health in Riyadh (Middle region), and (5) Al-amal Mental Health Hospital in Jeddah (Western region).

Information regarding age, gender, medication, marital status, living arrangement, education and employment status are presented in Appendix 23.

The sample consisted of 305 participants with symptoms of depression who were receiving treatment for depression. The participants' age ranged from 18 and 59 years. Mean age was 34.40 years ($SD = 8.50$), the minimum was 18 and maximum was 59 years. The values of skewness and kurtosis tests were .509 and .113, respectively. The shape of the histogram distribution of the age was approximately a normal distribution (see Appendix 39). The sample consisted of 183 males (59.7%) and 122 females (40.3%), indicating that gender was relatively equally balanced. Out of 305 respondents, 219 (71.8%) the participants with depressive symptoms were currently taking psychotropic medication, whereas 86 (28.2%) were not taking any medication.

Among 305 participants, 57 (18.7%) were single, 236 (77.4%) were married, 10 (3.3%) were divorced, and 2 (.7%) were widowed. A total of 18 (5.9%) were living alone, 59 (19.3%) were living with their parents, and 228 (74.8) were living with their family (i.e., with a wife; or husband, and their children).

With regard to education, 93 (30.5%) participants had graduated from high school, 62 (20.3%) had graduated with a diploma certification, 100 (32.8%) had graduated with a bachelor degree, and 50 (16.4%) with other unspecified degrees.

Out of 305 respondents, 166 (54.4%) were employed, 112 (36.7%) were unemployed or in search of a job, 9 (3%) were retired, 14 (4.6%) were studying full time, and 4 (1.3%) were studying and working at the same time.

4.2 Missing Data

Four participants' data were excluded, as they had answered only three or four questionnaires out of the seven questionnaires. For the remaining 305 participants there were no missing data.

4.3 Checking Regression Assumptions

In order to use hierarchical multiple regression, a number of assumptions are required to be met, namely normality, lack of multicollinearity, homoscedasticity, independent errors and linearity (Field, 2009). Therefore, a number of prerequisite tests of the assumptions were performed, which are described below.

4.3.1 The Assumption of Normality

According to the literature, the sample size affects the test of normal distribution. For instance, in a large sample (consisting of 200 participants or more), it is easy to find significant results for the normality tests (Field, 2009, Kim, 2013). Therefore, the normality of the variables, especially the dependent variable (BDI-II), was examined using graphical examination of histograms (see Appendices from 40 to 45) and Q-Q plots, as recommended by the literature (e.g., Field, 2009). This was done in order to examine the shape of the distribution visually to explore whether the dependent variable deviated sharply from normality.

In general, the shape of the histogram distribution of the dependent variable, which is BDI-II, was approximately a normal distribution (see Appendix 25). Similarly, the Q-Q plot was of approximately normal distribution (see Appendix 24), as the dots were clustered close to the line.

4.3.2 Multicollinearity

Correlations between the predictors of the study were examined with regard to multicollinearity. These showed that no independent variables were highly correlated (see Table 7). The results showed that all the predictors were correlated below 0.70 (Field, 2009), which means there were not high correlations between the predictors in the regression model. In addition, the tolerance and variance inflation factors' (VIF) values were applied for all predictor variables in each regression model of this thesis. As a result, it was found that the statistical tolerance value for each variable was within acceptable limits. That is, the VIF values were below 10 and the tolerance values were above 0.2, indicating the absence of high multicollinearity among predictors in the regression model (Field, 2009). Thus, there was no collinearity within the data, indicating that the assumption of no multicollinearity has been met.

4.3.3 Homoscedasticity

The assumption of homoscedasticity was examined, as recommended by the literature (e.g., Field, 2009), by using a regression plot to examine residual vs. predicted values. To do this, *ZRESID (Y-axis) was plotted against *ZPRED (X-axis) to examine the shape of homoscedasticity visually to determine whether this assumption was met. The results showed that the dots were equally dispersed throughout the plot around zero, indicating that the assumption of homoscedasticity has been met (see Appendix 27).

4.3.4 Independent errors

The assumption of independent errors was examined by the Durbin-Watson test to test the correlations between errors. The values resulting from the Durbin-Watson test ranged between 1.78 and 1.89 for the four regressions, which is within acceptable levels (between 1 and 3) (Field, 2009), indicating that the assumption of independent errors has been met.

4.3.5 Linearity

Linearity was examined in the data (see Table 7) and all the predictors were correlated with the outcome variable at a value greater than or equal to 0.3 (Field, 2009), indicating that this assumption has been met.

Table 6: Descriptive statistics for study Questionnaires

Scales	Mean	Std. Deviation	Minimum	Maximum	Range	Skewness		Kurtosis	
						Statistics	error	Statistic	error
BDI-II	1.38	.401	1	3	2	0.236	.140	-.173	.278
TA	2.73	.580	1	4	3	-.124	.140	.261	.278
AO	2.11	.749	1	4	3	.561	.140	-.183	.278
ES	4.22	1.68	1	7	6	-.213	.140	-.800	.278
CR	4.07	1.44	1	7	6	.352	.140	-.540	.278
HVC Total	6.15	1.91	1	9	8	-.867	.140	-.008	.278
NSB Total	1.71	1.07	0	4	4	.418	.140	-.632	.278
NOB Total	1.93	1.06	0	4	4	.169	.140	-.880	.278
IIP-32 Total	1.92	.512	1	3	3	-.161	.140	-.167	.278
DAS-26 Total	4.29	.731	2	6.65	4.65	.098	.140	.048	.278

Note: BDI-II = Beck Depression inventory; TA = Trait Anger; AO = Anger Expression-Out; ES = Suppression; CR = Reappraisal; HVC = Horizontal and Vertical Collectivism Scale; NSB = Negative self-beliefs; NOB = Negative other beliefs; IIP-32 = Inventory of Interpersonal Problems; and DAS-26 = Dysfunctional Attitudes Scale

Table 6 shows the descriptive statistics, including skewness and kurtosis, for the questionnaires which were used for the current study. Because the sample was from outpatients in mental-health hospitals (individuals with depressive symptoms), we can see that the participants scored relatively highly on the Beck Depression Inventory (BDI-II).

4.4 Descriptive Statistics for the study's Questionnaires

This section presents the analyses performed in the current study for each questionnaire.

4.4.1 Reliability Analysis

Reliability for the questionnaires which were used in the current study was examined using Cronbach's alpha coefficient, estimating the internal consistency of the items. In general, the seven instruments and their subscales in the current study had high Cronbach's alphas, indicating acceptable psychometric properties within this population.

4.4.2 Descriptive Statistics for the Beck Depression inventory scale (BDI-II)

As mentioned above, the Arabic BDI-II was previously used in several studies in Arab countries and these studies reported acceptable validity and internal consistency (Soliman, 2014). As can be seen, because the Depression Inventory was used and the participants already presented with depressive symptoms, these Saudi participants scored relatively high on the BDI-II scale, indicating a moderate level of depressive symptoms. This moderate level of depression may be due to the fact that the majority of the sample were taking antidepressant medication. The scores for males and females did not differ significantly on symptoms of depression (see Appendix 31).

4.4.3 Descriptive Statistics for the Dysfunctional Attitudes Scale (DAS-26)

As the Saudi participants in the sample had depressive symptoms, they scored high on this measure on the seven-point Dysfunctional Attitudes Scale (DAS-26). The total score of the DAS-26 was positively skewed, indicating that most of participants in the sample reported a high level of dysfunctional schemata.

The *Need for Approval* subscale had a higher mean score, relative to score ranges, at 4.75, than the other subscales, and the value of the standard deviation was 1.12, with minimum 2, maximum 7, and range of 6, while skewness value was $Z = -1.90$ and the kurtosis was .89. The Shapiro-Wilk (S-W) test value was .000 ($p < .001$).

The *Success Perfectionism* subscale had a mean value of 4.35, with standard deviation .918; the minimum was 2, maximum 7, with a range of 6, the skewness was $Z = 1.33$, and the kurtosis was $Z = 1.38$. The Shapiro-Wilk test value was .001 ($p < .001$).

On the *Need for Satisfying Others* subscale, the sample scored a high mean of 4.27, on this measure on the seven-point DAS-26, with standard deviation at 1.29, minimum 1, maximum 7, and range of 6.20. The value of skew was $Z = -.38$, and the value of kurtosis was $Z = -1.59$. The Shapiro-Wilk test value was 0.000 ($p < .001$).

The *vulnerability performance* subscale had a mean value of 3.69, with standard deviation 1.13; the minimum was 2, maximum 7, with a range of 5, the skewness was $Z = 2.78$, and the kurtosis was $Z = -2.17$. The Shapiro-Wilk test value was .000 ($p < .001$).

4.4.4 Descriptive Statistics for the State-Trait Anger Expression Inventory-2 scale (STAXI-2)

The present study focuses on *trait anger* and *anger expression-out*. Accordingly, it was decided to exclude the other subscales of the State-Trait Anger Expression Inventory-2 scale (STAXI-2).

The Saudi sample scored a relatively high mean on the *trait anger* subscale, in relative to score ranges from 1 to 4, (items from 1 to 10), at 2.73, suggesting the majority of the individuals with depressive symptoms reported high levels of anger. The standard deviation was .580, and the minimum, maximum and range were 1, 4, and 3 respectively.

However, compared to trait anger, the participants in the sample reported low means for the *anger expression-out* (AO) scale at 2.11, which may indicate that they did not express their anger very much, while the value of standard deviation was .749, the minimum was 1, the maximum was 4 and the range was 3. This result may indicate that the participants did not regulate their anger, especially as they scored high on both trait anger and suppression variables.

4.4.5 Descriptive Statistics for Emotion Regulation (ERQ)

Participants from the study in this thesis scored higher means on the seven-point *expressive suppression* subscale than on the reappraisal subscale. The mean value for the *suppression* subscale was 4.22, the standard deviation was 1.68, with a minimum of 1, a maximum of 7, and the range was 6. The mean value for the *cognitive reappraisal* subscale was 4.07, the standard deviation was 1.44, the minimum was 1, the maximum was 7, and the

range was 6. That is, the respondents reported high levels of *expressive suppression* and lower levels of adaptive emotion regulation, which in turn may have contributed to their depression.

This result indicates that participants with depressive symptoms in this study used an *expressive suppression* strategy more than a *cognitive reappraisal* strategy. The sample reported that they suppressed their emotion and did not express it.

4.4.6 Descriptive Statistics for the Brief Core Schema Scale (BCSS)

Because this is the Core Schema scale and the sample comprised individuals with depressive symptoms from an outpatient population, the majority of participants reported negative self-beliefs and negative others beliefs, as would be expected. For instance, the negative beliefs subscales, which are “*Negative Self-Belief*” (NSB) and “*Negative Others Beliefs*” (NOB), had higher means than the positive beliefs scales, which are the *Positive Self-Beliefs* and *Positive Others Beliefs* scales. The mean value for the *Negative Others Belief* subscale was 1.93, which is a higher mean score, relative to the score ranges, than for the other subscales. The value of the standard deviation was 1.06, the minimum was 0, the maximum was 4, the range was 4.

The participants also reported decreased positive beliefs about themselves and others. The mean value for the *Positive Self-Beliefs* scale was 1.4, the standard deviation was 1.02, the minimum was 0, the maximum was 4, and the range was 4. For *Positive Other Beliefs* the mean score was .99, and standard deviation was .726, with minimum 0, maximum 3 and range 3. The BCSS was positively skewed, indicating that the majority of the sample held negative beliefs about their self and others.

4.4.7 Descriptive Statistics for the Horizontal and Vertical Individualism and Collectivism Scale (HVICS)

The nine-point scale, standard deviation, minimum, maximum, range, skewness and kurtosis values all had different means for the Horizontal and Vertical Individualism and the Collectivism Scale (HVICS-14).

The sample scored higher means on the nine-point *collectivism* scales, which are the horizontal (HC) and the vertical (VC) scales, than on the *individualism* scales, which are the horizontal (HI) and the vertical (VI) scales. For example, the mean values for the *horizontal* and *vertical* collectivism subscales were 6.25, and 6.06, respectively, whereas the mean value for the *horizontal individualism* was 5.68, and for the *vertical individualism* subscale was 5.49.

The total score of the HVICS was negatively skewed, indicating that the majority of the sample scored highly on collectivism.

If we look at the collectivism scales, specifically, the *Horizontal Collectivism* (HC), we can see that it has a higher mean score, relative to score ranges, than the other subscales. This result indicated that most of the Saudi sample viewed themselves as a part of a collective and emphasized equality. This suggests they see all Saudis are the same, thus, they might behave according to the Saudi cultural norms. The standard deviation of *Horizontal Collectivism* (HC) was 2.04, the minimum was 1, the maximum was 9 and the range was 8. The Shapiro-Wilk (S-W) test value was 0.000 ($p < .001$).

However, if we look at *Vertical Collectivism* (VC), we can observe that the value of the standard deviation was 2.11, the minimum was 1, the maximum was 9 and the range was 8. These results indicate that individuals in the study sample were collectivists in their appraisal values.

As noted above, previous researchers who used the collectivism scales (e.g., Lam, Chen, & Schaubroeck, 2002; Woo, 2009) combined the Horizontal Collectivism (HC) and Vertical Collectivism (VC) subscales to represent collectivism, because they found a high correlation between the two subscales. A high correlation between these subscales was also found in the current study (see correlation below). For this reason, the horizontal and vertical subscales were combined to represent *collectivism* (HVC). Thus, the mean value of Horizontal and Vertical Collectivism (HVC) (combined variable) was 6.15, the standard deviation was 1.91, the minimum was 1, the maximum was 9, and the range was 8.

On the other hand, on the *Horizontal Individualism* scale the mean value was 5.68 and the standard deviation was 1.60, with minimum, maximum and range of 2, 9, and 7, respectively. In the *Vertical Individualism* scale, the sample scored a low mean of 5.49. The standard deviation was 1.86, and the minimum, maximum and range were 1, 9, and 8, respectively.

4.4.8 Descriptive Statistics for the Inventory of Interpersonal Problems (IIP-32)

The mean value of the five-point scale for the Inventory of Interpersonal Problems (IIP-32) was 1.92, while the obtained value for the standard deviation was .512, the skewness was $Z = -1.15$ and the kurtosis was $Z = -0.60$. The distribution for the IIP-32 total score was negatively skewed (see Appendix 44), indicating the majority of the respondents reported interpersonal difficulties, which in turn may be associated with their depression.

The lowest mean score, in relative to score ranges, was for the *Domineering/Controlling* subscale at 1.17, the standard deviation was .745, the minimum was 0, the maximum was 4, and the range was 4. The sample reported that they were quite aggressive towards other people.

The *Overly Accommodating* subscale came with a mean value of 2.24, and the value of the standard deviation was .749, the minimum was 1, the maximum was 4, and the range was 3. Most of the sample reported that they had difficulties saying “No” to others and did not express their anger when they felt it.

However, the *Self-Sacrificing* subscale had a high mean score, in relative to score ranges, at 2.29, which was higher than the mean score of other subscales, presumably because they were not a healthy group and may have difficulties in controlling their self and their emotions. The standard deviation was .765, the minimum was 0, the maximum was 4, the range was 4.

The sample also reported a high mean score for the *Non-assertive* subscale at 2.16 with standard deviation of .806. The minimum was 0, the maximum was 4, and the range was 4. The majority of the sample reported that they found it very hard to be assertive with other people.

On the *Intrusive/Needy* subscale, the sample scored a low mean of 1.53, with standard deviation of .792, the minimum was 0, the maximum was 4, and the range was 4.

The *Vindictive/Self-Centred*, *Cold/Distant*, and *Socially Inhibited* subscales also had high mean values at 1.81, 2.05, and 2.12, respectively. The standard deviation for the subscale of *Vindictive/Self-Centred* was 1.01; for *Cold/Distant* it was .895 and for *Socially Inhibited* it was .963. The minimum was 0, the maximum was 4, and the range was 4, for all these variables.

4.4.9 Descriptive Statistics for the Interaction Variables

Following previous literature (e.g., Field, 2009; Seo, 2011), the interaction terms were created through the multiplication of the *anger expression-out* (AO) score and the *expressive suppression* (ES) score, and a multiplication of the *anger expression-out* score and the *collectivism* score. Therefore, the current study had two interaction terms as follows:

- 1) **First interaction term** comprised of the anger expression-out score $\times$ expressive suppression score (AO $\times$ ES). The first interaction term was set to range from 7

to 28, higher scores indicate greater experience of anger towards others and situations and greater suppression of that anger.

- 2) **The second interaction term** is comprised of the anger expression-out score $\times$ collectivism score ($AO \times HVC$). The second interaction term was set to range from 9 to 36. Higher scores represent greater experience of anger and a greater sense of collectivism.

The current study hypothesised that there is an interaction between anger expression-out and both collectivism and the expressive suppression variables and that the low interaction terms could contribute to a significant amount of variance in depression over what is already known. Therefore, in order to examine these hypotheses, the researcher need to examine the association between the interaction terms and depression.

However, in order to examine the direction of the interaction terms, the researcher examined: 1) the mean and standard deviation of the interaction terms; and 2) ran simple slopes analyses using the PROCESS tool in order to follow up and interpret the interaction effects (described in the *Study's Hypotheses* section).

In general, the mean values of the interaction terms were low. The mean value of ($AO \times ES$) was 9.19, with standard deviation 5.52. The minimum was 1, maximum was 28, and the range was 27. Likewise, the $AO \times HVC$ variable also had a high mean at 12.83 and the standard deviation was 7.37. The minimum was 1, maximum was 36, and the range was 35.

4.5 Correlations

This study has one dependent variable and multiple predictor variables. Therefore, a correlation test was performed in order to determine the correlations among the study's variables (see Table 7). The correlations were conducted before and after bootstrapping the variables, using the total scores from the scales and the subscales. A comparison was then made between the two results to see if there were differences. No differences were found between them. The correlations were also conducted between demographic background variables (e.g., age) and the BDI-II scores (see Appendices 28, 29 & 30).

4.5.1 Demographic Variable Correlations

In terms of demographic variables, the Pearson correlation results indicated that age was not correlated with the BDI-II total score.

Table 7: Pearson Correlation Matrix among the study's variables (N = 305)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1. Trait Anger	-																				
2. Anger Expression-Out	.31**	-																			
3. Expressive Suppression	.10	.21**	-																		
4. HVC	.24**	.33**	.44**	-																	
5. Negative Self-Beliefs	.19**	.16**	.03	.13*	-																
6. Negative Others Beliefs	.27**	.16**	.08	.10	.55**	-															
7. Success Perfectionism	.20**	.17**	.17**	.19**	.17**	.08	-														
8. Need for Approval	.20**	.22**	.21**	.19**	.17**	.12*	.40**	-													
9. Need to satisfy others	.19**	.19**	.13*	.12*	.27**	.24**	.41**	.44**	-												
10. Vulnerable Performance	.22**	.19**	.07	.08	.13*	.02	.02	-.06	.08	-											
11. DAS-26 Total	.30**	.27**	.22**	.22**	.27**	.16**	.86**	.62**	.72**	.27**	-										
12. Domineer/Controlling	.31**	.18**	.16**	.22**	.29**	.30**	.25**	.094	.092	.097	.23**	-									
13. Vindictive/Self-Centered	.15**	.20**	.16**	.11*	.33**	.32**	.17**	.11	.19**	.14**	.23**	.30**	-								
14. Cold/Distance	.26**	.23**	.23**	.19**	.15**	.21**	.16**	.11	.16**	.11*	.21**	.28**	.42**	-							
15. Socially Inhibited	.24**	.18**	.20**	.14**	.14**	.22**	.13**	.079	.12*	.18**	.19**	.27**	.39**	.58**	-						
16. Non-assertive	.13*	.17**	.23**	.19**	.21**	.16**	.25**	.31**	.28**	.036	.33**	.27**	.16**	.26**	.38**	-					
17. Overly Accommodating	.24**	.21**	.19**	.12**	.21**	.102	.18**	.22**	.29**	.20**	.31**	.20**	.19**	.32**	.27**	.25**	-				
18. Self-Sacrificing	.27**	.14**	.11*	.15**	.16**	.21**	.18**	.21**	.19**	-.16**	.19**	.15**	.23**	.25**	.16**	.22**	.27**	-			
19. Intrusive / Needy	.057	.13*	.12*	.11*	.15**	.037	.23**	.13*	.16**	.093	.25**	.33**	.34**	.22**	.20**	.22**	.17**	.20**	-		
20. IIP-32 Total	.34**	.30**	.29**	.25**	.34**	.33**	.31**	.25**	.30**	.15**	.40**	.57**	.66**	.71**	.70**	.56**	.53**	.50**	.55**	-	
21. BDI-II Total	.47**	.39**	.34**	.35**	.38**	.32**	.32**	.33**	.37**	.30**	.47**	.38**	.41**	.45**	.45**	.39**	.37**	.36**	.35**	.66**	-

N = 305. ** $p < .01$, * $p < .05$. Note HVC = combined of horizontal & vertical collectivism; DAS-26 = Dysfunctional Attitudes Scale; IIP-32 = Inventory of Interpersonal Problems; BDI-II = Beck Depression inventory.

Table 7 illustrates the association between the measures of the Dysfunctional Attitudes Scale (DAS-26), the Brief Core Schema Scale (BCSS), the State-Trait Anger Expression Inventory (STAXI), the Emotion Regulation Questionnaire (ERQ), the Horizontal and Vertical Individualism and Collectivism Scale (HVICS), the Inventory of Interpersonal Problems (IIP-32), and the Beck Depression Inventory (BDI-II). Most of the study's variables correlated significantly with the BDI-II total scores.

4.5.2 Dysfunctional Attitudes Correlations

The correlation results show that the Beck Depression Inventory (BDI-II) score is positively correlated with the Dysfunctional Attitudes (DAS-26) total score and its subscales.

Particularly, the dysfunctional attitudes total score and its variables are positively correlated with the State-Trait Anger Expression Inventory-2 variables, also had significant positive correlations with the *expressive suppression* score. However, the *trait anger* score was more highly correlated with the DAS-26 total score than with the *anger expression-out* scores. Similarly, the *need for approval* subscale score had the highest significant positive correlation with the *expressive suppression* score than other dysfunctional attitudes subscales ($r = .21, p < .01$). The *vulnerable performance* has the lowest significant positive correlation with the BDI-II total score of all the other DAS-26 subscales and did not correlate with the *expressive suppression* score.

4.5.3 Negative Schematic Beliefs Correlations

Only the *negative self-beliefs* (NSB) and *negative others beliefs* (NOB) scores on the brief core schema scale (BCSS) had significant positive correlations with the BDI-II total score. The *negative self-beliefs* subscale was more highly correlated with depressive symptoms ($r = .38, p < .01$) than the *negative others beliefs* subscale ($r = .32, p < .01$).

However, the correlation results indicated that negative schematic beliefs also correlated with the variables of the State-Trait Anger Expression Inventory-2 scale (STAXI-2), with the *negative other beliefs* variable being more highly correlated with the *trait anger* and *anger expression-out* scores than the *negative self-beliefs* variable.

4.5.4 State-Trait Anger Expression Inventory (STAXI-2) Correlations

The Beck Depression Inventory (BDI-II) total score was positively correlated with the State-Trait Anger Expression Inventory (STAXI-2) subscales, indicating that the higher the participants' anger levels were, the more depressed they were. Moreover, the correlation

results showed that there was a significant positive relationship between the *trait anger* and *anger expression-out* (AO) variables, which is consistent with previous research (e.g., Genuchi & Valdez, 2015; Martin & Dahlen, 2005).

4.5.5 Emotion Regulation Correlations

There were also some significant positive correlations between the *Emotion Regulation Questionnaire (ERQ)* variables and the BDI-II total score (see Appendix 29). For instance, the *Expressive Suppression* (ES) score was correlated with symptoms of depression, indicating that the frequent use of suppression strategy is associated with a high level of depressive symptoms, while *cognitive reappraisal* correlated negatively with *trait anger* subscale.

Consistently with the results of Martin and Dahlen (2005), there was a negative correlation between *cognitive reappraisal* and *trait anger*, indicating that the use of adaptive strategy may reduce the feeling of anger, which in turn may reduce the level of depressive symptoms. However, there was no correlation between the *reappraisal* and *anger expression-out* subscales, which contradicts Martin and Dahlen's (2005) finding of a negative correlation between *anger expression-out* and *cognitive reappraisal*. This is may be because of the sample characteristics, the questionnaire and cultural differences.

4.5.6 HVICS Variable Correlations

The correlation results revealed that the variables of the *Horizontal and Vertical Individualism and Collectivism Scale* (HVICS) had significant correlations with the Beck Depression Inventory (BDI-II) score (see Appendix 29). For example, the *horizontal collectivism* (HC) and *vertical collectivism* (VC) scores had significant positive correlations with the measure of Depression, which was consistent with past findings (e.g., Chu, 2015; Park, Kim, Cheung & Kim, 2010), which also showed positive correlations between collectivism and depressive symptoms. As expected, both the *horizontal individualism* (HI) and *vertical Individualism* (VI) scores correlated negatively with the BDI-II total score, which was in line with findings in previous literature (e.g., Chu, 2015) that those with more individualist values, were more likely to express their anger outwardly, which in turn may reduce their depressive symptoms.

If we look now at the correlation between HVICS variables with other predictor variables, there appears a significant positive association between the *collectivism (horizontal and vertical)* variables score and the the *expressive suppression* and *anger* variables.

Among the HVICS variables, there was a positive significant correlation between the *horizontal collectivism* and *vertical collectivism* scores, in line with the work of Woo (2009) and the work of Lam and his colleagues (2002), who also found a high positive correlation between *horizontal collectivism* and the *vertical collectivism* subscales and combined these subscales together to represent collectivism. Accordingly, these subscales were also combined together to represent *collectivism* in the present study.

The correlations were then conducted between collectivism and the BDI-II total score. The correlation results showed that there was a positive significant correlation between the *collectivism* score (combined variable) and the BDI-II score. A high significant positive correlation between the *collectivism* score and the *expressive suppression* score, indicating that collectivist individuals are more likely to not express their negative emotions outwardly.

4.5.7 Interpersonal Problems Correlations

The Inventory of Interpersonal Problems (IIP-32) and its subscales had high significant positive correlations with the BDI-II total score, particularly in the case of the *Cold/Distant* and *Socially Inhibited* subscales.

The results of the correlation revealed that there was no significant correlation between the IIP-32 total score and the *cognitive reappraisal* score, whereas the IIP-32 total score correlated positively with the combined *collectivism* variable.

As expected, there was a significant positive correlation between the IIP-32 total score and the negative schematic beliefs scores, and between the IIP-32 total score and the DAS-26 total score, indicating that as negative beliefs increased, so did interpersonal difficulties.

4.6 Gender, Age and Medication Differences

As mentioned above, the sample consisted of 183 male and 122 female participants. Thus, an independent sample t-test was conducted on all variables in order to determine the differences between males and females. The results revealed a few significant differences between male and female groups according to their scores on some subscales, including a key independent variable, which is anger. These differences may play an important role, which, in turn, may have influenced the current study's results. This is possible, as previous research (e.g. Gadassi & Rafaeli, 2015) supported the suggestion that gender plays a moderating role, which in turn may influence the results. Therefore, gender was controlled by including it as a covariant in all regression models. Regarding age, there was no significant relationship

between age and depressive symptoms as the dependent variable. For that reason, the researcher did not control for age.

Likewise, an independent samples t-test on depression as dependent variable was performed in order to determine the differences between participants who were taking antidepressant medicine ($n = 219$) and participants who were not taking psychological medication ($n = 86$). The results indicated that there was a significant difference between these two groups. The participants who were taking psychological medication scored significantly higher on the depression scale than participants who did not take psychological medication. The mean value for the no medication group was 1.21, while the mean value for the group receiving medication was 1.45, $t(303) = 4.722, p < .001$. This result indicates that medication as a potential confounding factor may have influenced the outcome of the current results. Therefore, the researcher will take into account the effect of medicine and control for medication as well. Thus, gender and medication were created as dummy variables and coded first before they were entered into the regression analysis, as these variables were dichotomous variables (Field, 2009).

4.7 Hierarchical Multiple Regression analysis

This study has one dependent variable, which is depression, as a continuous variable, and multiple predictor variables. Therefore a hierarchical multiple regression was used in order to examine the study's aims. This statistical technique was chosen because it allows to us examine the relationship between two or more independent variables and one dependent variable. It also helps to determine which variables best predict the symptoms of depression. Importantly, it is suitable for testing the study's hypotheses, as this study is interested in the combination of high anger and expressive suppression variables, and not interested whether the expressive suppression variable independently contributes to depression, as the expressive suppression is not an independent factor in relation to anger. Accordingly, it allows the interactions between the two variables, such as *expressive suppression* and *anger expression-out* to be taken into account (Field, 2009). However, if the interaction terms were found to be significantly associated with depression, simple slopes analyses (PROCESS method) will be used to follow up and interpret the interaction effects.

Multiple regression has different methods, such as stepwise, forward, backward and entry methods to examine the impact of different independent variables on the dependent variable. The stepwise methods rely on the SPSS programme for selecting independent predictors based upon mathematical criteria. The entry method does not rely on the computer

to select predictors (Field, 2009). Therefore, the researcher used hierarchical regression to use the entry method, as it seemed to be the appropriate method for theory testing (Field, 2009).

In addition, the researcher ran moderation analyses (two moderator model - Model 3) using the PROCESS tool (Hayes, 2013). This is to break down graphically the interaction terms in order to interpret significant effects. The advantage of using PROCESS tool is that it allowed the researcher to use simple slopes analysis to interpret the results; it centres predictors for the researcher, and automatically computes the interaction terms. Moreover, it allows the two interactions to be examined together and the carrying out of the simple slopes interactions (described below).

4.7.1 First Hypothesis:

The interaction between high *expressive suppression* and low *anger expression-out* ($AO \times ES$) predicts depression over and above what has been predicted by anger expression-out and expressive suppression in isolation.

In order to test the study's hypotheses, a hierarchical multiple regression was employed to determine which of these variables best predict depression; thus, as mentioned above, gender and medication were entered as covariants in the first step. In the second step, the dysfunctional attitudes (DAS) subscales' scores were entered, as previous research has indicated that they are important predictors that are consistently associated with depression (Dobson & Dozois, 2011; Seeds & Dozois, 2010; Thomas & Altareb, 2012). In the third step, the negative beliefs variables - the brief core schema beliefs (BCSS) - were entered, because they are also key predictors that consistently predict depression (Wong, 2012). In the fourth step, trait anger (TA) and anger expression-out were entered to examine how these contribute to depression in addition to the above, because they are key predictors that is consistently associated with depression (Balsamo, 2013). In the fifth step, the expressive suppression variable was entered, as it has been consistently associated with depression. In step six, the interaction variable (anger expression-out $\times$ suppression) was entered, to examine how it contributes to depression. If this interaction term was found to be significantly contributing to R^2 , it was plotted using simple slopes analyses to interpret its effect.

Table 8: Summary of Hierarchical Regression Analysis for variables predicting Depression - first hypothesis (N = 305)

Model	Variables	B	SE B	β	t	Collinearity		ΔR^2	ΔF
						Tolerance	VIF		
Step 1	Constant	1.542	.082	-	18.85			.106	17.8***
	Gender	.15	.047	.185	3.260	.923	1.08		
	Medication	-.29	.051	-.323	-5.70	.923	1.08		
Step 2	Constant	1.395	.071	-	19.59			.260	30.6***
	Gender	.198	.040	.239***	4.940	.910	1.09		
	Medication	-.225	.044	-.250***	-5.132	.896	1.11		
	Success Perfectionism	.062	.023	.141***	2.665	.763	1.31		
	Need for Approval	.077	.020	.212***	3.925	.732	1.36		
	Need for satisfying others	.061	.017	.194***	3.565	.722	1.38		
	Vulnerability Performance	.102	.017	.285***	5.996	.942	1.06		
Step 3	Constant	1.355	.071	-	19.15			.056	14.3***
	Gender	.188	.039	.227***	4.845	.892	1.12		
	Medication	-.184	.044	-.204***	-4.216	.836	1.19		
	Success Perfectionism	.060	.022	.136**	2.676	.758	1.31		
	Need for Approval	.071	.019	.196***	3.790	.728	1.37		
	Need for satisfying others	.042	.017	.134**	2.526	.690	1.44		
	Vulnerability Performance	.098	.017	.274***	5.921	.913	1.09		
	Negative Self-Beliefs	.056	.021	.147**	2.645	.629	1.58		
	Negative Others Beliefs	.053	.022	.139**	2.465	.617	1.62		
Step 4	Constant	1.235	.068	-	18.22			.084	25.1***
	Gender	.198	.036	.239***	5.500	.890	1.12		
	Medication	-.101	.042	-.112**	-2.385	.767	1.30		
	Success Perfectionism	.042	.021	.095*	2.013	.746	1.34		
	Need for Approval	.048	.018	.132**	2.689	.701	1.42		
	Need for satisfying others	.041	.015	.130**	2.636	.690	1.45		
	Vulnerability Performance	.072	.016	.203***	4.608	.866	1.15		
	Negative Self-Beliefs	.052	.020	.136**	2.637	.628	1.59		
	Negative Others Beliefs	.035	.020	.090	1.713	.605	1.65		
	Trait Anger	.175	.033	.250***	5.234	.736	1.35		
Step 5	Anger Expression-Out (AO)	.092	.024	.169***	3.769	.832	1.20		
	Constant	1.249	.065	-	19.20			.042	27.08***
	Gender	.197	.034	.239***	5.734	.890	1.12		
	Medication	-.111	.040	-.123**	-2.737	.765	1.30		
	Success Perfectionism	.033	.020	.074	1.631	.740	1.35		
	Need for Approval	.036	.017	.098*	2.078	.689	1.45		
	Need for satisfying others	.041	.015	.131**	2.778	.690	1.45		
	Vulnerability Performance	.067	.015	.188***	4.447	.862	1.16		
	Negative Self-Beliefs	.059	.019	.156**	3.138	.625	1.60		
	Negative Others Beliefs	.026	.019	.069	1.360	.601	1.66		
Step 6	Trait Anger	.176	.032	.251***	5.493	.736	1.35		
	Anger Expression-Out (AO)	.072	.024	.134**	3.063	.811	1.23		
	Expressive Suppression (ES)	.052	.010	.215***	5.204	.905	1.10		
	Constant	1.323	.063	-	21.13			.051	36.81***
	Gender	.165	.033	.200***	5.024	.868	1.15		
	Medication	-.148	.039	-.164***	-3.825	.746	1.34		
	Success Perfectionism	.026	.019	.059	1.367	.738	1.35		
	Need for Approval	.032	.016	.088*	1.977	.688	1.45		
	Need for satisfying others	.037	.014	.117**	2.627	.688	1.45		
	Vulnerability Performance	.062	.014	.173***	4.328	.859	1.16		
	Negative Self-Beliefs	.050	.018	.133**	2.817	.620	1.61		
	Negative Others Beliefs	.035	.018	.090	1.884	.597	1.67		
	Trait Anger	.148	.031	.212***	4.848	.720	1.38		
	Anger Expression-Out (AO)	.069	.022	.127**	3.072	.810	1.23		
	Expressive Suppression (ES)	.054	.009	.225***	5.757	.903	1.10		
	Interaction of AO & ES	.064	.011	.239***	6.067	.886	1.12		

Notes. All variables were centred; ΔR^2 = R Square Change; ΔF = F Change; *** $p < .001$, ** $p < .01$, * $p < .05$, All p -values are two-tailed.

Table 8 shows the regression equation with the significant predictors, namely dysfunctional attitudes, negative beliefs, anger, and expressive suppression, with the Beck Depression Inventory (BDI-II) as the dependent variable.

As expected, the first hypothesis was supported. As shown in the overall model of the first hypothesis (see Appendix 32), all the variables were significant predictors of the Beck Depression Inventory (BDI-II) total score ($p < .001$). Gender and medication in the first step were significant predictors of depression. A significant regression equation was found in the second step ($F(4, 298) = 30.57, p < .001$), with an R^2 of .37, indicating that the DAS variables accounted for 37% of the variance in depression. The scores for the negative schematic beliefs variable in the third step accounted for 42% of the variance in depression ($R^2 = .422, F(2, 296) = 14.325, p < .001$). In the fourth step, anger variable scores explained a significant amount of the variance in depression scores, accounting for an additional 8% of the variation in depression ($R^2 = .51, F(2, 294) = 25.137, p < .001$). Likewise, adding the expressive suppression variable score in the fifth step accounted for 55% of the variance in depression ($R^2 = .548, F(1, 293) = 27.087, p < .001$), while adding the interaction variable ($AO \times ES$), which represented suppression of anger, in step six of the regression, accounted for an additional 5% of the variance in depression. Thus, together the twelve independent variables accounted for 59% of the variance in depression ($F(1, 292) = 36.811, p < .001$). The total R was .774, $R^2 = .599$, adj. $R^2 = .582$. The interpretation of these interaction effects is discussed below (see section 4.7.3).

4.7.2 Second Hypothesis:

The interaction between high *collectivism* and low *anger expression-out* ($AO \times HVC$) will predict depression over what has been predicted by collectivism and expressive suppression in isolation.

In order to examine this hypothesis, hierarchical multiple regressions were conducted. In the first step, gender and medication were entered as covariants. The DAS-26 subscales were entered in the second step, as mentioned above, as these are key predictors of depression. In the third step, negative beliefs variables - the Brief Core Schema beliefs (BCSS) – were entered, because they are also key predictors that consistently predict depression (Wong, 2012). In the fourth step, *trait anger* and *anger expression-out* subscales were entered to examine how they contribute to depression. In the fifth step, the *collectivism* variable was entered to examine how it contributes to depression. In step six, the interaction of *collectivism* and *anger expression-out* variables ($AO \times HVC$) was entered. If the interaction term was found to be

significantly contributing to R^2 , it was broken down graphically using simple slope analyses to interpret the interaction effect.

Table 9: Summary of Hierarchical Regression Analysis for variables predicting Depression - second hypothesis (N = 305).

Model	Variables	B	SE B	β	t	Collinearity		ΔR^2	ΔF
						Tolerance	VIF		
Step 1	Constant	1.542	.082	-	18.85			.106	17.8***
	Gender	.15	.047	.185	3.260	.923	1.08		
	Medication	-.29	.051	-.323	-5.70	.923	1.08		
Step 2	Constant	1.395	.071	-	19.59			.260	30.6***
	Gender	.198	.040	.239***	4.940	.910	1.09		
	Medication	-.225	.044	-.250***	-5.132	.896	1.11		
	Success Perfectionism	.062	.023	.141***	2.665	.763	1.31		
	Need for Approval	.077	.020	.212***	3.925	.732	1.36		
	Need for satisfying others	.061	.017	.194***	3.565	.722	1.38		
	Vulnerability Performance	.102	.017	.285***	5.996	.942	1.06		
Step 3	Constant	1.355	.071	-	19.15			.056	14.3***
	Gender	.188	.039	.227***	4.845	.892	1.12		
	Medication	-.184	.044	-.204***	-4.216	.836	1.19		
	Success Perfectionism	.060	.022	.136**	2.676	.758	1.31		
	Need for Approval	.071	.019	.196***	3.790	.728	1.37		
	Need for satisfying others	.042	.017	.134**	2.526	.690	1.44		
	Vulnerability Performance	.098	.017	.274***	5.921	.913	1.09		
	Negative Self-Beliefs	.056	.021	.147**	2.645	.629	1.58		
	Negative Others Beliefs	.053	.022	.139**	2.465	.617	1.62		
Step 4	Constant	1.235	.068	-	18.22			.084	25.1***
	Gender	.198	.036	.239***	5.500	.890	1.12		
	Medication	-.101	.042	-.112**	-2.385	.767	1.30		
	Success Perfectionism	.042	.021	.095*	2.013	.746	1.34		
	Need for Approval	.048	.018	.132**	2.689	.701	1.42		
	Need for satisfying others	.041	.015	.130**	2.636	.690	1.45		
	Vulnerability Performance	.072	.016	.203***	4.608	.866	1.15		
	Negative Self-Beliefs	.052	.020	.136**	2.637	.628	1.59		
	Negative Others Beliefs	.035	.020	.090	1.713	.605	1.65		
	Trait Anger	.175	.033	.250***	5.234	.736	1.35		
Step 5	Anger Expression-Out (AO)	.092	.024	.169***	3.769	.832	1.20		
	Constant	1.231	.067	-	18.48	-	-	.019	11.5***
	Gender	.194	.035	.234***	5.489	.889	1.12		
	Medication	-.093	.041	-.104*	-2.253	.765	1.30		
	Success Perfectionism	.036	.021	.081	1.722	.740	1.35		
	Need for Approval	.043	.017	.119*	2.472	.697	1.43		
	Need for satisfying others	.043	.015	.136**	2.813	.689	1.45		
	Vulnerability Performance	.073	.015	.203***	4.700	.866	1.15		
	Negative Self-Beliefs	.048	.019	.128*	2.510	.627	1.59		
	Negative Others Beliefs	.036	.020	.093	1.803	.605	1.65		
	Trait Anger	.163	.033	.232***	4.925	.728	1.37		
Step 6	Anger Expression-Out (AO)	.071	.025	.131**	2.864	.779	1.28		
	Collectivism (HVC)	.027	.008	.149***	3.394	.840	1.19		
	Constant	1.266	.063	-	19.95	-	-	.049	33.7***
	Gender	.169	.034	.205***	5.020	.876	1.14		
	Medication	-.118	.040	-.132**	-2.996	.756	1.32		
	Success Perfectionism	.029	.020	.065	1.462	.737	1.35		
	Need for Approval	.041	.017	.113*	2.475	.697	1.43		
	Need for satisfying others	.031	.015	.100*	2.161	.676	1.47		
	Vulnerability Performance	.068	.015	.191***	4.644	.863	1.15		
	Negative Self-Beliefs	.047	.018	.123*	2.541	.626	1.59		
Step 6	Negative Others Beliefs	.039	.019	.102*	2.067	.604	1.65		
	Trait Anger	.133	.032	.190***	4.195	.709	1.41		
	Anger Expression-Out (AO)	.054	.024	.100*	2.289	.768	1.30		
	Collectivism (HVC)	.044	.008	.243***	5.441	.729	1.37		
	Interaction of AO & HVC	.056	.010	.247***	5.807	.806	1.24		

Notes. All variables were centred; ΔR^2 = R Square Change; ΔF = F Change; *** p < .001, ** p < .01, * p < .05, All p -values are two-tailed.

Table 9 shows the regression equation for the second hypothesis, with the variables for dysfunctional attitudes, negative beliefs, anger, and collectivism, with the Beck Depression Inventory (BDI-II) as the dependent variable.

The overall model of the second hypothesis (see Appendix 33) indicated that the models explain well the Beck Depression Inventory (BDI-II) total (0.000, $p < .001$) scores. Steps 1, 2, 3 and 4 were the same as the first hypothesis in terms of the amount of the variance explained. In step five, adding the *Collectivism* variable accounted for 53% of the variance in depression ($R^2 = .525$, $F(1, 293) = 11.52$, $p < .001$). However, in the sixth step, a significant regression equation was also found. The interaction variable (anger expression-out $\times$ collectivism) explained an additional 5% of the variation in depression ($F(1, 292) = 33.72$, $p < .001$). Total $R = .758$, $R^2 = .574$, adj. $R^2 = .557$. This result indicates that this model explains 57% of depression scores, which supports the second hypothesis. As these interaction terms were significantly associated with depression, the interpretation of the interaction effects will be discussed in the next section.

4.7.3 Interaction Effects with Cognitive Predictors: Simple Slope analyses

In order to follow up and interpret the interaction effects in first and second hypotheses, the researcher ran a simple slope analysis using the PROCESS method (Hayes, 2013). As mentioned above, it offers options for testing more than one interaction together, and also provides data for visualizing the interaction graphically. The researcher used a two-moderator model (Model 3 - see **Figure 11**). This model was chosen because previous studies (e.g. English & John, 2013; Kwon et al., 2013) indicated that there is a positive relationship between collectivism and expressive suppression.

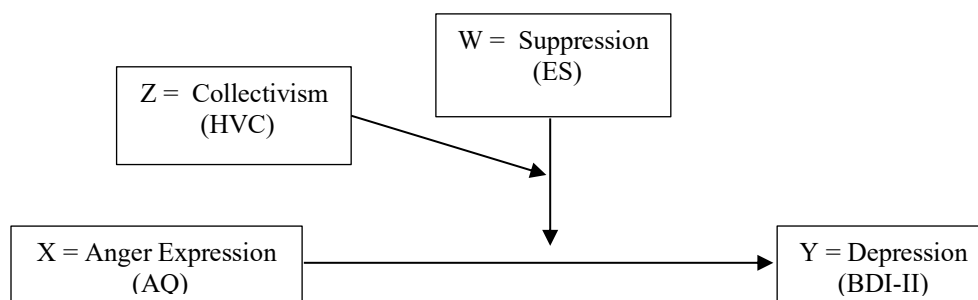


Figure 11: Conceptual Diagram of moderation effect with cognitive predictors (Hayes, 2013). Note. X = Independent variable; Z = Moderator variable; W = Moderator variable; Y = Dependent variable.

The researcher then reworded the study hypotheses to be in line with the conditional PROCESS, as shown in Figure 11. Thus, based on the previous literature (e.g., Butler et al., 2008; Abu-Kaf & Priel, 2008) who found that collectivism plays a moderating role in depression, the following hypothesis was formulated.

Anger expression will significantly predict depression, which will be moderated by expressive suppression. This moderation effect will itself be moderated by collectivism. The combination of low anger expression, high suppression and high collectivism will predict the highest depression scores.

Given that cognitive factors were significant predictors of depression in the hierarchical regression analyses, these were entered as covariates in the PROCESS model. This is to follow up the study interactions with simple slope analyses. As can be seen in Figure 11, *anger expression-out* (X box) was included as an independent variable, and *depressive symptoms* (Y box) as the dependent outcome, whereas the *expressive suppression* variable (W box) was included as a moderating variable, which changes the relation (to be stronger or weaker) between *anger expression-out* and *depression*. Likewise, the *collectivism* variable (Z box) was included as a moderating variable, which, in turn, may shape the emotion regulation strategy individuals use and change the relation between anger expression-out and depression. Gender, medication, dysfunctional attitudes (DAS) subscales, negative beliefs (BCSS) and trait anger variables were also entered as covariates in the model.

The researcher asked for a code to be generated for visualizing interaction and mean centre for construction of products, and also asked for bootstrapping of the variables. In addition, one Standard Deviation above and below the mean ($1 \pm SD$) was requested. Thus, the researcher evaluated the role of *anger expression-out* as a predictor of depressive symptoms at high, middle and low levels ($1 \pm SD$ above/below the mean) of *suppression* and *collectivism* (see Figure 11).

Table 10: Summary of PROCESS Analysis for variables predicting Depression – *with cognitive variables* (N = 305).

Variables	B	SE B	t	P	95% Confidence Interval	
					Lower	Upper
Constant	.322	.149	2.148	.0325	.027	.616
Gender	.153	.031	4.83	.000	.090	.215
Medication	-.157	.037	-4.22	.000	-.230	-.084
Success Perfectionism	.023	.018	1.25	.000	-.230	-.084
Need for Approval	.023	.015	1.46	.142	-.007	.053
Need for satisfying others	.023	.013	1.70	.088	-.003	.050
Vulnerability Performance	.060	.013	4.38	.000	.033	.087
Negative Self-Beliefs	.040	.017	2.34	.019	.006	.074
Negative Others Beliefs	.040	.017	2.28	.023	.005	.075
Trait Anger	.118	.029	3.95	.000	.059	.177
Anger Expression-Out (AO)	.089	.025	3.46	.000	.038	.140
Expressive Suppression (ES)	.062	.011	5.65	.000	.040	.084
Collectivism (HVC)	.032	.008	3.86	.000	.015	.048
Interaction – 1 AO x ES	.031	.013	2.29	.022	.004	.058
Interaction – 2 AO x HVC	.026	.011	2.41	.016	.004	.048
Interaction – 3 ES x HVC	.010	.004	2.25	.025	.001	.020
Interaction – 4 AO x ES x HVC	-.012	.004	-2.46	.014	-.021	-.002

Note $R^2 = .63$.

Table 10 shows the results of moderator analysis using PROCESS, which were similar to the results of the hierarchical multiple regression. In more detail, the outcome variable for analysis was depression. The main effect for *anger expression-out* was found to be statistically significant ($t(288) = 3.46, p < .001, 95\% \text{ CI } [.03 - .14]$), as was the *expressive suppression* effect ($t(288) = 5.65, p < .001, 95\% \text{ CI } [.04 - .08]$), and the *collectivism* effect ($t(288) = 3.86, p < .001, 95\% \text{ CI } [.01 - .04]$). The interaction between anger expression-out and expressive suppression (AO x ES) was found to be statistically significant ($t(288) = 2.29, p < .05, 95\% \text{ CI } [.00 - .05]$). Similarly, the interaction between anger expression-out and collectivism (AO x HVC) was found to be statistically significant ($t(288) = 2.41, p < .05, 95\% \text{ CI } [.00 - .04]$). As expected, the results identify expressive suppression and collectivism as positive moderators of the relationship between anger expression-out and depression. Overall model: $F(16, 288) = 31.58, p < .001, R = .79, R^2 = .63$.

The researcher ran the simple slope analyses using the PROCESS method to follow up and interpret the interaction effects (see Figure 13).

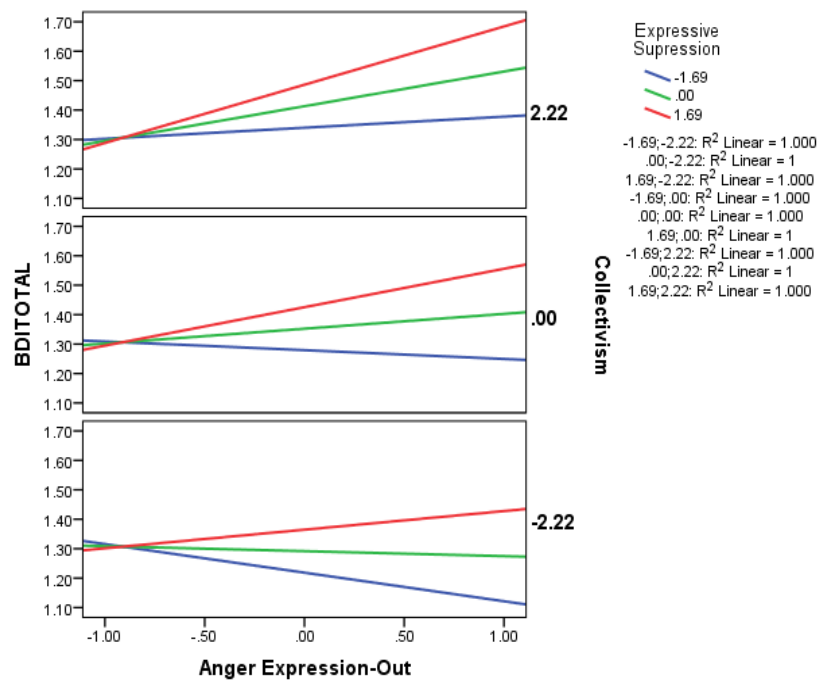


Figure 12: Simple Slopes Plot of Interaction effects between expressive suppression and collectivism on Depression, controlling for cognitive predictors

The simple slopes graph shows that there is a different direction of this relationship (opposite effect of interaction). That is, the relationship between anger expression-out and depressive symptoms is different according to the participants' levels of suppression and collectivism. For the purpose of this thesis, *suppression of anger* means the inhibition of overt expressions of anger while feeling anger internally, even when it is appropriate to express anger (Power & Dalgleish, 2008; Spielberger, 1999).

For instance, for participants with a high level of collectivism, both the higher and lower levels of anger suppression were significantly and positively associated with depressive symptoms. However, for those with a low level of collectivism, the low anger suppression was negatively associated with depressive symptoms. That is, the more anger expression they have, the less depressed they may become.

The interactions were probed by testing the conditional effects of anger suppression at three levels of collectivism: one standard deviation above the mean, at the mean, and one standard deviation below the mean.

At high levels of *collectivism*, anger expression-out was significantly and positively associated with depressive symptoms when the expressive suppression was one standard

deviation above the mean (conditional effect = .157; $t(288) = 5.14$; $p < .001$), and the confidence interval was [CI .09 - .21], at the mean (the conditional effect = .149; $t(288) = 4.41$, $p < .001$, 95% CI [.08 - .21]) and below the mean (the conditional effect = .140; $t(288) = 2.56$, $p < .01$, 95% CI [.03 - .24]), suggesting that the combination of lower anger expression out and higher anger suppression is associated with depression and that this effect is highest when collectivism is high.

Likewise, at average levels of *collectivism*, anger expression-out was significantly related to depressive symptoms when the expressive suppression was one standard deviation above the mean (the conditional effect = .142, $p < .001$, 95% CI [.07 - .21]) and when suppression was at the mean (the conditional effect = .089, $p < .001$, 95% CI [.03 - .14]), but not when suppression was one standard deviation below the mean ($p = .29$).

At low levels of *collectivism*, anger expression-out was significantly related to depressive symptoms when the suppression was one standard deviation above the mean (the conditional effect = .128, $p < .05$, 95% CI [.01 - .24]), but not when suppression was at mean levels ($p = .42$). However, anger expression-out was negatively associated with depressive symptoms when suppression was one standard deviation below the mean, but it was not significant (the conditional effect = -.068, $p = .052$, 95% CI [-.13 - .00]).

In other words, at high levels of collectivism, high suppression leads to a significant positive association between anger and depression. Thus, those who are suppressing the expression of anger, experience more depression, whereas, at low levels of collectivism, low suppression leads to a negative relationship between anger and depression, and so those who are able to express their anger more, experience less depression.

4.7.4 Third Hypothesis:

The interaction between the high level of expressive suppression and low anger expression-out ($AO \times ES$) will predict depression over what was predicted by these subscales in isolation.

In order to test this hypothesis, hierarchical multiple regressions were employed; so, in the first step, gender and medication were entered as covariants. In the second step, the IIP subscales were entered, as they have been consistently associated with depression (McEvoy et al., 2013; 2014). In the third step, trait anger and anger expression-out variables were entered to examine how they contribute to depression over the above. In the fourth step, the expressive suppression variable was entered, as it has been consistently associated with depression. In the

fifth step, the interaction of maladaptive emotion regulation (suppression) and anger expression-out ($AO \times ES$) was entered. Again, If this interaction term was found to be significantly contributing to the variance of depression scores, it was plotted using simple slope analyses to interpret the interaction effect.

Table 11: Summary of Hierarchical Regression Analysis for variables predicting Depression - third hypothesis (N = 305).

Model	Variables	B	SE B	β	t	Collinearity		ΔR^2	ΔF
						Tolerance	VIF		
Step 1	Constant	1.542	.082	-	18.85	-	-	.106	17.81***
	Gender	.153	.047	.185***	3.260	.923	1.08		
	Medication	-.291	.051	-.323***	-5.708	.923	1.08		
Step 2	Constant	1.567	.065	-	24.13	-	-	.388	28.21***
	Gender	.067	.037	.081	1.814	.859	1.16		
	Medication	-.218	.041	-.242***	-5.296	.826	1.21		
	Domineering /Controlling	.038	.026	.070	1.439	.736	1.35		
	Vindictive / Self-Centred	.060	.020	.150**	3.032	.703	1.42		
	Cold / Distant	.041	.025	.091	1.664	.571	1.75		
	Socially Inhibited	.070	.023	.166**	3.025	.572	1.75		
	Non-assertive	.081	.024	.160***	3.426	.785	1.27		
	Overly Accommodating	.085	.025	.158***	3.452	.826	1.21		
	Self-Sacrificing	.069	.024	.129**	2.838	.830	1.20		
	Intrusive / Needy	.063	.024	.123*	2.570	.758	1.32		
	Constant	1.420	.064	-	22.04	-	-	.068	22.67***
Step 3	Gender	.101	.035	.122**	2.896	.840	1.19		
	Medication	-.140	.040	-.155***	-3.484	.755	1.32		
	Domineering /Controlling	.013	.025	.023	.503	.712	1.40		
	Vindictive / Self-Centred	.056	.019	.139**	2.998	.697	1.43		
	Cold / Distant	.026	.023	.058	1.127	.565	1.76		
	Socially Inhibited	.057	.022	.135**	2.611	.563	1.77		
	Non-assertive	.082	.022	.163***	3.711	.778	1.28		
	Overly Accommodating	.057	.023	.106*	2.438	.800	1.25		
	Self-Sacrificing	.049	.023	.093*	2.155	.807	1.23		
	Intrusive / Needy	.064	.023	.125**	2.807	.751	1.33		
	Trait Anger	.166	.033	.237***	5.090	.693	1.44		
	Anger Expression-Out (AO)	.079	.023	.145***	3.401	.821	1.21		
	Constant	1.417	.063	-	22.46	-	-	.020	13.95***
	Gender	.110	.034	.133**	3.204	.836	1.19		
Step 4	Medication	-.146	.039	-.162***	-3.720	.754	1.32		
	Domineering /Controlling	.008	.024	.015	.329	.710	1.40		
	Vindictive / Self-Centred	.054	.018	.134**	2.957	.697	1.43		
	Cold / Distant	.019	.023	.041	.819	.561	1.78		
	Socially Inhibited	.055	.021	.131*	2.595	.563	1.77		
	Non-assertive	.072	.022	.142***	3.280	.765	1.30		
	Overly Accommodating	.050	.023	.093*	2.176	.794	1.25		
	Self-Sacrificing	.049	.022	.092*	2.188	.807	1.23		
	Intrusive / Needy	.063	.022	.123**	2.816	.751	1.33		
	Trait Anger	.169	.032	.242***	5.306	.692	1.44		
	Anger Expression-Out (AO)	.067	.023	.124**	2.947	.806	1.24		
	Expressive Suppression (ES)	.036	.010	.151***	3.736	.874	1.14		
	Constant	1.470	.060	-	24.32	-	-	.044	34.20***
	Gender	.087	.033	.105**	2.659	.824	1.21		
Step 5	Medication	-.176	.038	-.195***	-4.681	.740	1.35		
	Domineering /Controlling	.026	.023	.047	1.102	.698	1.43		
	Vindictive / Self-Centred	.040	.017	.099*	2.280	.683	1.46		
	Cold / Distant	.020	.022	.043	.904	.561	1.78		
	Socially Inhibited	.062	.020	.146**	3.050	.561	1.78		
	Non-assertive	.068	.021	.135***	3.282	.764	1.30		
	Overly Accommodating	.027	.022	.051	1.236	.770	1.29		
	Self-Sacrificing	.046	.021	.086*	2.148	.806	1.24		
	Intrusive / Needy	.049	.021	.095*	2.285	.741	1.35		
	Trait Anger	.141	.031	.202***	4.611	.675	1.48		
	Anger Expression-Out (AO)	.066	.022	.122**	3.061	.806	1.24		
	Expressive Suppression (ES)	.040	.009	.165***	4.286	.871	1.14		
	Interaction of AO & ES	.062	.011	.229***	5.848	.837	1.19		

Notes. All variables were centred; ΔR^2 = R Square Change; ΔF = F Change; *** p < .001, ** p < .01, * p < .05, All p -values are two-tailed.

Table 11 shows the regression equation of the third hypothesis with significant variables for the inventory of interpersonal problems (IIP-32), anger, and expressive suppression, with the Beck Depression Inventory (BDI-II) as the dependent variable.

The overall model of the third hypothesis (see Appendix 34) showed that the predictors were significant in predicting the Beck Depression Inventory (BDI-II) total score ($0.000, p < .001$). In the second step, the IIP variables accounted for 49% of the variance in depression ($R^2 = .49, F(8, 294) = 28.217, p < .001$). In the third step, Anger variables accounted for an additional 7% of variance in depression ($F(2, 292) = 22.677, p < .001$), with an R^2 of .562. In the fourth step, adding the *expressive suppression* variable to the regression model explained an additional 2% of the variation in depression, 95% [CI .01 - .05].

However, in step five, the interaction variable ($AO \times ES$) accounted for 4% of the variance in depression ($F(1, 290) = 34.205, p < .001$); total $R = .791, R^2 = .626$, adj. $R^2 = .608$. This result indicates that this model explained 62% of depression, which supports the third hypothesis. The interpersonal component explained more variance in depression over and above cognitive factors, indicating that the interpersonal component is very important in contributing to depressive symptoms. Likewise, it indicates that the dysregulation of anger is an important predictor of depressive symptoms, especially in social contexts.

4.7.5 Fourth Hypothesis:

The interaction between high collectivism and low anger expression ($AO \times HVC$) will predict depression over what has been predicted by collectivism and anger expression-out in isolation.

In order to examine this hypothesis, hierarchical multiple regressions were employed. In the first step, *gender* and *medication* were entered as covariants. In the second step, the inventory of interpersonal problems (IIP-32) subscale scores were entered. In the third step, *trait anger* and *anger expression-out* subscales were entered. In the fourth step, the *collectivism* variable was entered. In the fifth step, the *interaction* variable ($AO \times HVC$) was entered. If this interaction term was found to be significantly contributing to the variance of depression scores, it was plotted using simple slope analyses to interpret its effect.

Table 12: Summary of Hierarchical Regression Analysis for variables predicting Depression - fourth hypothesis (N = 305)

Model	Variables	B	SE B	β	t	Collinearity		ΔR^2	ΔF
						Tolerance	VIF		
Step 1	Constant	1.542	.082	-	18.85	-	-	.106	17.81***
	Gender	.153	.047	.185***	3.260	.923	1.08		
	Medication	-.291	.051	-.323***	-5.708	.923	1.08		
Step 2	Constant	1.567	.065	-	24.13	-	-	.388	28.21***
	Gender	.067	.037	.081	1.814	.859	1.16		
	Medication	-.218	.041	-.242***	-5.296	.826	1.21		
	Domineering /Controlling	.038	.026	.070	1.439	.736	1.35		
	Vindictive / Self-Centred	.060	.020	.150**	3.032	.703	1.42		
	Cold / Distant	.041	.025	.091	1.664	.571	1.75		
	Socially Inhibited	.070	.023	.166**	3.025	.572	1.75		
	Non-assertive	.081	.024	.160***	3.426	.785	1.27		
	Overly Accommodating	.085	.025	.158***	3.452	.826	1.21		
	Self-Sacrificing	.069	.024	.129**	2.838	.830	1.20		
	Intrusive / Needy	.063	.024	.123*	2.570	.758	1.32		
Step 3	Constant	1.420	.064	-	22.04	-	-	.068	22.67***
	Gender	.101	.035	.122**	2.896	.840	1.19		
	Medication	-.140	.040	-.155***	-3.484	.755	1.32		
	Domineering /Controlling	.013	.025	.023	.503	.712	1.40		
	Vindictive / Self-Centred	.056	.019	.139**	2.998	.697	1.43		
	Cold / Distant	.026	.023	.058	1.127	.565	1.76		
	Socially Inhibited	.057	.022	.135**	2.611	.563	1.77		
	Non-assertive	.082	.022	.163***	3.711	.778	1.28		
	Overly Accommodating	.057	.023	.106*	2.438	.800	1.25		
	Self-Sacrificing	.049	.023	.093*	2.155	.807	1.23		
	Intrusive / Needy	.064	.023	.125**	2.807	.751	1.33		
	Trait Anger	.166	.033	.237***	5.090	.693	1.44		
	Anger Expression-Out (AO)	.079	.023	.145***	3.401	.821	1.21		
Step 4	Constant	1.420	.064	-	22.34	-	-	.013	9.19***
	Gender	.100	.034	.121**	2.908	.840	1.19		
	Medication	-.139	.040	-.154***	-3.501	.755	1.32		
	Domineering /Controlling	.005	.025	.010	.210	.705	1.41		
	Vindictive / Self-Centred	.057	.018	.142**	3.113	.697	1.43		
	Cold / Distant	.022	.023	.049	.954	.563	1.77		
	Socially Inhibited	.059	.021	.139**	2.731	.563	1.77		
	Non-assertive	.076	.022	.150***	3.451	.771	1.29		
	Overly Accommodating	.059	.023	.108*	2.536	.799	1.25		
	Self-Sacrificing	.046	.023	.087*	2.053	.806	1.24		
	Intrusive / Needy	.064	.023	.125**	2.829	.751	1.33		
	Trait Anger	.156	.032	.224***	4.851	.686	1.45		
	Anger Expression-Out (AO)	.061	.024	.113*	2.587	.770	1.29		
	Collectivism (HVC)	.023	.008	.127***	3.032	.830	1.20		
Step 5	Constant	1.432	.060	-	23.76	-	-	.044	33.83***
	Gender	.087	.033	.106**	2.666	.836	1.19		
	Medication	-.158	.038	-.175***	-4.184	.750	1.33		
	Domineering /Controlling	.022	.024	.040	.929	.694	1.44		
	Vindictive / Self-Centred	.043	.018	.107*	2.432	.683	1.46		
	Cold / Distant	.010	.022	.022	.459	.558	1.79		
	Socially Inhibited	.069	.020	.164***	3.387	.558	1.79		
	Non-assertive	.070	.021	.140***	3.389	.769	1.30		
	Overly Accommodating	.049	.022	.091*	2.246	.795	1.25		
	Self-Sacrificing	.045	.021	.085*	2.109	.805	1.24		
	Intrusive / Needy	.050	.022	.098*	2.324	.742	1.34		
	Trait Anger	.124	.031	.177***	3.990	.664	1.50		
	Anger Expression-Out (AO)	.048	.022	.088*	2.133	.762	1.31		
	Collectivism (HVC)	.039	.008	.216***	5.076	.723	1.38		
	Interaction of AO & HVC	.054	.009	.238***	5.817	.782	1.27		

Notes. All variables were centred; ΔR^2 = R Square Change; ΔF = F Change; *** p < .001, ** p < .01, * p < .05, All p -values are two-tailed.

Table 12 shows the hierarchical multiple regression equations of the fourth hypothesis with significant variables for the inventory of interpersonal problems (IIP-32), anger, and collectivism, with the Beck Depression Inventory (BDI-II) as the dependent variable.

Again the interaction between *anger expression-out* and *collectivism* variables ($AO \times HVC$) had a higher t value than the other predictors ($t = 5.82, p < .001, 95\% \text{ CI } [.03 - .07]$), followed by the *Collectivism* and *trait anger* variables ($t = 5.08, p < .01, 95\% \text{ CI } [.02 - .05]$) and ($t = 3.99, p < .01, 95\% \text{ CI } [.06 - .18]$), respectively. These results indicate that *anger* and *dysregulation of anger* were the most important predictors of depression, especially within interpersonal contexts and contributed more to depression than the other variables.

The overall model for the fourth hypothesis (see Appendix 35) included significant predictors of the Beck Depression Inventory (BDI-II) total score. The results from steps 1, 2 and 3 remained the same as for the third hypothesis in terms of the amount of variance explained. In step four, adding the *Collectivism* variable accounted for 57% of the variance in depression ($R^2 = .575, F(1, 291) = 9.20, p < .01$).

However, in the fifth step, there was a significant hierarchical multiple regression equation ($F(1, 290) = 33.839, p < .001$) and the interaction between *anger expression-out* and *collectivism* accounted for an additional 4% of variance explained. As expected theoretically, this variable added a small amount of variance in depression (total $R = .787, R^2 = .620, \text{adj. } R^2 = .601$). These results indicate that this model explains 62% of depression scores, which supports the fourth hypothesis. The interaction results presented for hypotheses three and four will be analysed with simple slopes analysis in the next section.

4.7.6 Interaction Effects with Interpersonal Predictors: Simple Slope Analysis

Simple slope analysis was used to probe the interaction by testing the conditional effects of anger suppression at three levels of collectivism: one standard deviation above the mean, at the mean, and one standard deviation below the mean.

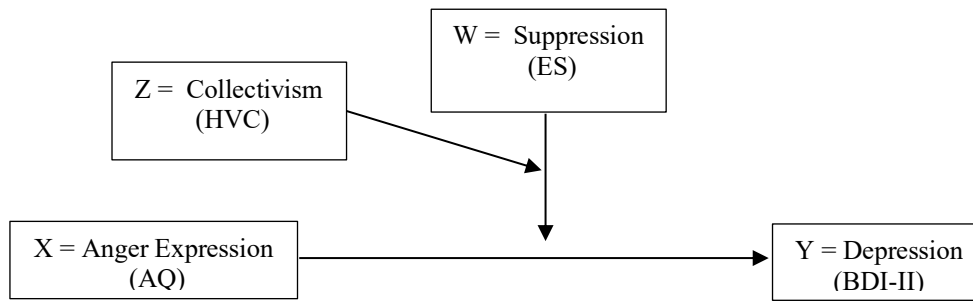


Figure 13: Conceptual Diagram of moderation effect with interpersonal predictors (Hayes, 2013). Note. X = Independent variable; Z = Moderator variable; W = Moderator variable; Y = Dependent variable.

Similarly, a PROCESS regression (Model 3) was run (see Table 13), with the same as procedure as explained above, but interpersonal predictors were added as covariants instead of cognitive predictors.

Table 13: Summary of PROCESS Analysis for variables predicting Depression – *with interpersonal variables* (N = 305)

Variables	B	SE B	t	P	95% Confidence Interval	
					Lower	Upper
Constant	.581	.119	4.87	.000	.346	.816
Gender	.080	.031	2.57	.010	.019	.142
Medication	-.185	.036	-5.14	.000	-.256	-.114
Domineering /Controlling	.030	.022	1.35	.175	-.013	.074
Vindictive / Self-Centred	.031	.016	1.88	.060	-.001	.064
Cold / Distant	.008	.020	.418	.675	-.032	.050
Socially Inhibited	.063	.019	3.28	.001	.025	.101
Non-assertive	.044	.020	2.21	.027	.005	.084
Overly Accommodating	.024	.021	1.15	.250	-.017	.066
Self-Sacrificing	.047	.020	2.33	.020	.007	.087
Intrusive / Needy	.050	.020	2.47	.014	.010	.091
Trait Anger	.108	.029	3.65	.000	.050	.167
Anger Expression-Out (AO)	.085	.024	3.45	.000	.036	.134
Expressive Suppression (ES)	.049	.010	4.54	.000	.028	.071
Collectivism (HVC)	.031	.008	3.94	.000	.015	.047
Interaction – 1 AO x ES	.027	.013	2.05	.041	.001	.054
Interaction – 2 AO x HVC	.027	.010	2.56	.010	.006	.048
Interaction – 3 ES x HVC	.010	.004	2.29	.022	.001	.020
Interaction – 4 AO x ES x HVC	-.011	.004	-2.48	.013	-.020	-.002

Note $R^2 = .66$.

Table 13 shows the results of moderator analysis using PROCESS. The outcome variable for analysis was depression. The main effect for *anger expression-out* was found to be statistically significant ($t(286) = 3.45, p < .001, 95\% \text{ CI } [.03 - .13]$), as was the expressive *suppression* effect ($t(286) = 4.54, p < .001, 95\% \text{ CI } [.02 - .07]$), and the *collectivism* effect ($t(286) = 3.94, p < .001, 95\% \text{ CI } [.01 - .04]$). The interaction effect of suppression (AO x ES) on depressive symptoms was statistically significant ($t(286) = 2.05, p < .05, 95\% \text{ CI } [.00 - .05]$). Similarly, the interaction effect of collectivism (AO x HVC) on depressive symptoms was statistically significant ($t(286) = 2.56, p < .05, 95\% \text{ CI } [.00 - .04]$). For the overall model: $F(18, 286) = 31.48, p < .001, R = .81, R^2 = .66$.

Again, these interaction terms were plotted using simple slopes analysis to interpret the interaction effect (see Figure 14).

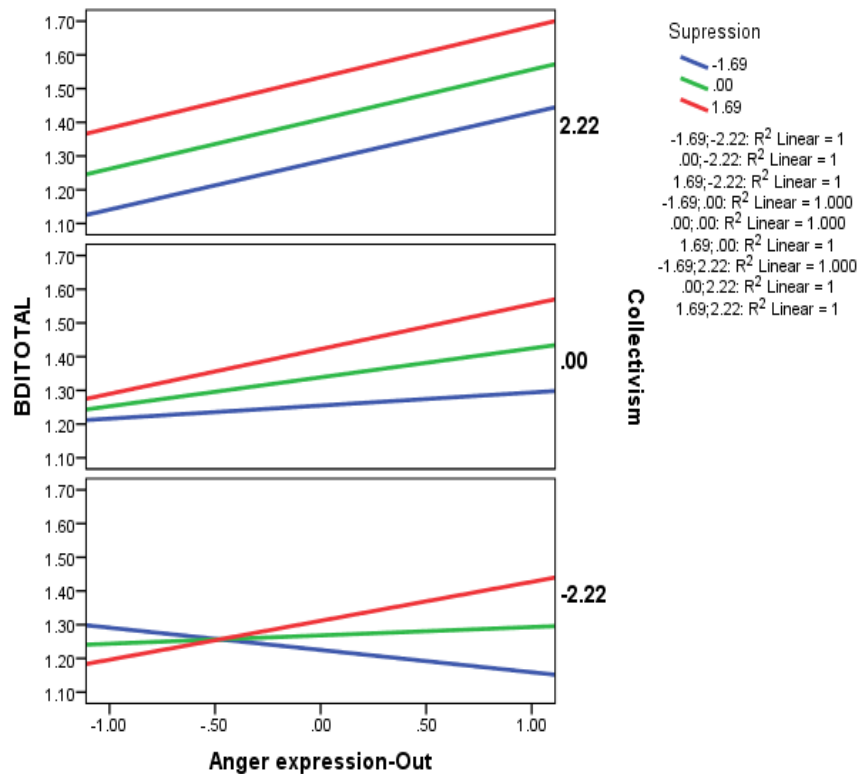


Figure 14: Simple Slopes Plot of Interaction effects between expressive suppression and collectivism on Depression, controlling for Interpersonal Predictors.

The simple slope graph shows results that are similar to the results for simple slopes, with cognitive predictors controlled for. That is, there is a different direction of this relationship (opposite effect of interaction) according to the participants' levels of suppression and collectivism.

The interactions were probed by testing the conditional effects of anger expression at three levels of collectivism, one standard deviation above the mean, at the mean, and one standard deviation below the mean.

At high levels of *collectivism*, anger expression was significantly and positively related to depressive symptoms when the suppression was one standard deviation above the mean (the conditional effect = .150; $t(286) = 4.94$, $p < .001$, 95% CI [.09 - .21]), at the mean (the conditional effect = .147; $t(286) = 4.52$, $p < .001$, 95% CI [.08 - .21]) and below the mean (the conditional effect = .143; $t(286) = 2.75$, $p < .01$, 95% CI [.04 - .24]).

At average levels of *collectivism*, anger expression was significantly and positively associated with depressive symptoms when the suppression was one standard deviation above

the mean (the conditional effect = .133; $t(286) = 3.86, p < .001$, 95% CI [.06 - .20]), at the mean (the conditional effect = .085; $t(286) = 3.45, p < .001$, 95% CI [.03 - .13]), but not when suppression was one standard deviation below the mean ($p = .24$).

However, at low levels of *collectivism*, anger expression was only significantly and positively associated with depressive symptoms when the suppression was one standard deviation above the mean (the conditional effect = .115; $t(286) = 2.02, p < .05$, 95% CI .00 - .22]). Importantly, when the suppression was one standard deviation below the mean, anger expression was negatively associated with depressive symptoms, but it was not significant ($p = .054$), indicating that the more anger expression participants have, the less depressed they may become. These results suggest that expressing anger in adaptive way may reduce the level of depressive symptoms, and that these outcome are influenced by cultural context.

4.8 Conclusion

In the present study, the interaction variables represent the suppression of anger. Thus, the interaction variable included the combination of high levels of anger and an expressive suppression strategy. As explained above, the present results provide support to the study's hypotheses by showing the association between suppression of anger and depressive symptoms. These results indicate that participants with depressive symptoms have difficulties in regulating their anger. Thus, individuals who feel anger, but suppress its expression, are more likely to score higher on measures of depressive symptoms.

CHAPTER 5: Study 2 Discussion

This chapter will explain and discuss the results of the statistical analyses. The results will be explained in light of the research hypotheses in relation to the predictors of the cognitive model of depression and the predictors of interpersonal problems. The clinical implications will be suggested. Subsequently, recommendations for future research will be provided, followed by a discussion of the strengths and limitations of the research and the concluding remarks.

5.0 Introduction

This study aimed to examine how the interaction between expressive suppression and anger expression-out as well as the interaction between collectivism and anger expression-out variables provides an enhanced understanding of depression compared to more established predictors, namely anger, expressive suppression, dysfunctional attitudes, negative core beliefs, interpersonal problems and trait anger in isolation. As mentioned above, the interaction terms define dysregulation of anger as a combination of high anger and expressive suppression. That is, individuals with symptoms of depression may feel anger internally, but they may make an effort to inhibit the expressive components of angry responses, which in turn may contribute to depressive symptoms. The purpose was to gain a better understanding of the impact coping strategies have on depression in individuals with symptoms of depression. This is to add more dimensions to the current explanations of the cognitive model of depression, which tend to focus more on the effects of negative cognitions and does not take into account interpersonal problems, emotions and emotion regulation strategies (Busch, 2009; McEvoy et al., 2013b; Power, 2010).

The proposed interactional model may contribute to our growing understanding of the potential impact of interpersonal and emotional components on depression in individuals with depressive symptoms. Thus, this research may potentially expand the current theoretical model of depression by considering interpersonal aspects, especially in relation to anger. Consequently, the proposed interactional model may contribute in developing potential intervention strategies relating to emotion regulation in individuals with symptoms of depression. That is, the maladaptive use of emotion regulation strategies could be taken into account in planning the potential interventions. The results obtained from the present data provide empirical support for the current research hypotheses, as will be discussed later.

5.1 Gender Differences

Although gender was not included as a variable in the current study design, it is important to take into account the potential gender effect in the study's analyses. In fact, males and females may differ in their expression of emotional states and behaviours (Davis et al., 2012). These differences are reflected by the present findings, in some of the study's questionnaires, which showed a few significant differences between men and women according to their scores on the State-Trait Anger Expression Inventory (STAXI-2); Emotion Regulation Questionnaire (ERQ); Dysfunctional Attitudes Scale (DAS-26); and the Inventory of Interpersonal Problems (IIP-32). For instance, an independent samples t-test showed that the Saudi men reported significantly higher levels of *trait anger* than females. Similarly, Saudi men scored significantly higher on the *anger expression-out* in comparison to women, indicating that men express their anger either verbally and/or physically more than women. This result is consistent with the work of Deffenbacher and his colleagues (1996), who administered a set of questionnaires including the STAXI and the BDI to a student sample and found that men reported significantly higher levels of anger expression than women.

However, these results contradict the work of Simon and Lively (2010), who found that females reported more intense and persistent anger than males. These differences could be explained by the different questionnaires and culture. On the other hand, both their findings and those in the current research contrast with the work of others (e.g., Birditt & Fingerman, 2003; Kopper & Epperson, 1996; Liverant et al., 2008; Stimmel et al., 2005), who found no significant gender differences in the experience and/or expression of anger. For example, the present results contrast with the findings of Birditt and Fingerman (2003) who expected that men would report more anger than women, but found no gender differences in reports of the experience of anger. The present results also showed that women scored significantly higher on the *vulnerable performance* subscale, in comparison to men. Likewise, the female group scored significantly higher on the *intrusive/needy* subscale, in comparison to the male group.

The Saudi men and women did not differ significantly on the symptoms of depression, although women in the current study's sample reported slightly higher levels of depressive symptoms than men. These findings are consistent with previous research (e.g., Al-Otaibi et al., 2007; Thomas & Alterab, 2012) which used the same Arabic version of the BDI-II in Arabic countries and found that women reported higher levels of depressive symptoms than did men. Similar results have been reported in many countries in previous research (e.g.,

Galambos et al., 2006; Flynn, Hollenstein & Mackey, 2010; Kwon et al., 2013; Simon & Lively, 2010; Stimmel et al., 2005; Wong, 2012).

However, in the contrast to the current findings, Kwon et al. (2013) also found that in a Korean group, women reported significantly more depressive symptoms than men. Their finding corroborates the work of Stimmel et al. (2005), who assessed depressive symptoms by the Symptom Checklist-90-R scale (SCL-90-R; Derogatis, 1994). These differences may be due to the different measurements used, different groups and also because of the cultural differences.

With regard to depressive symptoms for the whole study sample in the present study, the mean value on the BDI-II was 29.03, and the standard deviation was 8.52, indicating that the Saudi sample reported a moderate level of depressive symptoms. This may be because most of the participants (71.8%) were taking antidepressant medication (see Appendix 23), which in turn may reduce their level of their depression. This finding was relatively similar to the other studies conducted in the Kingdom of Saudi Arabia. Sixty percent of Saudi respondents who suffered from depressive disorder in the present study were male. This gender imbalance could be due to the fact that the researcher is a man and due to cultural restrictions, the researcher had difficulty accessing female patients.

The results of the current study showed higher levels of depressive symptoms in comparison to those recently reported by the Al-Shehri and his colleagues (2012), who assessed the magnitude of depression level among 822 adult male attendees at Primary Health Care Centres (PHCCs) in Eastern Saudi Arabia. This difference may be attributed to a different scale and sample. However, the levels of depression in the current study were similar to those reported in a recent study conducted in Germany by Beblo et al. (2012), who found that the depressed sample reported moderate to severe levels of depression, and the mean value on the BDI was 26.0 ($SD = 13.2$).

In terms of using expressive suppression strategy, women reported they used suppression slightly more (mean of 16.9) than men (mean of 16.7), but this was not significant. This result contradicts the findings of previous research (e.g., Flynn et al., 2010; Haga et al., 2009; Kwon et al., 2013; Masumoto, Taishi & Shiozaki, 2016), indicating that men used suppression strategy more than women. Perhaps this was because of the cultural differences, the sample population and social norms. This would be in line with previous research (e.g., Kwon et al., 2013), which indicated that individuals' management of their emotions depends on their cultural values.

5.2 Hierarchical Multiple Regression Analysis

In the current study, it was hypothesised that 1) the interaction between *expressive suppression* and *anger expression-out* ($AO \times ES$), as well as 2) the interaction between *collectivism* and *anger expression-out* ($AO \times HVC$) factors would contribute to the variance in depression over and above what has predicted by these known predictors in isolation. Therefore, these hypotheses were examined separately with predictors of the cognitive model of depression, and then with predictors of the interpersonal problems of depression. After that, simple slopes analyses (PROCESS method) were used to follow up and interpret the significant interaction effects.

As mentioned, the researcher examined these hypotheses separately with cognitive predictors, and with interpersonal predictors because, to the author's knowledge, previous research which studied cognitive variables (e.g., Beblo et al., 2012; Besharat et al., 2013), did not take into consideration interpersonal variables, and consequently, did not combine cognitive and interpersonal predictors in one regression analysis, as they regarded the interpersonal predictors as not being part of the cognitive model. Thus, four linear hierarchical multiple regression analyses were performed to examine the associations between the interaction terms ($AO \times ES$ and $AO \times HVC$) and the BDI-II as continuous dependent variables. The first and second hypotheses were examined separately with the cognitive predictors, whereas the third and fourth hypotheses were examined separately with the interpersonal predictors. The data provided empirical support for the hypotheses.

5.2.1 Interaction Effects with Cognitive Predictors

5.2.1.1 First Hypothesis

With regard to the predictors of the cognitive model, it was hypothesized that (*Hypothesis 1*): the interaction between high expressive suppression and low anger expression-out ($AO \times ES$) would contribute to the variance of depression over and above what has been predicted by expressive suppression and anger expression-out in isolation.

To examine this hypothesis, gender and medication were entered alone as covariates in the first step of each hierarchical regression to control for their effects. Dysfunctional attitudes predictors were entered in the second step to examine how they explained depression. In the third step, negative schematic beliefs (BCSS) were entered to examine how they predicted the scores on the BDI-II. Trait anger and anger expression-out were entered in the fourth step to learn how it explained depression. In the fifth step, expressive suppression

variable was entered, as it has been consistently associated with depression. In the last step (6), the interaction variable ($AO \times ES$) was entered to learn whether it predicted unique variance in the BDI-II.

As expected, the results showed that in steps one to five of the regression model, well established predictors of depression (dysfunctional attitudes, negative self schemas, anger and expressive suppression) did indeed predict depression in this Saudi Arabian sample. In the sixth step, the interaction between expressive suppression and anger expression-out ($AO \times ES$) was further significant predictor, adding 5% to the variance explained in depressive symptoms. This supports the study's primary hypothesis. Even though this effect size was small, the findings theoretically add to the current literature and highlight the importance of the interaction variable ($AO \times ES$) as a significant factor in developing depression. The final model, including the interaction variable, accounted for 59% of the variance in depression. According to the researcher's knowledge, this was the first study to find that the interaction between anger expression-out and expressive suppression was significantly associated with symptoms of depression. These results suggest that the tendency not to express (use expressive suppression) negative feelings, especially anger, may be among the important components of depression. In other words, the dysregulation of anger has significant association with depression, and this interaction contributes to level of depressive symptoms. This result indicates that the emotion regulation component, particularly the regulation of anger, is an important factor in the cognitive model of depression and could be considered when dealing with depressive disorder, because the successful regulation of anger could decrease the symptoms of depression.

The present results are in accordance with previous research (e.g., Chowdhury & Gupta, 2014; Oliver et al., 2007; Thomas & Alterab, 2012; Köhler, Unger, Hoffmann, Mackert, Ross & Fydrich, 2015; Wong, Chan & Lau, 2008 & 2010), which indicated that an individual who scored high on the DAS scale tends to score high on the BDI scale. Therefore, the current study extends this conclusion to Saudi adults with symptoms of depression. That is, the current study's results indicated that dysfunctional thinking may play an important role in depression in the Kingdom of Saudi Arabia.

The negative self-beliefs subscale had more association with depression than the negative others beliefs subscale and added an extra 5% to the explained variance in depression (see Table 8). The present findings are consistent with previous research (e.g., Sahin et al., 2011; Wong, 2012), who found that negative beliefs were significant predictors of depression.

These results suggest that further studies in the Saudi context are needed to explore the role of negative other beliefs on depression.

Likewise, the addition of anger scores, particularly the *trait anger* subscale explained a significant additional percentage of 8% of the variance in depression scores. This finding was consistent with previous studies which found a strong correlation between trait anger and depressive symptoms in both clinical (e.g., Chowdhury & Gupta, 2014; Rude et al., 2012) and normal populations (e.g., Balsamo, 2013; Deffenbacher et al., 1996; Genuchi & Valdez, 2015; Simon & Lively, 2010; Stimmel et al., 2005). The current study, therefore, extends the findings of previous research which has associated anger with depression by showing that anger is associated with the symptoms of depression in adults with depressive symptoms in Saudi Arabia.

Perhaps it is the holding of self critical beliefs (i.e. attack and anger/loathing of the self) that leads to the experience of high trait anger. This is possible, as previous research (e.g., Wong, 2012) found that these negative beliefs and dysfunctional attitudes were highly positively correlated with trait anger. In fact, the Pearson correlation results in the current study showed a positive association between negative schematic beliefs, dysfunctional attitudes and trait anger in Saudi participants who suffered from depressive disorder. These results may indicate that participants with depressive symptoms who have dysfunctional cognitions may have a high tendency to interpret information distortedly and negatively, which in turn may lead them to the experience of anger which may contribute to depression (Asberg, 2013; Chowdhury & Gupta, 2014). Further investigation between these variables is necessary to understand depression in more depth.

According to the literature, individuals who have high levels of trait anger were expected to express their anger using outwardly negative expression styles (Deffenbacher et al., 1996; Deffenbacher et al., 2005; Kassino et al., 2002; Spielberger, 1999). However, in the present study, the participants with depressive symptoms reported low mean scores on the anger expression-out subscale compared to trait anger subscale scores. These results indicate that the Saudi participants who suffered from a depressive disorder struggled with the expression of anger (Busch, 2009; Luutonen, 2007) and showed a lack of anger expression. This suggests that the individuals were using an expressive suppression strategy that did not allow them to express their anger, which in turn led them to feel an incongruence between self and behaviour (Gross & John, 2003; Gross et al., 2006), which may, in turn, have led to developing depression (Chu, 2014). This finding was consistent with previous literature (e.g., Allan & Gilbert, 2002; Chaplin, 2006; Goldman & Haaga, 1995; Rude et al., 2012) that has

shown that individuals with depressive symptoms do not express their anger outwardly when they experience anger. These findings indicated that inappropriate inhibition of anger (dysregulated anger) could lead to depressive symptoms (Chaplin, 2006; Germain & Kangas, 2015).

The results of the current study indicate that the participants who suffered from a depressive disorder in Saudi Arabia were using an expressive suppression strategy more than a cognitive reappraisal strategy. Adding the *expressive suppression* score the fifth step accounted for 55% of the variance in depression, which adds an extra 4% of the variance explained in depression. These findings were in line with those of previous studies (e.g., Campbell-Sills et al. 2006; D'Avanzato et al., 2013; Joormann & Gotlib, 2010). Therefore, it can be suggested that individuals who try hard to not express (using expressive suppression) their anger even though they feel very angry, will present symptoms of depression. However, individuals who suppress their anger (the expression of anger) but have good emotion regulation abilities, such as cognitive reappraisal, may not experience depression (Joormann & Gotlib, 2010; Joormann & Vanderlind, 2014).

Nevertheless, further studies in this area are needed to better understand the mechanisms of depression in depth. In fact, we suppose that participants with symptoms of depression suppressed their anger because they scored high on both trait anger and expressive suppression subscales and scored low on the anger expression-out subscale. However, we can only assume that participants were not suppressing but regulating their negative emotions if they also scored high on the adaptive emotion regulation strategy subscale, including cognitive reappraisal. That is, the increased use of expressive suppression was associated with higher scores on the BDI-II in individuals with depressive symptoms, while increased use of reappraisal strategy was related to lower BDI scores, as cognitive reappraisal occurs early on and uses cognitive processes to alter the generated emotion. In addition, a reappraisal strategy helps individuals handle dysfunctional cognition (Vanderhasselt et al., 2014). Therefore, it is likely to reduce both the feeling and expression of negative emotions, especially anger (Gross, 2002; Germain & Kangas, 2015; Vanderhasselt et al., 2014).

However, with regard to anger expression, the current study's findings appear to contradict some previous findings, which indicated that individuals who scored high on trait anger also scored high on anger expression-out (e.g., Deffenbacher et al., 1996; Deffenbacher et al., 2005; Koh et al., 2005; Spielberger, 1999; Tafrate et al., 2002). These differences could be explained by different questionnaires, samples and cultures. For example, in their study in the United States, Deffenbacher and his colleagues (2005) found that individuals who have

high trait anger scored highly on both trait anger and anger expression-out subscales and they reported that they were less likely to express their anger in an adaptive way. This difference could be due to the sample differences, as they used a student sample, and to cultural differences. In addition, this cultural factor was illustrated in a recent cross-cultural study, Smith and colleagues (2016) conducted a study to examine the relationships between anger expression (measured by the STAXI) and depression (measured by the CES-D, Radloff, 1977) in different cultures, classified as: a) face cultures (Hong Kong and China); b) honour cultures (Turkey and Pakistan); and c) dignity cultures (United Kingdom and Finland). They found that the expression of anger outwardly significantly predicted high levels of depression in honour cultures in comparison to the other samples. These studies highlight the importance of emotion regulation strategies as a consideration in the treatment of depression (Joormann & Vanderlind, 2014).

As mentioned above, in the current study's sample, the negative schematic beliefs were significantly positively correlated with both anger and expressive suppression variables. This suggests that individuals who have high levels of dysfunctional attitudes regarding how others perceive them are less likely to express their emotions. This result has been reported in different countries (e.g., Chowdhury and Gupta, 2014; Josephs et al., 2003; Vanderhasselt et al., 2014). One possible interpretation for why individuals with symptoms of depression suppress their anger may be because of their negative beliefs about anger as an unwanted negative emotion in their culture and also to preserve their relationship with others (Butler et al., 2007; De Leersnyder, Boiger & Mesquita, 2013). It is also possible that when individuals experience anger, they then judge themselves as wrong and not fitting with cultural expectation and they try to suppress their anger. Thus, this self-criticism could be the factor that leads to depression (Abi-Habib & Luyten, 2013).

This is in line with the work of Campbell-Sills and her colleagues (2006) who found that these beliefs mediated the relationship between emotion suppression and depressive symptoms. In fact, Goldman and Haaga (1995) suggested that individuals with depressive symptoms do not express their anger while they feel it, due to the fear of consequences of such expression. Thus, they examined this suggestion and they found that individuals with depressive symptoms showed higher levels of fear of expressing anger than the control group; they also found that anger suppression highly correlated with the fear of anger expression. This may explain the inconsistency in findings for the lower level of expressed anger in individuals with symptoms of depression in some studies (Painuly, Sharan & Mattoo, 2005). In fact, more research is needed, especially in the Saudi context to further our understanding about emotion

regulation and depressive symptoms. In addition, this study should be replicated with a healthy population to compare the results across samples.

This present result suggested that emotion regulation strategies play an important role in the current cognitive model of depression and the tendency to not express anger outwardly (use expressive suppression strategy) was an indicator of depressive symptoms.

5.2.1.2 Second Hypothesis

It was hypothesised that the interaction between high collectivism and low anger expression-out ($AO \times HVC$) would contribute to the variance of depression over and above what has been predicted by collectivism and anger expression-out in isolation. The researcher entered the predictors for this hypothesis in the same order used in the first hypothesis, but the *collectivism* variable was entered in the fifth step in place of *expressive suppression*. In addition, the interaction variable ($AO \times HVC$) was used as independent variable in the last step in place of ($AO \times ES$).

As expected, the findings of the current study supported the second hypothesis, as the hierarchical multiple regression analyses showed that the interaction between anger expression-out and collectivism ($AO \times HVC$) was significantly associated with depression. The final model accounted for 57% of the variance in depression (see Appendix 33). As can be seen in Table 9, the addition of the interaction variable in the last step explained a significant additional percentage of the variance (approximately 5%) in depression scores. This finding indicated that the Saudi participants, who generally held collectivist values reported suppressing emotions more often in daily life. Thus, it appears cultural orientations may play a part in the suppression of anger. These results suggest that awareness of the cultural context may help to better understand the relationship between suppression and depression (Soto et al., 2010). The possible explanation may be that the participants with depressive symptoms in Saudi Arabia do not express their anger outwardly if this ensures collective harmony of interests (Butler et al., 2007) and they consider the expression of anger to be threatening to their relationships (Chu, 2015).

This is consistent with previous literature (e.g., Abu-Kaf & Braun-Lewensohn, 2015; Abu-Kaf & Priel, 2008; Sivadas et al., 2008; Butler et al., 2007; Davis et al., 2012; Kwon et al., 2013; Matsumoto et al., 2008; Mauss et al., 2010; Seo, 2011), which indicated the importance of cultural orientations such as collectivism, as significant factors that shape emotion regulation. Thus, cultural orientation seems to impact on how individuals manage their emotions, especially negative ones, as reported by Davis et al. (2012), English and John

(2013) and Matsumoto et al. (2008), who also found that expressive suppression was more frequent in cultures high on collectivism (using measures proposed by Hofstede, 2001).

Moreover, previous studies have shown that cultural orientation can influence the symptoms of depression (e.g., Abu-Kaf & Priel, 2008; Hamilton et al., 2013). These results suggested that individuals who are collectivists in their appraisal values may have a high tendency to use an expressive suppression strategy and not express their emotions, especially anger. Therefore, they would be more likely to experience depressive symptoms than those who are individualists. This is possible because in collectivism cultures norms are more important than attitudes, whereas the attitudes in individualist cultures are more important than norms (Triandis & Gelfand, 1998). The results presented in the present study suggest that further studies of emotion regulation using the BDI-II with normal and clinical populations in Saudi contexts might enhance our understanding of depression.

Beck and his colleagues (1979) suggested that problems or difficulties in early life relationships can lead individuals to develop negative thoughts. These thoughts usually derived from early life experiences from individuals' family, peers and society, which in turn contribute to depression in their adulthood. This may suggest that cultural values can influence individuals to develop a higher level of negative beliefs. In other words, it is possible that individuals who show collectivist orientations in their appraisals that are derived from early life experiences, from their family, relationships and societal norms, may develop negative beliefs about themselves and others, and about anger (i.e. undesirable, unwanted emotion). These negative beliefs may lead individuals with collectivist orientations to use expressive suppression as an emotion regulation strategy and not to express their negative emotions, especially anger, which in turn may contribute to depression. That is, it is not only having membership of a cultural group that shapes emotion regulation. Rather, collectivism seems to also impact on how individuals manage their emotions (Chu, 2015; Ford & Mauss, 2015; Kwon et al., 2013; Sivadas et al, 2008; Seo, 2011).

These findings of previous studies (e.g., Butler et al., 2007; Mauss et al., 2010) indicate that when collectivist orientation and negative beliefs come together, they predict depression strongly.

The current study's findings theoretically add to the current literature by showing the importance of dysregulation of anger as a significant factor associated with depression. In addition, this finding indicates that cultural contexts such as collectivism may impact on emotions. However, there are a number of other important factors (e.g., stigma, negative

attribution style, automatic processing and attentional bias) that may impact on depressive disorder, particularly in the Saudi context, but these were not assessed in the current study. These factors should be examined in future studies in the Saudi context or even in Arab countries, to help improve the understanding of depression in these contexts.

For example, Abuhajar (2013) found that stigma was highly associated with depression in a sample that consisted of 169 participants from Libya (Arab country). He also found that individuals with depressive symptoms often do not tell others about their crisis, as they fear that others will treat them as mad and ignore them. Therefore, Libyan individuals with depressive symptoms may travel for treatment outside Libya. This finding corroborates the finding of Cheng (2015) who found that Asian Americans (holding collectivist values) had higher baseline levels of stigma compared to individuals from European Americans (holding individualist values). Likewise, it was found that patients with depressive disorder exhibit an attentional bias (remembering negative content more than positive content) toward negative stimuli, indicating that attentional bias may play an important role in the development of symptoms of depression (De Souza, Barbosa, Lacerda, Dos Santos & Torro-Alves, 2014).

5.2.2 Interaction effects with Interpersonal Predictors

As explained above, separate hierarchical multiple regression analyses were performed with the same above hypotheses but with interpersonal problems as predictors of depression, rather than cognitive variables.

5.2.2.1 Third Hypothesis

With regard to interpersonal theory of depression in the current study, it was hypothesized (*Hypothesis 3*) that the interaction between high expressive suppression and low anger expression-out ($AO \times ES$) would contribute to the variance of depression over and above what has been predicted by expressive suppression and anger expression-out subscales in isolation.

To examine this hypothesis, as mentioned earlier, gender and medication were entered alone as covariates in the first step. In step two, the interpersonal problems (IIP-32) predictors were entered to examine how they explain depression. In the third step, the predictors of *trait anger* and *anger expression-out* were entered to examine how it predicted variances in the BDI-II. In the fourth step, *expressive suppression* variable was entered. In the fifth step, the interaction variable ($AO \times ES$) was entered to learn whether it predicted unique variance in the BDI-II.

As expected, the analyses showed that in steps one to four of the regression model, well-established predictors of depression (interpersonal problems, anger and expressive suppression) were indeed associated with depressive symptoms in this Saudi Arabian sample. Looking at the interaction variable ($AO \times ES$), the findings of the current study supported the third hypothesis, showing that the interaction between anger expression-out and expressive suppression ($AO \times ES$) was a significant predictor of depression. This step accounted for 62% of the variance in depression. That is, the addition of the interaction variable ($AO \times ES$) in the fifth step explained a significant additional percentage of 4% of the variance in depression scores. These results indicate that the experience of more intense anger, along with the lack of anger expression and high levels of suppression, would increase the level of depression. That is, suppressing the expression of anger together with maladaptive emotion regulation strategies is associated with symptoms of depression. Importantly, we can notice that this model including the interpersonal and interaction variables predicted more variance in depression compared to the cognitive predictors (59% versus 62%). This result indicates that dysregulation of anger and interpersonal problems have significant association with depression and when these come together they predict depression strongly. The current finding was in line with previous findings of the study conducted in Turkey by Sahin et al. (2011), who also found that anger and interpersonal relationship factors explained a large portion of the variance in more severe depression.

In fact, there was a positive relationship between interpersonal problems and expressive suppression strategy scores, indicating that the Saudi participants who had interpersonal difficulties had a higher tendency to suppress their anger. This finding suggests that dysregulated anger may contribute to higher levels of interpersonal difficulties (Aldinger et al., 2013; Ingram et al., 2007; Wiseman et al., 2006). A possible explanation may be that the expression of anger may put an individual at risk, as this expression would lead to conflict in interpersonal relationships, and this may cause participants to suppress (not express) their anger, even if they feel angry, as they want preserve their close relationships. At the same time, they would also turn anger towards the self (i.e. self-attack, self-criticisim) for having anger feelings. Thus, they hide their anger and do not express it (Birditt & Fingerman, 2003; Butler et al., 2007; De Leersnyder et al., 2013).

These results corroborate a study conducted by Moriya and Takahashi (2013), who found that maladaptive emotion regulation contributes to increasing the level of depression following stressful interpersonal events. In fact, the results of their studies indicated that in interdependent relationships (in a collectivist culture), the emotion of anger is considered

undesirable, as it may threaten relational harmony (Butler et al., 2007; De Leersnyder et al., 2013; Matsumoto et al., 2008). These previous findings indicate the importance of the impact of expressive suppression on depression, especially in an interpersonal context. The results of the current study have extended these previous findings by showing the importance of the interpersonal context in the cognitive model. Moreover, they show that the dysregulation of anger, especially in the interpersonal context, is associated with depression in adults with depressive symptoms in the Saudi context.

The current study's findings may theoretically add to the current cognitive model by showing the importance of emotional factors and the interplay of interpersonal aspects as significant factors in developing depression. Moreover, individuals with interpersonal difficulties may exhibit emotion regulation skills deficits and this could be further researched as an appropriate target for intervention.

Adding the interpersonal difficulties score in the second step accounted for 49% of the variance in depression. These findings were consistent with the work of others (e.g., Bjerke, Hansen, Solbakken & Monsen, 2011; Locke et al., 2017; McEvoy et al., 2013; Meffert et al., 2014), who found that individuals with depressive symptoms showed high levels of interpersonal difficulties. Thus, it appears that individuals with depressive symptoms in Saudi Arabia experience interpersonal difficulties and experience more problems associated with being too caring, too unassertive and too inhibited. This result may suggest that the interpersonal problems component is an important factor that adds to our understanding of depression. This is possible, as significant interpersonal experience contributes to cognitive and emotional representations, which in turn influence thoughts, behaviour and feelings in interpersonal relationships (Horowitz et al., 2000).

In addition, Zarb (2007) also suggests that inappropriate styles of communication in early life contribute to interpersonal problems in adulthood (*cf.* Mojallal, Javadi, Hosseinkhanzadeh, Mousavi, & Lavasani, 2015). This may be because individuals who have interpersonal problems in early life might develop a higher level of negative schematic beliefs about themselves, others, past experiences and future expectations, which in turn may lead them to develop depression (Aldinger et al., 2013; Eberhart, & Hammen, 2006; McEvoy et al., 2013b). This is possible, as the correlation analysis results in the current study support this interpretation; for example, positive correlations were found between the IIP-32 total score and both negative core beliefs and dysfunctional attitudes scores. This finding is consistent with the view that such difficulties are related to individuals' negative beliefs (Sahin et al., 2011), developed from their relationships (Beck et al., 1979). For example, in a recent study,

Mojallal et al. (2015) found that there was a significant positive correlation between early maladaptive schemas and interpersonal problems.

It should be noted that adding anger, in the third step, in the interpersonal context explained more variance in depression compared to anger in the cognitive context (56% versus 50%), indicating the importance of anger in the interpersonal context (Birditt & Fingerman, 2003). This finding is consistent with the view that the anger experience is generated by interpersonal relationships and is a frequent emotional feeling that happens in the interpersonal context (Arslan, 2010; Ingram et al., 2007; Power, 2010; Sahin et al., 2011; Tafrate et al., 2002).

Therefore, it can be concluded that a high level of anger or dysregulation of anger may lead to interpersonal problems (Ingram et al., 2007), which in turn may lead to depression. This result is in line with the work of Sahin and his colleagues (2011) who also found that anger accounts for 72% of the variance in more severe depression, although these results show higher percentages than the current study's results. However, this difference can be explained by the use of different scales and a different cultural context. A possible explanation for the current study's results may be that the ways of negative interpretation of many situations and others' behaviour in interpersonal situations (i.e. perceiving criticism, insulting, rejection or aggression) may lead to the experience of anger, which in turn may lead to depression (Asberg, 2013) as anger is frequently expressed in relationships. That is, individuals who have high levels of trait anger are prone to perceive many situations as frustrating, which in turn may lead them to experience anger more frequently (Arslan, 2010; Wilkowski & Robinson, 2008).

5.2.2.2 Fourth Hypothesis

In *Hypothesis 4*, it was hypothesised that the interaction between high collectivism and anger expression ($AO \times HVC$) would contribute to the variance of depression over and above what has been predicted by collectivism and anger expression-out in isolation.

To examine this hypothesis, the predictors were entered in the same order as that in the third hypothesis, but the *collectivism* variable was entered in the fourth step in place of *expressive suppression*. In addition, the interaction variable ($AO \times HVC$) was used as independent variable in the last step in place of ($AO \times ES$).

As expected, the findings of the current study supported the fourth hypothesis, as the hierarchical multiple regression analyses showed that the interaction between *anger expression-out* and *collectivism* was a significant predictor of depression. The addition of *AO*

× HVC in the last step led to a significant increase in R^2 and explained a further 4% of the variance in depression scores. The final model accounted for 62% of the variance in depression. It was found that there was a significant positive relationship between collectivism and expressive suppression scores, while there was a positive, but not significant, relationship between collectivism and anger expression-out scores. The findings demonstrated that collectivist-oriented participants with symptoms of depression in Saudi Arabia were less likely to express their anger outwardly and may have a high tendency to use expressive suppression strategy. These results indicated that when individuals' cultural values were inclined towards collectivist cultural values, they were less likely to express their anger outwardly, as they used an expressive suppression strategy (Chu, 2015). The possible explanation may be that participants who are collectivist in their appraisal values may have a high tendency to not express their anger outwardly, in order to preserve their relationships (Brody et al., 1999; Matsumoto et al., 2008), as they may have dysfunctional thoughts that if they express their anger, others will leave them (Aldinger et al., 2013). Thus, they use an expressive suppression strategy to fit within cultural expectation. (Butler et al., 2007), which may further lead to depression. This was in line with previous studies (e.g., Birditt & Fingerman, 2003; Butler et al., 2007; Chu, 2015) which have shown that the expression of anger is not encouraged in collectivist societies.

Compared with the cognitive model, the final model including the interaction variable (AO × HVC) predicted more variance in depression (57% versus 62%). This result indicates that the interpersonal context is important for the current model of depression and may have a role in the treatment of depression. It also indicates that the interaction variables are more relevant to the interpersonal difficulties (Wiseman et al., 2006). This may suggest that the interpersonal component is important, as it consists of both emotional and behavioural components (Sahin et al., 2011). This is possible, as many of our emotions, such as anger, happen in the interpersonal context (Power, 2010; Tafrate et al., 2002), and individuals are more likely to alter their anger expression depending on their social circumstance (Matsumoto, 1999). A possible interpretation is that the relationship component mediates behaviour and emotions (McEvoy et al., 2013b). For example, when individuals have problems or feel bad about something, they usually speak to someone to help them by providing them with advice or skills, which in turn may help them to regulate their emotions. That is, the interpersonal component has an interaction in the relation between the behaviour and emotion. This may explain why the interpersonal component adds a significant level of variance over and above cognitive factors, indicating the importance of interpersonal factors to the cognitive model. Thus, the interpersonal component is very important for many cultures, maybe because of the

presence of anger. This finding is consistent with the recent study conducted by Marroquin and Nolen-Hoeksema (2015), who found that social relationships shape the emotion regulation strategies individuals use. These findings are in line with the findings of Chu (2014), who found that the suppression of negative emotions tends to depend on external forces. Perhaps these findings indicate that emotion regulation strategies are more important, not only in the context of individuals' internal feelings and beliefs, but also in the interpersonal context.

In fact, the present findings were consistent with previous research, which has demonstrated how culture shapes emotion regulation, and that how individuals manage their emotion depends on their cultural values (e.g., Butler et al., 2007). That is, individuals who are collectivist in their appraisal, have a tendency to avoid situations that can harm relationships, which in turn may develop depression (Chu, 2015; Park et al., 2010).

It should be acknowledged here that there is an issue in the psychological research regarding how participants tended to respond to research questionnaires. This is called a demand characteristic, which means that participants may tend to respond to the questionnaires in a certain way that may be due to cultural pressure (Nichols & Maner, 2008).

Taken as a whole, these results indicate that the interaction of behaviour, thoughts and emotions contributes to symptoms of depression, and that within a cultural context such that collectivist cultural orientation these interactions lead to a greater use of expressive suppression. Therefore, individuals who have all of these factors together are more likely to experience depression. In fact, previous research in different countries has shown strong evidence that tendencies not to express (use expressive suppression) negative feelings result from stressful emotional events and this impacts on general wellbeing (Labiano-Fontcuberta, Mitchell, Moreno-García, Puertas-Martín & Benito-León, 2015), especially on existing depression (Allan & Gilbert, 2002; Chaplin, 2006). These previous findings have highlighted the great impact that dysregulation of anger has on depression. The present study, therefore, extends the previous findings by showing that dysregulation of anger predicts depressive symptoms, especially in Saudi adults who suffered from depressive disorder. Therefore, support for individuals with depressive symptoms to develop their skills to manage their anger might be helpful. In addition, these results add to the current explanations of the cognitive model of depression by showing the importance of the interpersonal component, which is neglected in the current model of depression (McEvoy et al., 2013b). This is supported by previous literature (e.g., McEvoy et al., 2013b; Dobson et al., 2014) which has criticized Cognitive Behavioural Therapy (CBT) for overlooking the importance of depressed patients' interpersonal functioning as an area for possible intervention.

5.3 Overall Discussion

As mentioned earlier, the results of the current study supported the study's hypotheses by showing that both the interaction variables ($AO \times ES$; $AO \times HVC$) were predictors of depressive symptoms and explained more variance in depression over and above what the other predictors explained in isolation, which is the key finding of the current study. Moreover, the important findings of the current study were that the larger percentage of the variance in depression in Saudi Arabia was explained by interpersonal difficulties rather than by cognitive difficulties, indicating the importance of the interpersonal component for the current cognitive model of depression. Moreover, the study models including the interaction variables ($AO \times ES$ and $AO \times HVC$) were more related to the interpersonal context. This finding indicates that emotion regulation is more important in the interpersonal context (extrinsic) than in the cognitive context (intrinsic). Consequently, regulation of anger is an important variable for interpersonal relationships (Birditt & Fingerman, 2003), and for individuals who have more difficulties in regulating their anger, their level of interpersonal difficulties would be higher, which in turn may lead to developing depression. This result suggests that the interpersonal context is far more important in the treatment of symptoms of depression, at least in Saudi Arabia, than the internal experience of the individual.

Therefore, the results of the current research suggest further work to shape and research the effectiveness of potential intervention plans to target interpersonal difficulties in individuals with depression. This might include developing strategies to help individuals with depressive symptoms to overcome their interpersonal difficulties. Thus, it can be inferred that other therapy, such as interpersonal psychotherapy (IPT) can be effective in the reduction of interpersonal problems of individuals suffering from symptoms of depression, as previous studies have shown that IPT treatment has decreased the symptoms of depression and anger. For example, Meffert et al. (2015) found evidence that anger and depressive symptoms were decreased when depressed individuals were treated in the context of interpersonal relationships. Likewise, previous literature (e.g., Forman et al., 2007) has shown the effectiveness of Acceptance and Commitment Therapy (ACT) in treating depressive disorder, because it focuses on acceptance of emotions, particularly negative ones, rather than emotional avoidance (Beblo et al., 2012). All these results suggest that emotion regulation and anger may important factors in depression, and these factors should be taken into account when clinicians treat depressive symptoms, especially in an interpersonal context (Ingram, et al., 2007; McEvoy et al., 2013b).

The findings of the current study may provide a basis for further studies to encourage clinicians, especially in Saudi Arabia, to consider emotion regulation strategies and the social context of individuals when developing different cognitive therapies in the management of symptoms of depression among patients. According to the author's knowledge, the majority of psychologists in Saudi Arabia treat depression only by cognitive behaviour therapy (CBT), and there are few other psychological therapies being practised. In fact, cognitive behaviour therapy has proven successful in the treatment of depression by focusing on the adjustment of dysfunctional cognitions and behaviours (Joormann & Vanderlind, 2014). However, a recent study was conducted in Germany by Forkmann and his colleagues (2014) to examine whether emotion regulation strategies (expressive suppression and cognitive reappraisal) change during the course of cognitive behaviour therapy (CBT). They found no effect of the CBT treatment on expressive suppression, and that only cognitive reappraisal was changed after a course of the CBT, while expressive suppression remained virtually stable. The possible reason why the expressive suppression did not change after the course of CBT may be that the CBT treatment overlooked the social context of clients (McEvoy et al., 2013b). Accordingly, they suggested that mindfulness-based cognitive therapy (MBCT) may have a stronger effect on expressive suppression than cognitive behaviour therapy (CBT). This result indicates the importance of targeting depression in the context of interpersonal contexts, to support individuals to overcome difficulties with mood and focus upon the development of skills to manage their emotions.

5.4 Clinical Implications

Although this study found relationships between culture, expressive suppression and anger out, the small variance found means that implementing any clinical implications would need to await further research into this association.

This study may be the first of its kind conducted in the Kingdom of Saudi Arabia. Therefore, there are a number of implications to be drawn from the current study. Firstly, the findings imply that anger is important in explaining depressive symptoms. Secondly, maladaptive emotion regulation strategies are important predictors of symptoms of depression that should be taken into account when treating depression, especially in the interpersonal context. For example, individuals may have selected expressive suppression as a best strategy for a particular context. This suggests that approaches could be developed to help patients with depressive symptoms to develop an awareness of the features of contexts that influence

their use of expressive suppression and to learn to use an adaptive or appropriate strategy that fits with the context (Aldao & Nolen-Hoeksema, 2012).

Moreover, the findings implied that the interpersonal context is far more important than often perceived in the current cognitive model of depression and in the treatment of depression. Thus, clinicians should be aware of interpersonal factors and processes that could contribute to depression, rather than focusing only on cognitive variables. For example, for those who reported low social support, it is necessary for the therapists to understand the contributing factors.

Moreover, the association of cultural orientation with emotion expression in the hypothesis in the current study highlights the importance of taking culture into account to understand depression in depth, as the findings suggest that the expression of anger is influenced by culture.

This means that treating depressive symptoms by targeting predictors of depression, such as negative schematic beliefs, alone, without addressing maladaptive emotion regulation strategies and interpersonal difficulties may not be sufficient to protect individuals from depression and anger. Individuals with depressive symptoms need to be helped to experience and express their anger in an appropriate and safe manner (Brody et al., 1999; Gross, 2013; Li et al., 2015; Power, 2010). That is, emotion regulation strategies are important, especially in the social context, to support individuals to overcome difficulties with mood by focusing on the development of skills to manage their emotions.

If this finding is supported by future research, it could eventually be taken into explicit consideration in clinical practice and to raise individuals' self-awareness in social contexts, such as through the school curricula.

For example, by learning (or being taught) about adaptive emotion regulation strategies, managing anger, and also how to deal with their interpersonal interactions, depressed patients would not only feel better but would also be saved from other serious mental disorders.

Staff of the Education Ministry may benefit from the current results. For example, including information about issues such as interpersonal relationship problems and emotion regulation strategies in the school curriculum could help students to develop positive relationships, which in turn helps them to prepare for adult life.

5.5 Recommendations

The proposed interaction model may not only work for depression. Thus, future research could examine this proposed model for other psychological disorders. Future studies also should be conducted in Arab countries with the same variables and clinical sample to find out if there are differences in the results. In addition, further research could be conducted in Saudi Arabia which would include other variables (i.e., stigma, attentional bias, and automatic processing), which in turn may explain depression in more depth.

It would be interesting to replicate this study in Western countries (as individualist cultures), including the influence of different cultural values and beliefs, to find out if the same or different results exist. It is expected that anger in individualist cultures is encouraged to be expressed explicitly (Chu, 2015).

Future research could also replicate this study using experimental research designs to find out if the same or different results exist. Further studies in the Saudi context are needed to explore the role of negative other beliefs on depression, as this would influence the level of depressive symptoms.

This study also needs to be replicated with younger populations to find out if the same or different forms of expression of anger exist and how they are related to depressive symptoms.

5.6 Strengths

This study makes several contributions and adds to the literature. Firstly, according to the author's knowledge, it is the first study that examines the interaction between anger, expressive suppression and collectivism in a clinical population. Moreover, this study is the first of its kind conducted within the Saudi population, or even among Arab countries. Therefore, numerous theoretical and methodological challenges were expected. The first is the absence of an Arabic version of the scales to be used, which made it necessary for the researcher to translate the measures so as to achieve the research purpose. These instruments will now be available for further research and clinical practice in Saudi Arabia and other Arabic-speaking countries. This is one of the major contributions of the present study. Furthermore, the current study provides a foundation for further work on the same topic using cohort and controlled trial methodology.

In addition, this study was also the first study that took into account interpersonal difficulties, cultural orientation values, dysfunctional attitudes and negative schematic beliefs as psychological factors predictive of depression. The study's model calculated the variance in depression scores which were explained through the predictor variables. That is, the model explained 57% of the variance in how individuals scored on the depression measure. The interaction variables (new variable) accounted for an extra 7% of the variance over and above what the other predictors explained, which means it makes a theoretical contribution to the current literature. By highlighting the importance of emotions and the interpersonal component, this research helps us to better understand depression in more depth by identifying risk factors and their interactions.

Moreover, the proposed interaction model could be used to suggest better intervention plans designed to target maladaptive emotion regulation in individuals with depressive symptoms and help them to develop their skills to manage their feelings.

The current study also considered emotion regulation strategies as psychological predictive factors of depression, contributing to a better understanding of the impact of emotion regulation strategies on depression, especially in the interpersonal context.

Furthermore, the current study, to the researcher's knowledge, was the first study to conduct a systematic review of the existing literature on anger, emotion regulation and depression, as well as anger, interpersonal problems and depression. Therefore, the present study has contributed to the existing literature by providing a summary of up-to-date studies and knowledge about depression in adults.

5.7 Limitations

Although it is believed that this study has made several contributions, it also has several limitations that should be addressed in future studies. Firstly, it is important to acknowledge that due to this study using a cross-sectional design, the causal interpretations of the results are limited. The observed association between anger suppression and depression could be bidirectional (not clear direction). That is, not only did suppressed anger lead to increase depressive symptoms, but that depression could contribute causally to the use of anger suppression as maladaptive emotion regulation strategy (Dennis, 2007; Potthoff et al., 2016).

The data obtained in the current study were based on self-report measures, as these measures are easy and quick to administer. The researcher used these self-report measures

because he had a specific time to collect the data and not have enough time to conduct an experimental study, such as one using emotion-eliciting stimuli (e.g. a mood-induction film), or a longitudinal design. In addition, the researcher was not sure if Saudi participants would agree to do experimental study. Moreover, although these self-report measures are useful, they may have some limitations. For example, answering self-report questionnaires may be affected by the social desirability of the demand characteristics. That is, participants may answer these questions in a certain way that may be due to cultural pressure (Nichols & Maner, 2008). In addition, the current study used self-report assessment of emotional and dysfunctional attitudes without using any experimental methods that might activate such emotions and dysfunctional thoughts. Moreover, the function and duration of treatment could impact on the level of expressed emotion. Therefore, future research could use experimental and/or longitudinal follow-up studies to examine the variables of interest, for example, by measuring emotional responses within a laboratory context in response to emotion-eliciting stimuli.

Secondly, this study did not include a healthy control group from Saudi Arabia. This is because of the researcher had a specific length of time to collect data. Moreover, as a man, and because of the cultural restrictions in Saudi Arabia, the researcher had difficulty accessing women for the study. These barriers prevented use of a comparison group. Thus, it would have been better to include a non-disordered group in order to compare the control group's scores on the measures with the clinical group's scores, as the findings of the current study may not be generalizable to non-clinical samples. Likewise, the current study did not include a comparison group across cultures, such as clinical or/and healthy control groups from United Kingdom. This is because of that the process required to obtain an approval takes a long time, especially for the clinical group from the United Kingdom. Moreover, these additional types of designs were beyond the resources available to the current project. Thus, future studies could include participants from both collectivist and individualist cultures to assess emotional responses within the two cultures.

The current study has another limitation, which is that it examined only anger as a negative emotion, and did not include other negative emotions such as sadness, shame and guilt. This omission was based on a number of reasons. Firstly, previous literature (e.g. De Leersnyder et al., 2013) established that collectivist cultures encourage their individuals to experience and express guilt and shame, as it highlights personal flaws and emphasizes social conventions, while the emotion of anger seems to be as undesirable emotion, as it may threaten relational harmony. Secondly, sadness and guilt are regarded as symptoms of depression (Tehranchi, Neshatdoost, Amiri & Power, 2018). In addition, it may hard to differentiate

sadness from depression, as it probably very highly correlated with depression. Nevertheless, further studies are needed to examine the impact of cultural orientation on the expression of these other emotions in individuals with depressive symptoms, especially in Saudi Arabia to increase our understanding of depression.

One limitation is that this study only focused on one type of culture, which is a collectivist culture. As mentioned above, the observed association between culture, anger suppression and depression could be bidirectional (not clear which direction is relevant). Thus, further research need to be carried out to establish if this is different from the effect of an individualist culture. Moreover, this study focused only on a negative effect of collectivist culture for mental health and did not considered factors in such a culture that might have a positive effect on mental health.

Another limitation of the current study is that it focused on only expressive suppression strategy rather than other maladaptive emotion regulation strategies, such as rumination. This because it has been established that the rumination strategy may occur as a more automatic response to experiencing negative affect, and this strategy may be difficult to be controlled even if unwanted (Joormann & Vanderlind, 2014). Therefore, to increase our understanding of depression further studies are needed to include other maladaptive emotion regulation strategies such as rumination to examine all these predictors in individuals with depressive symptoms. This is because previous studies (e.g. Aldao & Nolen-Hoeksema, 2012) have reported that the relation between psychopathologies such as depression, and the use of emotion regulation strategies can vary depending on which other strategies of emotion regulation are habitually used. For example, Aldao & Nolen-Hoeksema (2012) in their follow-up study found that cognitive reappraisal strategy was related to lower symptoms of depression but only for individuals with depressive symptoms who frequently used maladaptive strategies such as suppression, rumination, etc. That is, whether a cognitive reappraisal strategy can be classified as adaptive depends on the frequency of maladaptive strategy use, and also depends on the contexts. This is consistent with the view of authors in the previous literature (e.g., Aldao et al., 2010; Aldao & Nolen-Hoeksema, 2012; Bonanno & Burton, 2013; Joormann & Vanderlind, 2014) who proposed that successful emotion regulation is likely to depend on the flexibility to use different emotion regulation strategies that that best fits a given situation.

In addition, this study has not considered of confounding factors. For example, due to a cultural norm of not sharing private health information in public, no information was obtained from the Saudi individuals with depressive symptoms regarding their previous history of depressive disorder and age of onset. It would be better to control for the effects of

the previous history of depression in depressed individuals. Likewise, the cultural norm of not sharing private health information makes it difficult to know how many individuals have other disorders, such as anxiety. Thus, this study did not control for comorbidity factors, which in turn might have an impact on the study's findings, as previous research (e.g. Dennis, 2007; Spokas, 2009) has established that individuals with anxiety disorder have a high use of expressive suppression strategy. This issue could be addressed in future studies by including an anxiety measure and including participants who have also been identified as having an anxiety disorder. This could help to control for the impact of the co-morbidity of anxiety disorder.

Even though the translation of measures was a strength of this study, the psychometric validation of these measures should still be considered preliminary and that these measures would benefit from further validation studies including confirmatory factor analyses (CFA).

Another limitation is that the study sample may not be a representative sample, because the participants were all seeking help, and had all received treatment. It is probable that individuals who were seeking help would have a higher level of openness than those who were not help seeking, as they had been able to describe their mood to a doctor, and not to keep their emotions hidden. Thus, patients receiving outpatient treatment, because they have been practised at articulating feeling through psychotherapy, may be more self-aware, or better able to articulate their anger/sadness and to recall it, than other populations with depression who are not help seeking and who may see depression as weakness. Therefore, in completing the study questionnaires, this group may be a special population of patients with depression, and not necessarily representative of the wider population. Moreover, the effect that the current study has found might be stronger in individuals who are depressed and not seeking help. Therefore, it is likely that the current study results do not apply to individuals with depressive symptoms who do not seek for help or treatments.

5.8 Conclusion

To sum up, the current study was the first study that used a combination of anger, expressive suppression as maladaptive emotion regulation, cultural orientation, negative schematic beliefs, and interpersonal problems in the prediction of depression. The aim of the current research was to explore the impact of anger with both suppression and collectivism factors on depression. Therefore, the dysregulation of anger was defined as a combination of high anger and suppression strategy and operationalized as an interaction between anger expression-out and expressive suppression ($AO \times ES$) and collectivism factors ($AO \times HVC$),

which in turn may predict depressive symptoms. It is believed that this thesis is the first to illustrate the importance of assessing dysregulation of anger in Saudi adults diagnosed with major depressive disorder.

This study contributes to the understanding of the relationship between anger, emotion regulation and depression. It makes a significant contribution to explaining depression in more depth, taking into consideration various risk factors and their respective interactions. The results have indicated that the interaction between behaviours, thoughts and emotions leads to depressive symptoms, and this highlights the importance of the interpersonal component to the current cognitive model of depression. Moreover, the current results contribute to our growing understanding of the impact of maladaptive strategies, such as suppression, on depression in individuals with depressive symptoms. They also suggest that this understanding of the role of these maladaptive strategies could be taken into account when treating depression, especially in the interpersonal context.

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Appendices

Appendix1 Ethical Approval letter from the University of Edinburgh



SCHOOL of HEALTH IN SOCIAL SCIENCE
CLINICAL PSYCHOLOGY

The University of Edinburgh
Medical School
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Khaled Alrwailan
PhD Research Student
Clinical Psychology Department
School of Health in Social Science
University of Edinburgh
Medical School, Teviot Place
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04 December 2014

Dear Khaled,

Application for Level 2 Approval

Re: The Relationship Between Anger, Emotion Regulation and Depression in Saudi Adults

Thank you for submitting the above research project for review by the Section of Clinical Psychology Ethics Research Panel. I can confirm that the submission has been independently reviewed and was approved on the 3rd December 2014.

Should there be any change to the research protocol it is important that you alert us to this as this may necessitate further review.

Yours sincerely,

Kirsty Gardner
Administrator
Clinical Psychology

Appendix2

Ethical Approval letter from the Saudi Ministry of Health

Appendix3
Health

Confirmation of collection letter from the Saudi Ministry of

**Appendix4 Ethical Approval letter from the Saudi Ministry of Health
(to take the data from Saudi to Edinburgh)**

 V 0477	Beck Depression Inventory CRTN: _____ CRF number: _____	Baseline Page 14 patient initials: _____
		Date: _____

Name: _____ Marital Status: _____ Age: _____ Sex: _____
 Occupation: _____ Education: _____

Instructions: This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the **one statement** in each group that best describes the way you have been feeling during the **past two weeks, including today**. Circle the number beside the statement you have picked. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure that you do not choose more than one statement for any group, including Item 16 (Changes in Sleeping Pattern) or Item 18 (Changes in Appetite).

1. Sadness 0 I do not feel sad. 1 I feel sad much of the time. 2 I am sad all the time. 3 I am so sad or unhappy that I can't stand it. 2. Pessimism 0 I am not discouraged about my future. 1 I feel more discouraged about my future than I used to be. 2 I do not expect things to work out for me. 3 I feel my future is hopeless and will only get worse. 3. Past Failure 0 I do not feel like a failure. 1 I have failed more than I should have. 2 As I look back, I see a lot of failures. 3 I feel I am a total failure as a person. 4. Loss of Pleasure 0 I get as much pleasure as I ever did from the things I enjoy. 1 I don't enjoy things as much as I used to. 2 I get very little pleasure from the things I used to enjoy. 3 I can't get any pleasure from the things I used to enjoy. 5. Guilty Feelings 0 I don't feel particularly guilty. 1 I feel guilty over many things I have done or should have done. 2 I feel quite guilty most of the time. 3 I feel guilty all of the time.	6. Punishment Feelings 0 I don't feel I am being punished. 1 I feel I may be punished. 2 I expect to be punished. 3 I feel I am being punished. 7. Self-Dislike 0 I feel the same about myself as ever. 1 I have lost confidence in myself. 2 I am disappointed in myself. 3 I dislike myself. 8. Self-Criticism 0 I don't criticize or blame myself more than usual. 1 I am more critical of myself than I used to be. 2 I criticize myself for all of my faults. 3 I blame myself for everything bad that happens. 9. Suicidal Thoughts or Wishes 0 I don't have any thoughts of killing myself. 1 I have thoughts of killing myself, but I would not carry them out. 2 I would like to kill myself. 3 I would kill myself if I had the chance. 10. Crying 0 I don't cry anymore than I used to. 1 I cry more than I used to. 2 I cry over every little thing. 3 I feel like crying, but I can't.
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Subtotal Page 1

Continued on Back

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 NR15645



V 0477

**Beck Depression
Inventory**

CRTN: _____

CRF number: _____

Page 15

patient initials: _____

Baseline**11. Agitation**

- 0 I am no more restless or wound up than usual.
- 1 I feel more restless or wound up than usual.
- 2 I am so restless or agitated that it's hard to stay still.
- 3 I am so restless or agitated that I have to keep moving or doing something.

12. Loss of Interest

- 0 I have not lost interest in other people or activities.
- 1 I am less interested in other people or things than before.
- 2 I have lost most of my interest in other people or things.
- 3 It's hard to get interested in anything.

13. Indecisiveness

- 0 I make decisions about as well as ever.
- 1 I find it more difficult to make decisions than usual.
- 2 I have much greater difficulty in making decisions than I used to.
- 3 I have trouble making any decisions.

14. Worthlessness

- 0 I do not feel I am worthless.
- 1 I don't consider myself as worthwhile and useful as I used to.
- 2 I feel more worthless as compared to other people.
- 3 I feel utterly worthless.

15. Loss of Energy

- 0 I have as much energy as ever.
- 1 I have less energy than I used to have.
- 2 I don't have enough energy to do very much.
- 3 I don't have enough energy to do anything.

16. Changes in Sleeping Pattern

- 0 I have not experienced any change in my sleeping pattern.
- 1a I sleep somewhat more than usual.
- 1b I sleep somewhat less than usual.
- 2a I sleep a lot more than usual.
- 2b I sleep a lot less than usual.
- 3a I sleep most of the day.
- 3b I wake up 1-2 hours early and can't get back to sleep.

17. Irritability

- 0 I am no more irritable than usual.
- 1 I am more irritable than usual.
- 2 I am much more irritable than usual.
- 3 I am irritable all the time.

18. Changes in Appetite

- 0 I have not experienced any change in my appetite.
- 1a My appetite is somewhat less than usual.
- 1b My appetite is somewhat greater than usual.
- 2a My appetite is much less than before.
- 2b My appetite is much greater than usual.
- 3a I have no appetite at all.
- 3b I crave food all the time.

19. Concentration Difficulty

- 0 I can concentrate as well as ever.
- 1 I can't concentrate as well as usual.
- 2 It's hard to keep my mind on anything for very long.
- 3 I find I can't concentrate on anything.

20. Tiredness or Fatigue

- 0 I am no more tired or fatigued than usual.
- 1 I get more tired or fatigued more easily than usual.
- 2 I am too tired or fatigued to do a lot of the things I used to do.
- 3 I am too tired or fatigued to do most of the things I used to do.

21. Loss of Interest in Sex

- 0 I have not noticed any recent change in my interest in sex.
- 1 I am less interested in sex than I used to be.
- 2 I am much less interested in sex now.
- 3 I have lost interest in sex completely.

Subtotal Page 2

Subtotal Page 1

Total Score

NR15645

3 4 5 6 7 8 9 10 11 12 A B C D E

في الجزء التالي من الاستبيان 21 مجموعة من العبارات. اقرأ/ي كل مجموعة منها بإمعان وضع/ي دائرة حول الرقم المكتوب على يمين العبارة من صفر إلى 3 والتي تصف تماماً الحالة التي كنت تشعر/ين بها خلال الأسبوع الماضي بما في ذلك اليوم الحالي. تأكد(ي) من قراءة كل عبارة قبل أن تختار(ي) إحداها.

1 - الحزن

- 0- لا أشعر بالهم والحزن.
- 1- أشعر بشيء من الهم والحزن.
- 2- أشعر بالهم والحزن معظم الوقت ومن الصعب علي الخروج من هذه الحالة.
- 3- أشعر بالهم والحزن طوال الوقت و لا أشعر بالفرح أو السعادة على الإطلاق.

2 - التسليم

- 0- أنا لست متسائماً/ة بخصوص المستقبل.
- 1- أشعر بأن المستقبل غير متشجع.
- 2- أشعر بأنه لا يوجد شيء أتطلع إليه في المستقبل أو يستحق الاهتمام.
- 3- أشعر باليأس التام من المستقبل، ولن يحدث تقدم في أي شيء من حياتي.

3 - الشعور بالقتل

- 0- لا أشعر بالقتل.
- 1- أشعر أنني أشعر أنني قتلت أكثر من أي إنسان/ة عادي/ة.
- 2- كلما تطلعت لحياتي الماضية أجد فيها الكثير من العثرات والقتل.
- 3- أشعر أنني إنسان/ة قاتل/ة تماماً للقيام بأي مهمة أو دور.

4 - فقدان الاستمتاع

- 0- أنا قانع/ة وراضي/ة عن الأشياء التي تعودت القيام بها.
- 1- لا أجد متعة كالمسابق في الأشياء التي تعودت القيام بها.
- 2- لا أشعر بالرضا التام أو المتعة الحقيقية في حياتي الحاضرة.
- 3- أشعر بعدم الرضا والممل في كل شيء حولي.

5 - الاحساس بالذنب

- 0- لا أشعر بالذنب وتكئيب نفسي عادةً.
- 1- لدي شعور بالذنب بعض الوقت.
- 2- يتليني الشعور بالذنب وتكئيب النفس معظم الوقت.
- 3- أشعر بالذنب وتكئيب النفس طوال الوقت.

6 - الاحساس بالعقاب

- 0- لا أشعر أنني أستحق العقاب.
- 1- أشعر وكأن عقاباً قد حل بي.
- 2- أتوقع أن أعاقب.
- 3- أشعر أنني بالفعل أعاقب.

7 - عدم حب الذات

- 0- لا أشعر أن أملي قد خاب في نفسي.
- 1- أشعر أن أملي قد خاب في نفسي.
- 2- أشعر بالاستمزاز من نفسي.
- 3- أكره نفسي.

8 - نقد الذات

- 0- لا أشعر أنني أسوأ من أي شخص عادي.
- 1- لا أشعر أنني أسوأ من أي شخص عادي.
- 2- أنتقد نفسي لضعفي و أخطائي.
- 3- ألوم نفسي معظم الوقت على أخطائي.
- 4- ألوم نفسي باستمرار على كل شيء سيء حدث لي.

9 - الأفكار أو الرغبة بالانتحار

- 0- لا تراودني رغبات أو أفكار للخلاص من حياتي.
- 1- أدعو الله أحيانا أن يجعل بنهائتي إن كان في ذلك خيرا لي.
- 2- أدعو الله كثيرا أن يجعل بنهائتي.
- 3- أتح على الله بالدعاء في كل حين للخلاص من هذه الحياة.

10 - البكاء

- 0- لا أبكي أكثر من المعتاد.
- 1- أبكي الآن أكثر مما تعودت.
- 2- أبكي الآن طوال الوقت.
- 3- كانت لي قدرة على البكاء، أما الآن فلا أستطيع حتى لو أردت ذلك.

11 - التهيج والانتزع

- 0- لا أشعر أنني أنزعج أو استثار أكثر من المعتاد.
- 1- أنزعج و أغضب بسهولة أكثر مما تعودت.
- 2- أشعر بالانتزع و لاستئارة لدرجة أنه من الصعب علي البقاء بدون حركة.
- 3- أنزعج و استثار لدرجة تدفعني للحركة أو فعل شيء ما.

12 - فقدان الاهتمام

- 0- لم أفقد الاهتمام بالآخرين.
- 1- أشعر بأنني قليل/ة الاهتمام بالآخرين بالمقارنة بما كنت في حياتي الماضية.
- 2- فقدت معظم اهتمامي بالآخرين.
- 3- فقدت اهتمامي بالآخرين، ولم يعد يهمني أحد.

13 - التردد

- 0- اتخذ القرارات بنفس الكفاءة التي اعتدت عليها.
- 1- أقوم بتأجيل اتخاذ القرارات أكثر مما تعودت.
- 2- أجد صعوبة كبيرة في اتخاذ القرارات.
- 3- لم يعد لدي القدرة على اتخاذ القرارات.

14 - انعدام القيمة

- 0- لا أشعر أن شكلي أصبح مهما أو غير جذاب.
- 1- لدي شعور أحيانا بأنني أبدو أكثر سناً وأقل جاذبية.
- 2- أشعر غالباً أن هناك تغير في مظهري يجعلني أقل جاذبية.
- 3- أعتقد أن شكلي بالفعل مهمل وغير جذاب.

15 - فقدان الطاقة

- 0- أستطيع أن أعمل بنفس الكفاءة التي عملت بها من قبل.
- 1- أشعر أن البدء في عمل أي شيء يتطلب كثيراً من الجهد.
- 2- أضطر للضغط على نفسي بشدة كي أعمل أي شيء.
- 3- لا أستطيع القيام بأي عمل على وجه الإطلاق.

16 - التغير في النوم

- 0- أستطيع النوم بشكل جيد كما تعودت.
- 1- أ- أنام أكثر من المعتاد إلى حد ما.
- 1- ب- أنام أقل من المعتاد إلى حد ما.
- 2- أ- أنام أكثر بكثير من المعتاد.
- 2- ب- أنام أقل بكثير من المعتاد.
- 3- أ- أنام أغلب اليوم.
- 3- ب- أستيقظ مبكراً ساعة أو ساعتين عن المعتاد، ثم أجد صعوبة في العودة إلى النوم.

17 – القابلية للغضب والانتزاع

- 0- لا أشعر أنني أغضب أكثر من المعتاد.
- 1- أنتزع وأغضب بسهولة أكثر مما تعودت.
- 2- أنتزع وأغضب أكبر بكثير من المعتاد.
- 3- أشعر بالانتزاع والغضب طوال الوقت.

18 – التغير في الشهية

- 0- لم تتغير شهيتي للطعام عما كانت عليه في السابق.
- 1- a- شهيتي للطعام أقل من السابق إلى حد ما.
b- شهيتي للطعام أكبر من السابق إلى حد ما.
- 2- a- شهيتي للطعام أقل بكثير من السابق.
b- شهيتي للطعام أكبر بكثير من السابق.
- 3- a- شهيتي للطعام الآن معدومة تماماً.
b- أشتهي الطعام طوال الوقت.

19 – صعوبة التركيز

- 0- أستطيع التركيز جيد كما تعودت.
- 1- لا أستطيع التركيز بنفس الكفاءة المعتادة.
- 2- من الصعب علي أن أركز عقلي على أي شيء لمدة طويلة.
- 3- لم يعد لدي القدرة على التركيز على أي شيء.

20 – التعب أو الإجهاد

- 0- لا أشعر بالتعب أو الإجهاد أكثر من المعتاد.
- 1- أشعر بالتعب والإجهاد بسرعة أكثر مما تعودت.
- 2- أشعر بأي مجهود تقريباً.
- 3- أشعر بالإرهاق حتى أنني لا أستطيع القيام بأي عمل اعتدت عليه في السابق.

21 – فقدان الاهتمام بالجنس

- 0- ليس هناك أي تغيير في رغبتي الجنسية.
- 1- رغبتي في الجنس أصبحت أقل من السابق.
- 2- رغبتي في الجنس أصبحت أقل بكثير من السابق.
- 3- أفقد الاهتمام بالجنس تماماً في الوقت الحاضر.

A number of statements that people use to describe themselves are given below. Read each statement and then fill in the circle with the number which indicates how you *generally* feel. Remember that there are no right or wrong answers. Do not spend too much time on any one statement, but give the answer which seems to *best* describe how you *generally* feel.

العبارة	Almost never	Sometimes	often	Almost always
1. I am quick tempered.	1	2	3	4
2. I have a fiery temper.	1	2	3	4
3. I am a hotheaded person.	1	2	3	4
4. I get angry when I'm slowed down by others' mistakes.	1	2	3	4
5. I feel annoyed when I am not given recognition for doing good work.	1	2	3	4
6. I fly off the handle.	1	2	3	4
7. When I get mad, I say nasty things.	1	2	3	4
8. It makes me furious when I am criticized in front of others.	1	2	3	4
9. When I get frustrated, I feel like hitting someone.	1	2	3	4
10. I feel infuriated when I do a good job and get a poor evaluation.	1	2	3	4

Everyone feels angry or furious from time to time, but people differ in the ways that they react when they are angry. A number of statements are listed below which people use to describe their reactions when they feel *angry* or *furious*. Read each statement and then fill in the circle with the number which indicates how *often* you *generally* react or behave in the manner described when you are feeling angry or furious. Remember that there are no right or wrong answers. Do not spend too much time on any one statement.

العبارة	Almost never	Some times	often	Almost always
11. I control my temper.	1	2	3	4
12. I express my anger.	1	2	3	4
13. I keep things in.	1	2	3	4
14. I am patient with others.	1	2	3	4
15. I pout or sulk	1	2	3	4
16. I withdraw from people.	1	2	3	4
17. I make sarcastic remarks to others.	1	2	3	4
18. I keep my cool.	1	2	3	4

Appendix8 Arabic version of the State-Trait Anger Expression Inventory (STAXI-2)

حالة وبسمة الغضب والتعبير عنه

توجيهات : بالإضافة إلى هذا الكتيب من العبارات ينبغي أن يكون لديك ورقة تقدير STAXI-2 . قبل البدء قم بإدخال اسمك، النوع، العمر، تاريخ اليوم، السنوات التعليمية التي أُنجزت، حالتك الاجتماعية، مهنتك، وذلك في الفراغات الواردة أعلى ورقة التقدير STAXI-2 .

ينقسم هذا الكتيب إلى ثلاثة أجزاء. كل جزء يحتوي على عدد من العبارات التي يستعملها الناس لوصف مشاعرهم وسلوكهم. يرجى الإنتباه إلى أن كل جزء له إرشادات مختلفة. إقرأه بكل حرص إرشادات كل جزء قبل تسجيل إجاباتك على ورقة التقدير .

لا توجد إجابة صحيحة وإجابة خاطئة. للإجابة على كل عبارة، قم باعطاء الإجابة التي تصفك بصورة أفضل. تجنب المحور، إذا لزم الأمر أن تغير إجابتك ضع علامة (x) خلال الإجابة الغير صحيحة واملأ الإجابة الصحيحة.

إرشادات الجزء الأول

اقرأ كل من العبارات التالية والتي يستعملها الناس لوصف أنفسهم. وقم بتضليل الدائرة المناسبة لمعرفة كيف شعورك أو ردة فعلك بوجه عام. لا توجد إجابة صحيحة وإجابة خاطئة. لا تقضي وقتاً طويلاً أمام أي عبارة. علم على الإجابة التي تصف كيف شعورك أو ردة فعلك بوجه عام.

4	3	2	1
دائماً	غالباً	بعض الأحيان	أبداً

كيف أشعر بوجه عام

1. أنا سريع الانفعال
2. عصبي جداً
3. أوصف بأنني شخص متسرع ومندفع
4. أغضب عندما تُؤخرني أخطاء الآخرين
5. أتضايق عندما لا يتم تقدير ما أقوم به من عمل جيد
6. أفقد السيطرة على النفس
7. عندما أغضب أتلفظ بكلام غير لائق
8. أنفعل بشدة عندما يتم انتقادي أمام الآخرين
9. عندما أحبط أشعر كأنني أريد أن أضرب شخص ما
10. أغضب عندما أقوم بعمل جيد و أحصل بتقييم سلبي

إرشادات الجزء الثاني

كل شخص يشعر بالغضب أو الغيظ من وقت لآخر ولكن يختلف الناس في ردة أفعالهم عندما يغضبون. فيما يلي عدد من العبارات التي يستعملها الناس لوصف ردود أفعالهم حين يشعرون بالغضب أو الغيظ. اقرأ كل عبارة واملأ الدائرة المناسبة لمعرفة كيف تكون ردة فعلك أو تصرفك بالطريقة الموصوفة حين تشعر بالغضب أو الغيظ. لا توجد إجابة صحيحة وإجابة خاطئة. لا تقضي وقتاً طويلاً أمام أي عبارة.

4	3	2	1
دائماً	غالباً	بعض الأحيان	أبداً

كيف أزد أو أتصرف بوجه عام عندما أغضب أو أعتاظ

11. أعبر عن غضبي
12. عندما يضايقتني أحد، أميل إلى إخباره أو إخبارها بشعوري.
13. أفقد أعصابي.
14. أطلق تعليقات ساخرة على الآخرين
15. أفعل أشياء كصفع الأبواب.
16. أتجادل مع الآخرين.
17. أهاجم بشدة على أي شيء يغضبني.
18. أقول عبارات غير لائقة.

ERQ

We would like to ask you some questions about your emotional life, in particular, how you control (that is, regulate and manage) your emotions. The questions below involve two distinct aspect of your emotional life. One is your emotional experience, or what you feel like inside. The other is your emotional expression, or how you show your emotions in the way you talk, gesture, or behave. Although some of the following questions may seem similar to one another, they differ in important ways. For each item, please answer using the following scale:

1----- 2----- 3----- 4----- 5----- 6----- 7-----
 Strongly Strongly
 disagree neutral agree

العبارة

1. _____ When I want to feel more *positive* emotion (such as joy or amusement), I *change what I'm thinking about*.
2. _____ I keep my emotions to myself.
3. _____ When I want to feel less *negative* emotion (such as sadness or anger), I *change what I'm thinking about*.
4. _____ When I am feeling *positive* emotions, I am careful not to express them.
5. _____ When I'm faced with a stressful situation, I make myself *think about it* in a way that helps me stay calm.
6. _____ I control my emotions by *not expressing them*.
7. _____ When I want to feel more *positive* emotion, I *change the way I'm thinking about the situation*.
8. _____ I control my emotions by *changing the way I think about the situation I'm in*.
9. _____ When I am feeling *negative* emotions, I make sure not to express them.
10. _____ When I want to feel less *negative* emotion, I *change the way I'm thinking about the situation*.

Appendix10 Arabic version of the Emotion Regulation Questionnaire (ERQ)

مقياس تنظيم الانفعالات

نود أن نسألك بعض الأسئلة عن حياتك العاطفية وبالتحديد كيف تنظم/ي أو تسيطر على مشاعرك (تقصد كيف تدير وتنظم مشاعرك). الأسئلة التالية تتضمن جانبين أساسيين لحياتك العاطفية. الأول عن تجاربك العاطفية أو ماذا تشعر به في داخلك. الجانب الآخر هو تعبيرك العاطفي أو كيف تبدي إنفعالاتك في كلامك وإيماءاتك أو سلوكك. رغم أن بعض هذه الأسئلة التالية قد تبدو متشابهة مع بعضها البعض إلا أنها تختلف في تفاصيل مهمة. أرجو الإجابة على كل عبارة باستخدام المقياس التالي:

1 لاوافق بشدة 2 لاوافق كثيراً 3 لاوافق قليلاً 4 محايد 5 اوافق قليلاً 6 اوافق كثيراً 7 اوافق بشدة

1. _____ عندما أُرغب أن أشعر بشعور أكثر إيجابية (كالفرح أو الاستمتاع). فإنتي أغير ما أفكر فيه.
2. _____ أحتفظ بمشاعري لنفسى.
3. _____ عندما أُرغب أن أشعر بشعور أقل سلبية (كالحزن أو الغضب) فإنتي أغير ما أفكر فيه.
4. _____ عندما تنتابني مشاعر إيجابية أكون حريصاً على عدم إظهارها.
5. _____ عندما تواجهني ظروف صعبة أقوم بالتفكير فيها بطريقة تساعدني على البقاء هادئاً.
6. _____ أسيطر على مشاعري وذلك بعدم إظهارها.
7. _____ عندما أُرغب أن أشعر بشعور أكثر إيجابية فإنتي أغير الطريقة التي أفكر فيها عن الموقف.
8. _____ أتحكم بمشاعري وذلك بتغيير الطريقة التي أفكر فيها بالموقف الذي أنا فيه.
9. _____ عندما أشعر بمشاعر سلبية فأنا أحرص على عدم إظهارها.
10. _____ عندما أُرغب أن أشعر بشعور أقل سلبية فإنتي أغير الطريقة التي أفكر فيها عن الموقف.

شكراً جزيلاً لمساعدتك

Appendix11 Horizontal and Vertical Individualism and Collectivism Scale (HVICS-14) English

INSTRUCTIONS

Please read the enclosed questionnaire carefully and answer all questions. Remember, there are no right or wrong answers. Please read the instructions carefully. We are only interested in your honest opinions. **Thank you for your participation.** There are no right or wrong answers to the following statements. We want to know if you strongly agree or disagree with some statements. Please read the following statements and indicate the extent of your agreement or disagreement with these statements by placing an X in the column which best describes the extent to which the following statements are **USUALLY AND TYPICALLY CHARACTERISTIC** of you:

	Strongly Disagree	2	3	4	Unsure	6	7	8	Strongly Agree
1. My happiness depends very much on the happiness of those around me									
2. I would do what would please my family, even if I detested that activity									
3. I usually sacrifice my self-interest for the benefit of my group									
4. I enjoy working in situations involving competition with others									
5. The well-being of my co-workers is important to me									
6. I enjoy being unique and different from others in many ways									
7. Children should feel honored if their parents receive a distinguished award									
8. I often "do my own thing"									
9. Competition is the law of nature									
10. If a co-worker gets a prize, I would feel proud									

11. I am a unique individual									
12. I would sacrifice an activity that I enjoy very much If my family did not approve of it									
13. Without competition it is not possible to have a good society									
14. I feel good when I cooperate with others									

Appendix12 Arabic version of the Horizontal and Vertical Individualism and Collectivism Scale (HVICS-14)

في الجزء التالي من المقياس يرجى منك قراءة الأسئلة التالية بتمعن والإجابة على كل الأسئلة وتذكر انه لا توجد إجابة صحيحة أو إجابة خاطئة. إهتمامنا فقط أن تكون إجابتك صريحة وصادقة. نريد معرفة ما إذا كنت توافق أو لا توافق على بعض هذه العبارات. لذا أرجو قراءة العبارات التالية والإشارة إلى أي مدى توافق أو لا توافق على هذه العبارات وذلك بوضع علامة (x) أمام كل فترة تحت العمود والتي نرى انها تنطبق لجوابك وتصنفك.

9 أوافق بشدة	8	7	6	5 محايد	4	3	2	1 لا أوافق بشدة	العبارة	
									تعتمد سعادتني بصورة كبيرة على سعادة من حولي.	1
									أود القيام بما يسعد عائلتي حتى لو كنت أبغض ذلك الأمر	2
									أضحي عادةً بمصلحتي الشخصية من أجل مصلحة مجموعتي	3
									أستمتع بالعمل في الظروف التي تتضمن التنافس مع الآخرين	4
									راحة زملاء العمل مهمة بالنسبة لي	5
									أستمتع بكوني فريداً ومختلفاً عن الآخرين في أمور كثيرة	6
									ينبغي للأطفال الشعور بالفخر عندما يحصل أباؤهم على جوائز تقدير	7
									أقوم عادةً بعمل أثنائي الخاصة	8
									المنافسة هي قانون الطبيعة	9
									أشعر بالفخر عندما يحصل زميل العمل على جائزة	10
									أنا شخص فريد	11
									أنا على استعداد لأضحي بنشاط أستمتع به كثيراً إن لم تتقبله عائلتي	12
									لا يمكن الحصول على مجتمع جيد بدون منافسة	13
									أشعر بالرضا عندما أتعاون مع الآخرين	14

Appendix13 Brief Core Schema Scale (BCSS) English

The Brief Core Schema Scale: Beliefs about self and others

This questionnaire lists beliefs that people can hold about themselves and other people. Please indicate whether you hold each belief (NO or YES). If you hold the belief then please indicate how strongly you hold it by circling a number (1-4). Try to judge the beliefs on how you have generally, over time, viewed yourself and others. Do not spend too long on each belief. There are no right or wrong answers and the first response to each belief is often the most accurate.

Items				Believe it slightly	Believe it moderately	Believe it very much	Believe it totally
MY SELF							
1. I am unloved.	No	Yes	→	1	2	3	4
2. I am worthless.	No	Yes	→	1	2	3	4
3. I am weak.	No	Yes	→	1	2	3	4
4. I am vulnerable.	No	Yes	→	1	2	3	4
5. I am bad.	No	Yes	→	1	2	3	4
6. I am failure.	No	Yes	→	1	2	3	4
7. I am respected.	No	Yes	→	1	2	3	4
8. I am valuable.	No	Yes	→	1	2	3	4
9. I am talented.	No	Yes	→	1	2	3	4
10. I am successful.	No	Yes	→	1	2	3	4

11. I am good.	No	Yes	→	1	2	3	4
12. I am interesting.	No	Yes	→	1	2	3	4
OTHER PEOPLE							
13. Other people are hostile.	No	Yes	→	1	2	3	4
14. Other people are harsh.	No	Yes	→	1	2	3	4
15. Other people are unforgiving.	No	Yes	→	1	2	3	4
16. Other people are bad.	No	Yes	→	1	2	3	4
17. Other people are devious.	No	Yes	→	1	2	3	4
18. Other people are nasty.	No	Yes	→	1	2	3	4
19. Other people are fair.	No	Yes	→	1	2	3	4
20. Other people are good.	No	Yes	→	1	2	3	4
21. Other people are trustworthy.	No	Yes	→	1	2	3	4
22. Other people are accepting.	No	Yes	→	1	2	3	4
23. Other people are supportive.	No	Yes	→	1	2	3	4
24. Other people are truthful.	No	Yes	→	1	2	3	4

Appendix14 Arabic version of the Brief Core Schema Scale (BCSS)

الجزء التالي من المقياس يوضح الاعتقادات التي قد يحملها الناس عن أنفسهم وعن الآخرين. أرجو الإشارة بـ(نعم أو لا) عن ما إذا كنت تحمل هذا المعتقد أم لا. إذا كنت تحمل هذا المعتقد أرجو أن توضح شدة اعتقادك به وذلك بوضع دائرة حول الأرقام (1-4). حاول أن تحكم على المعتقدات بشكل عام كيف تتنظر إلى نفسك وإلى الآخرين مع الزمن. لا تفكر طويلاً أمام كل معتقد. لا توجد إجابة صحيحة أو إجابة خاطئة والجواب الذي يتبادر للذهن أولاً لكل معتقد غالباً هو أكثر دقة

العبارة	أعتقد هذا بشكل ضئيل	أعتقد هذا بشكل معتدل	أعتقد هذا بقوة	أعتقد هذا جداً
عن نفسي				
1 لست محبوباً	لا	نعم ←	1	2
2 ليس لي قيمة	لا	نعم ←	1	2
3 أنا ضعيف	لا	نعم ←	1	2
4 فأسرع ففكر وفجراحت المصاع	لا	نعم ←	1	2
5 أنا غير جيد	لا	نعم ←	1	2
6 أنا قاتل	لا	نعم ←	1	2
7 أنا محترم	لا	نعم ←	1	2
8 أنا ذو قيمة	لا	نعم ←	1	2
9 أنا موهوب	لا	نعم ←	1	2
10 أنا ناجح	لا	نعم ←	1	2
11 أنا جيد	لا	نعم ←	1	2
12 أنا متبر للإهتمام	لا	نعم ←	1	2
عن الآخرين				
13 الآخرون عدوانيون	لا	نعم ←	1	2
14 الآخرون قساة	لا	نعم ←	1	2
15 الآخرون عديمو الصفح	لا	نعم ←	1	2
16 الآخرون سيئون	لا	نعم ←	1	2
17 الآخرون مخادعون	لا	نعم ←	1	2
18 الآخرون شريرون	لا	نعم ←	1	2
19 الآخرون متصفون	لا	نعم ←	1	2
20 الآخرون صالحون	لا	نعم ←	1	2
21 الآخرون جديرون بالثقة	لا	نعم ←	1	2
22 الآخرون متفهمون	لا	نعم ←	1	2
23 مساندون الآخرون	لا	نعم ←	1	2
24 الآخرون صادقون	لا	نعم ←	1	2

IIP-32 Question/ Scoring Sheet

Name: _____

Date: _____ / _____ / _____
Month Day YearSex: Male ☐ Female ☐

People have reported having the following problems in relating to other people. Please read the list below, and for each item, consider whether it has been a problem for you with respect to **any** significant person in your life. Then fill in the numbered circle that describes how distressing that problem has been.

The following are things you find hard to do with other people.

It is hard for me to:

- | | Not at all | A little bit | Moderately | Quite a bit | Extremely | |
|---|------------|--------------|------------|-------------|-----------|-----|
| 1. Say "no" to other people | ① | ② | ③ | ④ | ⑤ | 1. |
| 2. Join in on groups | ① | ② | ③ | ④ | ⑤ | 2. |
| 3. Keep things private from other people | ① | ② | ③ | ④ | ⑤ | 3. |
| 4. Tell a person to stop bothering me | ① | ② | ③ | ④ | ⑤ | 4. |
| 5. Introduce myself to new people | ① | ② | ③ | ④ | ⑤ | 5. |
| 6. Confront people with problems that come up | ① | ② | ③ | ④ | ⑤ | 6. |
| 7. Be assertive with another person | ① | ② | ③ | ④ | ⑤ | 7. |
| 8. Let other people know when I am angry | ① | ② | ③ | ④ | ⑤ | 8. |
| 9. Socialize with other people | ① | ② | ③ | ④ | ⑤ | 9. |
| 10. Show affection to people | ① | ② | ③ | ④ | ⑤ | 10. |
| 11. Get along with people | ① | ② | ③ | ④ | ⑤ | 11. |
| 12. Be firm when I need to be | ① | ② | ③ | ④ | ⑤ | 12. |
| 13. Experience a feeling of love for another person | ① | ② | ③ | ④ | ⑤ | 13. |
| 14. Be supportive of another person's goals in life | ① | ② | ③ | ④ | ⑤ | 14. |
| 15. Feel close to other people | ① | ② | ③ | ④ | ⑤ | 15. |
| 16. Really care about other people's problems | ① | ② | ③ | ④ | ⑤ | 16. |
| 17. Put somebody else's needs before my own | ① | ② | ③ | ④ | ⑤ | 17. |
| 18. Feel good about another person's happiness | ① | ② | ③ | ④ | ⑤ | 18. |
| 19. Ask other people to get together socially with me | ① | ② | ③ | ④ | ⑤ | 19. |
| 20. Be assertive without worrying about hurting the other person's feelings | ① | ② | ③ | ④ | ⑤ | 20. |

The following are things that you do too much.

- | | Not at all | A little bit | Moderately | Quite a bit | Extremely | |
|--|------------|--------------|------------|-------------|-----------|-----|
| 21. I open up to people too much. | ① | ② | ③ | ④ | ⑤ | 21. |
| 22. I am too aggressive toward other people. | ① | ② | ③ | ④ | ⑤ | 22. |
| 23. I try to please other people too much. | ① | ② | ③ | ④ | ⑤ | 23. |
| 24. I want to be noticed too much. | ① | ② | ③ | ④ | ⑤ | 24. |
| 25. I try to control other people too much. | ① | ② | ③ | ④ | ⑤ | 25. |
| 26. I put other people's needs before my own too much. | ① | ② | ③ | ④ | ⑤ | 26. |
| 27. I am overly generous to other people. | ① | ② | ③ | ④ | ⑤ | 27. |
| 28. I manipulate other people too much to get what I want. | ① | ② | ③ | ④ | ⑤ | 28. |
| 29. I tell personal things to other people too much. | ① | ② | ③ | ④ | ⑤ | 29. |
| 30. I argue with other people too much. | ① | ② | ③ | ④ | ⑤ | 30. |
| 31. I let other people take advantage of me too much. | ① | ② | ③ | ④ | ⑤ | 31. |
| 32. I am affected by another person's misery too much. | ① | ② | ③ | ④ | ⑤ | 32. |

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3 4 5 6 7 8 9 10 11 12 A B C D E

0158132548

Appendix16 Arabic version of the Inventory of Interpersonal Problems (IIP-32)

في الجزء التالي من المقياس يواجه الناس المشاكل التالية في تعاملهم مع الآخرين. أرجو قراءة القائمة أدناه، ولكل عبارة حدد ما إذا كان لديك مشكلة فيما يتعلق بشخص مهم في حياتك. بعد ذلك قم بوضع دائرة حول الرقم المكتوب من رقم صفر إلى 4 أمام كل عبارة والذي يصف لك مدى صعوبة تلك المشكلة إلى أي درجة تنطبق.

العبارة	أبداً	قليلاً	بشكل متوسط	كثيراً	بشدة
فيما يلي الأمور التي يصعب عليك أن تقطعها مع الآخرين بصعب على أن:					
1 أقول (لا) للآخرين	0	1	2	3	4
2 أنضم للمجموعات	0	1	2	3	4
3 أحتفظ بأشياء الخصوصية عن الآخرين	0	1	2	3	4
4 أطلب من شخص التوقف عن مضايقتي	0	1	2	3	4
5 أقوم بتقديم نفسي لأشخاص جدد	0	1	2	3	4
6 مواجهة الناس بالمشاكل التي تحصل	0	1	2	3	4
7 أكون حازماً مع شخص آخر	0	1	2	3	4
8 أجعل الآخرين يطمون عندما أكون غاضباً	0	1	2	3	4
9 أختلط مع الآخرين	0	1	2	3	4
10 أظهر مودتي للآخرين	0	1	2	3	4
11 أنسجم مع الآخرين	0	1	2	3	4
12 أكون حازماً حين ينبغي أن أكون	0	1	2	3	4
13 أشعر بالحب تجاه شخص آخر	0	1	2	3	4
14 أكون مسانداً لشخص آخر لتحقيق أهدافه في الحياة	0	1	2	3	4
15 أشعر بالإرتياح تجاه الآخرين	0	1	2	3	4
16 أهتم حقاً بمشاكل الآخرين	0	1	2	3	4
17 أقدم حاجات شخص آخر على حاجاتي	0	1	2	3	4
18 أشعر بالرضا لسعادة شخص آخر	0	1	2	3	4
19 أطلب من الآخرين التواصل معي اجتماعياً	0	1	2	3	4
20 أكون حازماً بدون القلق بجرح مشاعر الآخرين	0	1	2	3	4
فيما يلي الأمور التي تقطعها كثيراً					
21 أرتاح للناس أكثر من اللازم	0	1	2	3	4
22 أنا عدواني جداً تجاه الآخرين	0	1	2	3	4
23 أحاول إرضاء الآخرين أكثر من اللازم	0	1	2	3	4
24 أرغب كثيراً في لفت الإنتباه	0	1	2	3	4
25 أحاول السيطرة على الآخرين أكثر من اللازم	0	1	2	3	4
26 أقدم حاجات الآخرين على حاجاتي أكثر من اللازم	0	1	2	3	4
27 أنا كريم أكثر من اللازم تجاه الآخرين	0	1	2	3	4
28 أنا استغل الآخرين كثيراً للحصول على ما أريد	0	1	2	3	4
29 أخبر الآخرين عن أموري الشخصية أكثر من اللازم	0	1	2	3	4
30 أتجادل كثيراً مع الآخرين	0	1	2	3	4
31 أتترك الآخرين يستفيدون مني أكثر من اللازم	0	1	2	3	4
32 أتأثر كثيراً بتعاسة شخص آخر	0	1	2	3	4

Dysfunctional Attitudes Scale (DAS-26)

Instructions: This inventory lists different attitudes or beliefs which people sometimes hold. Read each statement carefully and decide how much you agree or disagree with it. For each statement, mark your answer using the number code given below that *best describes how you think*. To decide whether a given attitude is typical of your views, keep in mind how you think *most of the time*.

1	2	3	4	5	6	7
Disagree Totally	Disagree very much	Disagree slightly	Neutral	Agree slightly	Agree very much	Agree Totally

1	People probably think less of me if I make mistake							
2	If I do not do well at the time, people will not respect me							
3	Whenever I take a chance or risk I am only looking for trouble							
4	I cannot be happy unless most people I know admire me							
5	It is shameful for a person to display his weakness.							
6	If I do not set the highest standards for myself, I am likely to end up a second-rate person.							
7	If I fail partly, it is as bad as being a complete failure							
8	I must be a useful, productive, creative person or life has no purpose.							
9	If someone disagrees with me, it probably means he does not like me.							
10	If a person is not a success, then his life is meaningless							
11	If other people know what you are really like, they will think less of you.							
12	If a person I love does not love me, it means I am unlovable.							

13	It is not necessary for a person to become frustrated if he finds obstacles to getting what he wants							
14	My value as a person depends greatly on what others think of me.							
15	I can find greater enjoyment if I do things because I want to, rather than in order to please people.							
16	If do not treat people kindly, fairly and considerately, I am a rotten person.							
17	If I make a foolish statement, it means I am a foolish person.							
18	It is awful to be disapproved of by people important to you.							
19	I can reach important goals without slave-driving myself.							
20	If you do not have other people to lean on you are bound to be sad.							
21	I ought to be able to solve my problems quickly and without a great deal of effort.							
22	My happiness depends more on other people than it does on me							
23	Even though a person may not be able to control what happens to him, he can control how he thinks.							
24	If a person has to be alone for a long period of time, it follows that he has to be lonely.							
25	If you cannot do something well, there is little point in doing it at all.							
26	If a person avoids problems, the problems go away.							

الجزء التالي من المقياس يوضح مختلف السلوكيات والاعتقادات التي يسلکها الناس أحياناً. إقرأ/ي كل فقرة بتمعن وأتخذ قرارك فيما يتعلق بمدى موافقتك بها. لكل عبارة علم على إجابة واحدة بإختيار رقم من 1 إلى 7 تحت العمود الذي ترى انه يصف تماماً طريقة تفكيرك. لتحديد ما إذا السلوك المقترح نموذجاً لأفكارك، خذ بالاعتبار كيف تفكر معظم الوقت.

الرقم	العبارة	1 إطلاقاً لاوافق	2 كثيراً لاوافق	3 قليل لاوافق	4 محايد	5 قليل وافق	6 كثيراً وافق	7 بشدة وافق
1	ربما اسقط في نظر الناس إذا أخطأت.							
2	إن لم أفعل الأشياء في وقتها المحدد وكما ينبغي فلن يحترمني الآخرون.							
3	كلما أعتمت فرصة أو جازفت فلن يكون ذلك سوى سعيّاً وراء المشاكل.							
4	إن أستطيع أن أكون سعيداً حتى يُعجب بي معظم الذين أعرفهم.							
5	من المخجل أن يُظهر الشخص نقاط ضعفه							
6	إذا لم أضع لنفسني معايير عالية فمن المحتمل أن أنتهي بكوني شخص أقل من غيري							
7	إذا كان فشلي جزئياً، فهو من السوء مثل فشلي كلياً							
8	يجب أن أكون نافعاً و منتجاً و مبدعاً و إلا فلن يكون للحياة غاية ومعنى							
9	إذا لم يوافقني شخص ما الرأي، فمن المحتمل انه لا يحبني							
10	إذا لم يكن الشخص ناجحاً فلن حياته لا معنى لها							
11	إذا علم الآخرون بحقيقتك فسيتقل قيمتك عندهم							
12	إذا لم يحبني شخص أحبه، فأنا							

الرقم	العبارة	1 لاوافق إطلاقاً	2 لاوافق كثيراً	3 لاوافق قليلاً	4 محايد	5 وافق قليلاً	6 وافق كثيراً	7 وافق بشدة
	شخص غير محبوب							
13	ليس من الضروري أن يصبح الشخص محيطاً إذا وجد عوائق في سبيله للحصول على ما يريد							
14	قيمتي كشخص تعتمد كثيراً على ما يظنه الآخرون بي							
15	أجد متعة أكبر عند القيام بالأشياء بمحض إرادتي و ليس لغرض إرضاء الناس							
16	إذا لم أتعامل مع الناس بإحسان وعدل و احترام فأنا شخص غير جيد							
17	إذا قلت شيء أحق عن شيء ما فهذا يعني أنني شخص أحق							
18	مزعج جداً أن يعترض عليك أشخاص يهتمك أمرهم							
19	يمكنني الوصول إلى أهداف مهمة من دون إهلاك نفسي بالعمل							
20	إذا لم يكن لديك أشخاص تستند عليهم فستكون حتماً حزينا							
21	يجب أن أقدر على حل مشاكلي بسرعة وبدون بذل جهد كبير							
22	تعتمد سعادتي على الآخرين أكثر مما تعتمد على نفسي							
23	على الرغم من عدم قدرة الشخص على التحكم في ما يحصل له، فهو يستطيع التحكم في طريقة تفكيره							
24	لو تحتم على شخص البقاء وحيداً لمدة طويلة، فسيبرز ذلك إحساسه بالوحدة							
25	إذا لم أستطع إقناع فعل شيء ما، فلا معنى لفعله أصلاً.							
26	إذا نقادى شخص المشاكل فستجد المشاكل عنه							

Appendix19 Participant Information Sheet – English

Participant Information sheet

Introduction

You are being invited to take part in my research study. Before you decide to participate, please take your time to read the following information. If you are unsure about any aspect of the study, please feel free to discuss the study with the researcher or with your psychiatrist. Contact details for the researcher are given at the end of this sheet.

What is the study about?

This study aims to investigate the relationship between anger and depression in Saudi adults. This will help us to understand more about human emotions. The study has been reviewed by the Ethics Committee, School of Health in Social Science, University of Edinburgh, and by the Ethics Committee, Ministry of Health, Saudi Arabia.

What will I have to do?

If you would like to participate you will be asked to fill in questionnaires. The questionnaires ask a range of questions about your feeling and how much or how often you experience certain emotions. The questionnaires may take up to 30 minutes to complete. I would like to ask your Psychiatrist about any mental health diagnosis you might have. This is helpful for my research, but if you do not wish me to do this, I will not. Please tick the box on the Consent Form to if you give me permission, or not, to do this. However, if you do not want to take part, you need to do nothing more. Your decision not to take part is fully respected.

Why have I been chosen?

You have been chosen because you meet clinical criteria for depression and you meet out criteria inclusion.

Do I have to take part?

No, it is up to you to decide whether to take part. If you decide to take part you will be asked to sign a form to confirm this. Even if you sign the form, you can still choose to stop taking part at any time, without giving anyone a reason. If you become upset by the questionnaires please remember that you do not have to participate and you are free to stop at any time. It would be appreciated if you could let the clinician or the researcher know if you find these questionnaires distressing. If you choose not take part, or change your mind later, it will not affect the rest of the treatment you receive or change your care in any way.

Will my taking part in this study be kept confidential?

Yes, all information you provide to us will be kept confidential and you will not be personally identified in any of the study results or reports. Also, all data will be securely stored, and only the researcher and his supervisors will have access to this information. The information that the supervisors will have access to, is fully anonymised data. The results will be included in a doctoral thesis submitted to the University of Edinburgh by the study researcher.

Will I receive feedback of findings?

Yes, if you wish to hear the result of this study, I will email to you a copy of the summary result if you would like by the email address.

If I want to find out more about the study, who do I contact?

You could contact the study researcher via phone number, email address or postal address below.

Name:

Phone No.

E-mail:

بسم الله الرحمن الرحيم

أخي الكريم، أختي الكريمة :

السلام عليكم ورحمة الله وبركاته

مقدمة

انت مدعو للمشاركة في هذا البحث، لذا أرجو أن تقرأ المعلومات التالية قبل أن تقرر للمشاركة، وإذا كان لديك بعض الاستفسارات عن هذه الدراسة أرجو عدم التردد في مناقشة الباحث أو المعالج النفسي عن ذلك. تجد بيانات التواصل في اسفل هذه الورقة.

ما هدف هذه الدراسة؟

تهدف هذه الدراسة لمعرفة العلاقة بين الغضب والاكتئاب لدى الراشدين السعوديين ومعرفة مدى تعرضك لمشاعر معينة وكيف تكبر وتنظم مشاعرك. إن هذا الدراسة سوف تخدم مجتمعنا في محتواها وتساعدنا لمعرفة المزيد عن مشاعرك (إنفعالاتك)، والذي سوف يساعدنا على تصميم تدابير جديدة حول المشاعر. تمت الموافقة على هذه الدراسة من قبل وزارة الصحة وكذلك موافقة من جامعة أننيرة في بريطانيا.

مالذي عليّ قطعه؟

إذا أردت المشاركة في هذا البحث أرجو احتساب ما عند الله من أجر وثواب في الإجابة على الأسئلة وأن تكون إجابتك صريحة وصائفة، وأن تجيب عن جميع الفقرات حتى لو وجدت صعوبة في ذلك. يتكون هذا المقياس من عدة أجزاء وذلك لمعرفة المزيد عن مشاعرك، والذي سوف يساعدنا على تصميم تدابير جديدة حول المشاعر. قد تستغرق الإجابة على هذه الأسئلة تقريباً 20 دقيقة، أود أن أحصل على بعض المعلومات عن تشخيصك من طبيبك المعالج والذي سوف يساعدنا في البحث، ولكن إذا لا ترغب فإن افعل ذلك، لذا أرجو الإشارة بـ(موافق أو لا أوافق) في نموذج الموافقة ولكن في حالة عدم رغبتك في المشاركة لا يتطلب منك فعل أي شيء وسنحترم قرارك تماماً.

لماذا تم إختياري؟

تم إختيارك بسبب أنك استوفيت المعايير الأكاديمية للاكتئاب واستوفيت شروط الانضمام لهذه الدراسة.

هل يلزم عليّ المشاركة؟

لا، بل نَعم على قرارك فإذا قررت المشاركة نرجو منك توقيع نموذج الموافقة، وتَستطيع التوقف عن المشاركة في أي وقت تُرغب حتى بعد التوقيع وبدون أن نخبرنا عن أي سبب، وإذا شعرت بالمضايقة من أي سؤال من أسئلة المقياس تستطيع التوقف في أي وقت عن المشاركة و إخبار الطبيب المعالج أو الباحث بذلك، فإذا رغبت بعدم المشاركة أو غيرت رأيك فإن ذلك لا يؤثر على علاجك أو طريقة علاجك بأي شكل من الأشكال.

هل مشاركتي والإجابة التي أقدمها في هذه الدراسة يحتفظ بها بشكل سري؟

نعم، إن جميع المعلومات التي تقدمها هي لأغراض البحث فقط وسيبقى الإجابة التي تقدمها سرية للغاية ولا يتم تحديد أي معلومات شخصية في نتائج الدراسة أو التقارير، وجميع المعلومات سوف تُخزن بمكان آمن ولا يستطيع الوصول اليها سوى الباحث والمشرف الدراسي وحتى المعلومات التي يطلع عليها المشرف فهي بدون اسماء وجميع النتائج سوف يضعها الباحث في رسالة الدكتوراة وتسلم لجامعة أنقرة.

هل يتم إبلاغي عن النتائج؟

نعم، فإذا رغبت معرفة النتائج فسوف يتم إرسال لك نسخة من ملخص نتائج الدراسة عن طريق البريد الإلكتروني.

إذا رغبت معرفة المزيد عن الدراسة مع من أتواصل؟

يمكنك التواصل مع الباحث أو مع الطبيب المعالج عن طريق الجوال أو البريد الإلكتروني أثناء.

الباحث/ خالد الرويلان

البريد الإلكتروني/ kalrwailan@yahoo.com

جوال/ 0506442414

الطبيب المعالج/

البريد الإلكتروني/

جوال/

Appendix21 Participant Consent Sheet – English

CONSENT FORM

The participant should complete the whole of this sheet himself/herself

Title of Project:

“The Relationship between Anger, Emotion Regulation and Depression in Saudi Adults”

Name of Researcher: Khaled Alrwailan

Please cross out as necessary

Have you read and understood the Participant Information Sheet for the above study?	YES	NO
Have you had the chance to consider the Participant Information Sheet?	YES	NO
Have you had an opportunity to ask questions and to discuss the study with the researcher?	YES	NO
Have you received satisfactory answers to all of your questions?	YES	NO
Were you given enough time to consider whether you want to participate?	YES	NO
Do you understand that it is up to you whether you take part and that you can drop out at any time without giving any reason and without it affecting the care you get?	YES	NO
Do you consent to participate in the study?	YES	NO
Do you consent for the researcher to gather more information from your Psychiatrists?	YES	NO
Name of participant..... Signed Date..... E-mail.....		

بسم الله الرحمن الرحيم

نموذج موافقة للمشاركة في البحث

بمعنوان
 "العلاقة بين الغضب وضبط الانفعالات والاكتئاب لدى السعوديين
 الراشدين"

أسم الباحث
 خالد بن علي الرويلان

أخي الكريم، أختي الكريمة :

السلام عليكم ورحمة الله وبركاته

يجب على كل مشارك/مشاركة تعبئة هذا النموذج بنفسه لذا ارجو الإجابة بنعم أو لا.

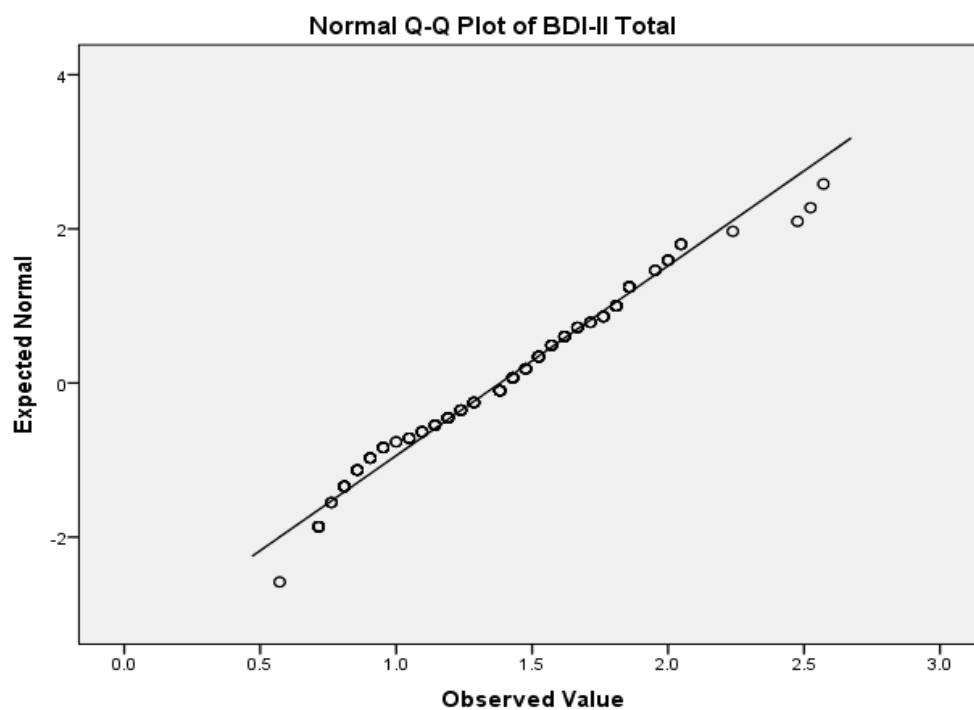
- هل قرأت/ي وفهمت/ي ورقة معلومات المشاركة في البحث؟ نعم لا
- هل أتيت لك/ي الفرصة للاستفسار عن البحث ومناقشته نعم لا
- هل تمت الإجابة بشكل مرضي على جميع استفساراتك؟ نعم لا
- هل تم إعطائك وقت كافي للتفكير في المشاركة؟ نعم لا
- هل تعلم المشاركة في هذا البحث اختيارية؟ ويمكن قبول المشاركة أو الانسحاب من البحث بعد المشاركة دون أن يؤثر ذلك على نوع أو كفاءة الخدمة الصحية التي يتم تقديمها لك. نعم لا
- هل تريد المشاركة في البحث؟ نعم لا

أسم المشترك

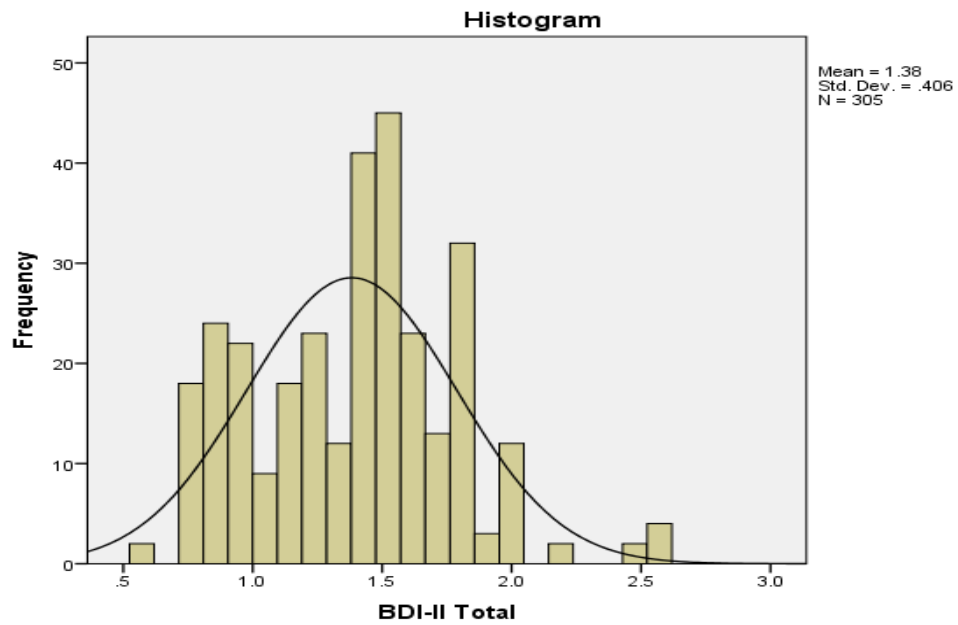
التوقيع التاريخ/...../.....هـ

Appendix23 Participant details of Background.

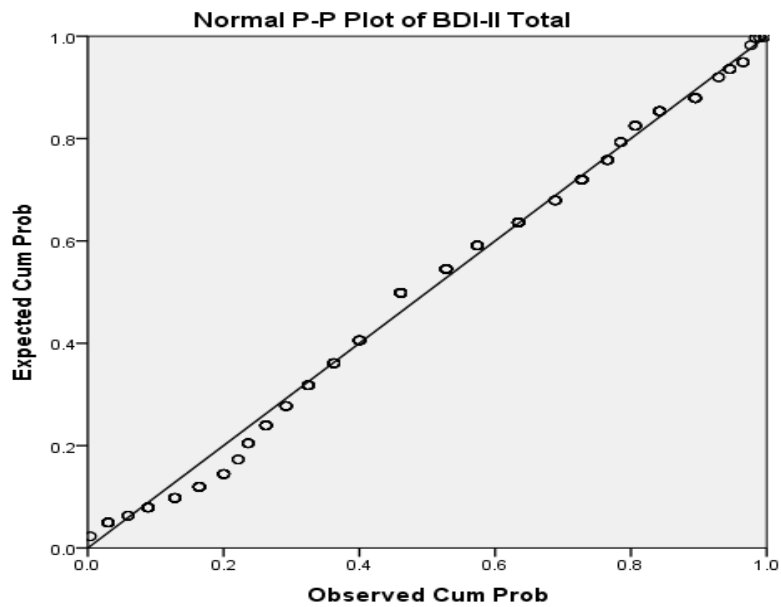
	Value	Counts	Percentages
Gender	Male	183	60.0
	Female	122	40.0
Psychologic Medication	Yes	219	71.8
	No	86	28.2
Marital Status	Single	57	18.7
	Married	236	77.4
	Divorced	10	3.3
	Widowed	2	.7
Living Arrangement	living alone	18	5.9
	living with parents	59	19.3
	living with family	228	74.8
Education	High school	93	30.5
	Diploma	62	20.3
	Bachelor	100	32.8
	Other specify	50	16.4
Employment Status	Employed	166	54.4
	Unemployed/ in search of a job	112	36.7
	Retired	9	3.0
	Studying full-time	14	4.6
	Studying and work	4	1.3



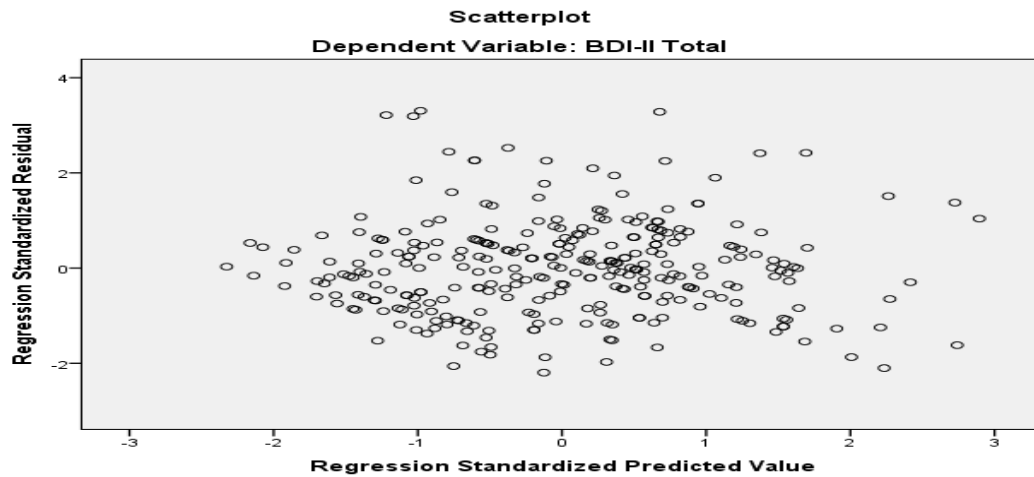
Appendix25 Histogram showing the distribution of total scores on Beck Depression Inventory Questionnaire (BDI-II).



Appendix26 Normal P-P Plot of the Beck Depression Inventory (BDI-II)



Appendix27 Homoscedasticity Plot of the Beck Depression Inventory (BDI-II)



Appendix28 Pearson Correlation Matrix between demographic background variables and BDI-II.

Variables	1	2	3	4	5	6	7	8
1. Age	-							
2. Gender	-.04	-						
3. Do you take any psychologic medication	-.07	.27**	-					
4. Marital Status	.43**	.14*	.03	-				
5. Living Arrangements	.14*	.22**	.16**	.37**	-			
6. What is your highest level of education	.20**	.15**	.23**	.17**	.14*	-		
7. What is your current employment status	-.26**	.03	-.29**	-.39**	-.23**	-.11	-	
8. BDI-II Total	.03	.08	-.28**	-.01	-.20**	-.03	.19**	-

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Trait Anger	-																			
2. Anger Expression-Out	.36**	-																		
3. AO × ES	.27**	.61**	-																	
4. AO × HVC	.45**	.81**	.63**	-																
5. Reappraisal	-.18**	-.03	-.11	-.07	-															
6. Suppression	.07	-.03	.72**	.14**	-.07	-														
7. Horizontal Collectivism	.25**	.14*	.31**	.57**	-.00	.32**	-													
8. Vertical Collectivism	.28**	-.00	.17**	.49**	-.14**	.25**	.52**	-												
9. Horizontal Individualism	-.01	-.08	-.09	-.00	.10	-.07	.02	.12*	-											
10. Vertical Individualism	-.02	-.25**	-.17*	-.19*	.12*	-.00	.00	.00	.29**	-										
11. Negative Self	.18**	.16**	.16**	.25**	.10	.12*	.24**	.18**	-.04	-.05	-									
12. Positive Self	-.07	-.22**	-.20**	-.24**	.05	-.07	-.05	-.11	.09	.14*	.30**	-								
13. Negative Other	.24**	.23**	.20**	.24**	.02	.09	.14*	.08	-.07	-.13*	.55**	-.29**	-							
14. Positive Other	-.13*	-.07	-.15*	-.12*	.24**	-.14*	.00	-.13*	-.03	.12*	-.18**	.48**	-.10	-						
15. Success Perfectionism	.18**	.21*	.29**	.32**	-.05	.20**	.25**	.20**	-.13*	-.08	.17**	.29**	.08	-.20**	-					
16. Need for Approval	.15**	.21**	.38**	.32**	-.05	.33**	.26**	.19**	-.11*	-.08	.18**	.18**	.12*	-.08	.39**	-				
17. Need satisfying others	.16**	.24**	.36**	.32**	.01	.30**	.23**	.19**	-.06	-.02	.27**	.17**	.24**	-.10	.41**	.44**	-			
18. Vulnerable Performance	.22**	.22**	.21**	.22**	-.17**	.09	.09	.14*	.02	-.14*	.13*	-.11*	.02	-.15**	.02	-.06	.08	-		
19. DAS-26 Total	.26**	.31**	.44**	.44**	-.08	.33**	.32**	.27**	-.12*	-.11*	.27**	-.31**	.17**	-.22**	.86**	.61**	.72**	.27**	-	
20. BDI-II Total	.39**	.35**	.51**	.51**	-.10	.40**	.42**	.34**	-.16**	-.25**	.38**	-.20**	.32**	-.19**	.32**	.29**	.37**	.30**	.47**	-

N= 305. **p<0.01, *p<0.05. Note AO × ES= the interaction between anger expression-out and suppression; AO × HVC= the interaction between anger expression-out and collectivism; DAS-26= Dysfunctional Attitudes Scale; BDI-II= Beck Depression inventory.

Appendix30 Pearson Correlation Matrix between age, gender and interpersonal variables.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Reappraisal	-															
2. Suppression	-.07	-														
3. Horizontal Collectivism	.00	.32**	-													
4. Vertical Collectivism	-.14**	.25**	.52**	-												
5. Horizontal Individualism	.10	-.07	.02	.12*	-											
6. Vertical Individualism	.12*	-.00	.007	.006	.29**	-										
7. Positive Self-Beliefs	-.00	.13*	-.05	-.11	.09	.14*	-									
8. Positive Other Beliefs	.18**	.18**	.02	-.13*	-.03	.12*	.48**	-								
9. Domineer/ Controlling	.01	.19**	.18**	.14*	.01	-.02	-.05	-.07	-							
10. Vindictive/ Self-Centred	.00	.26**	.22**	.08	-.01	-.05	-.15**	-.06	.30**	-						
11. Cold/Distance	-.01	.30**	.21**	.21**	.08	-.06	-.11*	-.13*	.28**	.42**	-					
12. Socially Inhibited	-.11*	.27**	.14**	.12*	.16**	-.16**	-.08	-.20**	.27**	.39**	.58**	-				
13. Non-assertive	-.05	.12*	.14*	.07	.01	-.06	-.25**	-.22**	.27**	.16**	.26**	.38**	-			
14. Overly Accommodating	.05	.15**	.21**	.15**	-.20**	-.13*	-.13*	-.10	.20**	.19**	.32**	.27**	.22**	-		
15. Self- Sacrificing	.00	.32**	.21**	.09	-.20**	.02	-.06	-.01	.15**	.23**	.25**	.16**	.22**	.27**	-	
16. Intrusive Needy	-.14**	.25**	.10	.002	-.02	-.08	-.09	-.15**	.33**	.34**	.22**	.20**	.22**	.17**	.20**	-

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

Appendix31 Showing the results of the independent samples test.

Scales	t	df	Male group		Female group	
			Mean	SD	Mean	SD
The BDI-II	-1.592	219.29	28.37	7.67	30.02	9.61
Trait Anger	3.49	295.23	27.85	5.89	25.75	4.61
Anger Out	3.80	303	17.78	5.31	15.43	5.24
Suppression	-.351	303	16.74	6.04	16.98	5.90
Collectivism	-.679	303	50.15	12.2	51.12	12.19
Negative Self	-.699	303	10.07	6.37	10.59	6.49
Negative Other	1.87	303	12.14	6.38	10.75	6.25
IIP-32 Total	-2.34	303	59.80	16.38	64.26	16.09
DAS-26 Total	1.677	303	113.19	19.68	109.47	17.86

Note: BDI-II = Beck Depression Inventory; IIP-32 = Inventory of Interpersonal Problems; DAS-26= Dysfunctional Attitudes Scale.

Appendix32 Overall model of hierarchical regression for variables predicting depression - first hypothesis.

<i>Model</i>	<i>R</i>	<i>R²</i>	<i>Adj. R²</i>	<i>SE B</i>	ΔR^2	ΔF	<i>df1</i>	<i>df2</i>	<i>Sig. F Change</i>
Step 1	.325	.106	.100	.385	.106	17.818	2	302	.000
2	.605	.366	.353	.326	.260	30.571	4	298	.000
3	.649	.422	.406	.313	.056	14.325	2	296	.000
4	.711	.506	.489	.290	.084	25.137	2	294	.000
5	.740	.548	.531	.278	.042	27.087	1	293	.000
6	.774	.599	.582	.626	.051	36.811	1	292	.000

Notes. N= 305. Adj. R^2 = Adjusted R Square; ΔR^2 = R Square Change; ΔF = F Change, *** $p < .001$, ** $p < .01$, * $p < .05$.

Appendix33 Overall model of hierarchical regression for variables predicting depression - second hypothesis.

<i>Model</i>	<i>R</i>	<i>R</i> ²	<i>Adj. R</i> ²	SE B	ΔR^2	ΔF	<i>df1</i>	<i>df2</i>	<i>Sig. F Change</i>
Step 1	.325	.106	.100	.385	.106	17.818	2	302	.000
2	.605	.366	.353	.326	.260	30.571	4	298	.000
3	.649	.422	.406	.313	.056	14.325	2	296	.000
4	.711	.506	.489	.290	.084	25.137	2	294	.000
5	.724	.525	.507	.285	.019	11.518	1	293	.001
6	.758	.574	.557	.270	.049	33.722	1	292	.000
Notes. N= 305. Adj. R^2 = Adjusted R Square; ΔR^2 = R Square Change; ΔF = F Change, *** p < .001, ** p < .01, * p < .05.									

Appendix34 Overall model of hierarchical regression for variables predicting depression - third hypothesis.

<i>Model</i>	<i>R</i>	<i>R</i> ²	<i>Adj. R</i> ²	SE B	ΔR^2	ΔF	<i>df1</i>	<i>df2</i>	<i>Sig. F Change</i>
Step 1	.325	.106	.100	.385	.106	17.818	2	302	.000
2	.703	.494	.477	.294	.388	28.217	8	294	.000
3	.750	.562	.544	.274	.068	22.677	2	292	.000
4	.763	.582	.563	.268	.020	13.954	1	291	.000
5	.791	.626	.608	.254	.044	34.205	1	290	.000
Notes. N= 305. Adj. R^2 = Adjusted R Square; ΔR^2 = R Square Change; ΔF = F Change, *** p < .001, ** p < .01, * p < .05.									

Appendix35 Overall model of hierarchical regression for variables predicting depression - fourth hypothesis.

<i>Model</i>	<i>R</i>	<i>R</i> ²	<i>Adj. R</i> ²	SE B	ΔR^2	ΔF	<i>df1</i>	<i>df2</i>	<i>Sig. F Change</i>
Step 1	.325	.106	.100	.385	.106	17.818	2	302	.000
2	.703	.494	.477	.294	.388	28.217	8	294	.000
3	.750	.562	.544	.274	.068	22.677	2	292	.000
4	.759	.575	.557	.270	.013	9.196	1	291	.003
5	.787	.620	.601	.256	.044	33.839	1	290	.000
Notes. N= 305. Adj. R^2 = Adjusted R Square; ΔR^2 = R Square Change; ΔF = F Change, *** p < .001, ** p < .01, * p < .05.									

Appendix36 Overall model of hierarchical regression for interpersonal and cognitive variables predicting Depression - first hypothesis.

<i>Model</i>	<i>R</i>	<i>R</i> ²	<i>Adj. R</i> ²	<i>SE B</i>	ΔR^2	ΔF	<i>df1</i>	<i>df2</i>	<i>Sig. F Change</i>
Step 1	.325	.106	.100	.385	.106	17.818	2	302	.000
2	.605	.366	.353	.326	.260	30.571	4	298	.000
3	.649	.422	.406	.313	.056	14.325	2	296	.000
4	.769	.592	.569	.266	.170	15.004	8	288	.000
5	.791	.626	.602	.256	.034	12.920	2	286	.000
6	.803	.644	.621	.250	.019	14.983	1	285	.000
7	.826	.683	.661	.236	.039	34.574	1	284	.000

Notes. N= 305. Adj. R^2 = Adjusted R Square; ΔR^2 = R Square Change; ΔF = F Change, *** p < .001, ** p < .01, * p < .05.

Appendix37 Overall model of hierarchical regression for interpersonal and cognitive variables predicting depression - Second hypothesis.

<i>Model</i>	<i>R</i>	<i>R</i> ²	<i>Adj. R</i> ²	<i>SE B</i>	ΔR^2	ΔF	<i>df1</i>	<i>df2</i>	<i>Sig. F Change</i>
Step 1	.325	.106	.100	.385	.106	17.818	2	302	.000
2	.605	.366	.353	.326	.260	30.571	4	298	.000
3	.649	.422	.406	.313	.056	14.325	2	296	.000
4	.769	.592	.569	.266	.170	15.004	8	288	.000
5	.791	.626	.602	.256	.034	12.920	2	286	.000
6	.798	.636	.612	.253	.010	8.198	1	285	.000
7	.820	.672	.649	.241	.036	30.943	1	284	.000

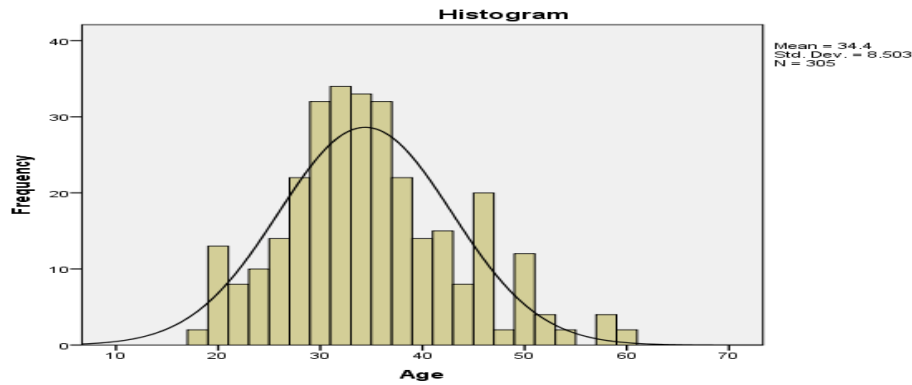
Notes. N= 305. Adj. R^2 = Adjusted R Square; ΔR^2 = R Square Change; ΔF = F Change, *** p < .001, ** p < .01, * p < .05.

Appendix38 The Critical Appraisal Skills Programme (CASP) checklist.

CASP' questions		Answer		
1	Did the study address a clearly focussed issue?	Yes;	Can't tell;	No
2	Was the cohort recruited in an acceptable way?	Yes;	Can't tell;	No
3	Was the exposure accurately measured to minimise bias?	Yes;	Can't tell;	No
4	Was the outcome accurately measured to minimise bias?	Yes;	Can't tell;	No
5	Have the authors identified all important confounding factors? Have they taken account of confounding factors in the design and/or analyses?	Yes;	Can't tell;	No
6	Was the follow up of subjects complete enough? Was the follow up of subjects long enough?	Yes;	Can't tell;	No
7	What are the results of this study?			
8	How precise are the results?			
9	Do you believe the results?	Yes;	Can't tell;	No
10	Can the results be applied to the local population?	Yes;	Can't tell;	No
11	Do the results of this study fit with other available evidence?	Yes;	Can't tell;	No
12	What are the implications of this study for practice?			

Note. CASP = critical appraisal skills programme

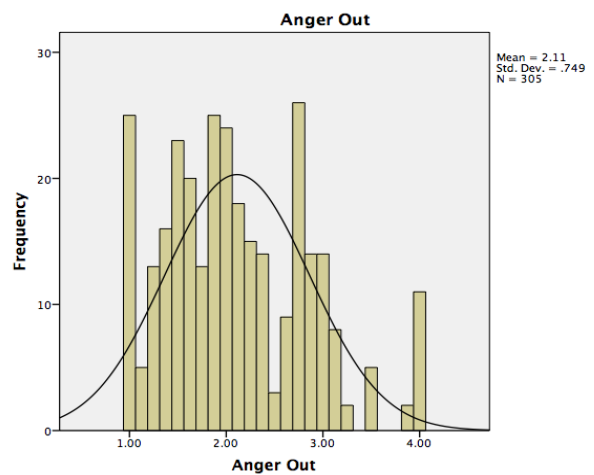
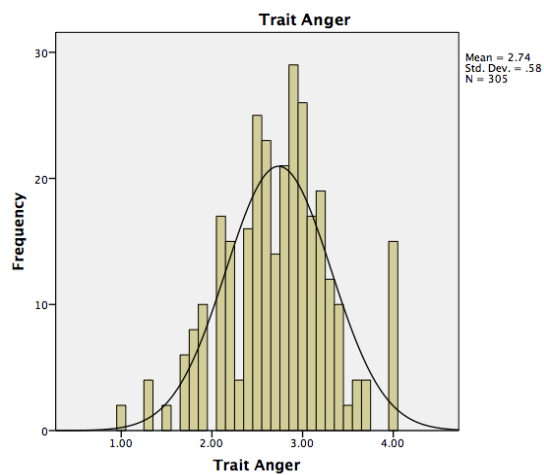
Appendix39 Histogram showing the distribution of Age.



Appendix40 Histograms showing the distribution of scores on Trait Anger and Anger expression-out subscales of the State-Trait Anger Expression Inventory -2 scale (STAXI-2).

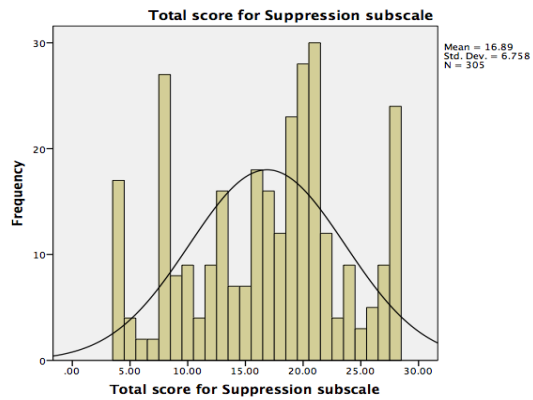
1. Trait Anger

2. Anger expression-out

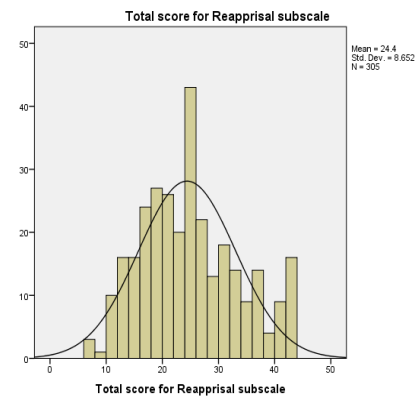


Appendix41 Distribution of scores on subscales of Emotion Regulation Questionnaire (ERQ).

1. Expressive Suppression

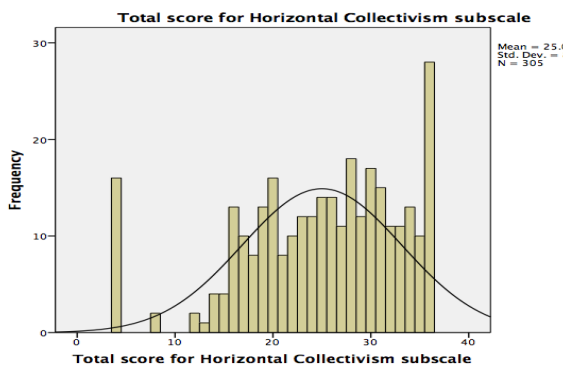


2. Cognitive Reappraisal

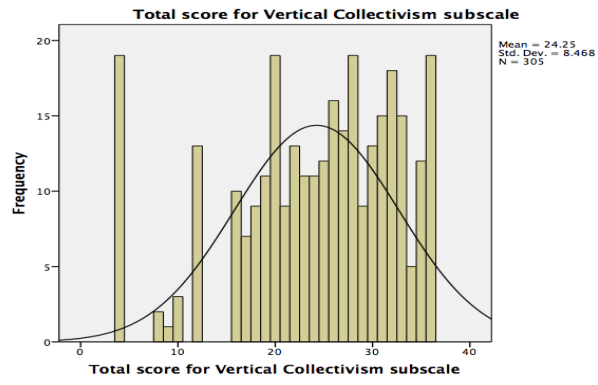


Appendix42 Distribution of total scores on subscales of the Horizontal and Vertical Individualism and Collectivism Scale (HVICS-14).

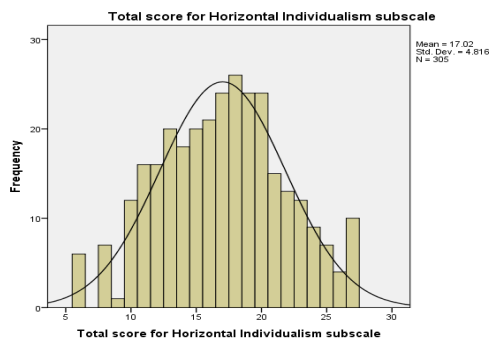
1. Horizontal Collectivism.



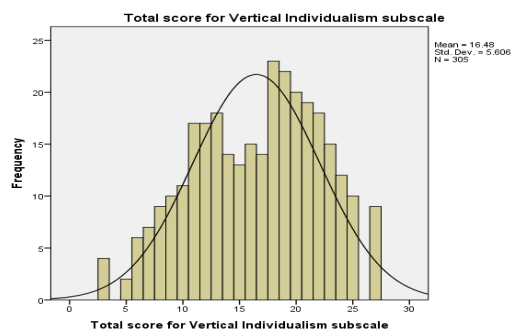
2. Vertical Collectivism



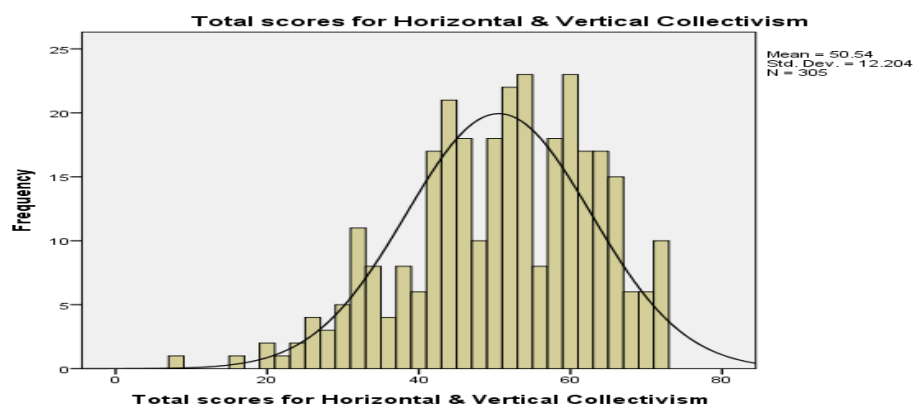
3. Horizontal Individualism



4. Vertical Individualism

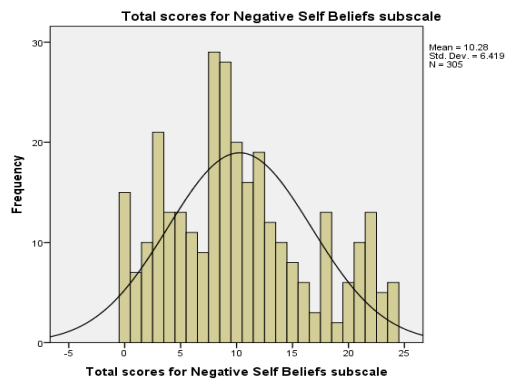


5. Combined of Horizontal and Vertical Collectivism

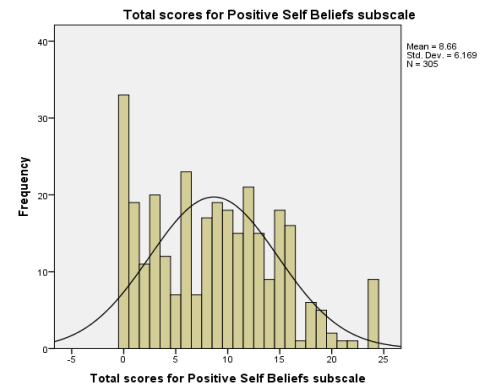


Appendix43 Distribution of scores on subscales of Brief Core Schema Scale.

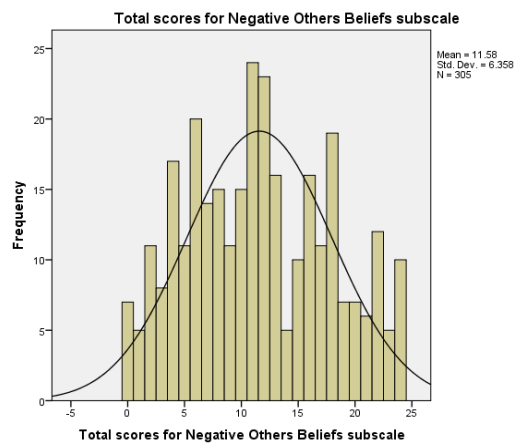
1. Negative Self-Beliefs



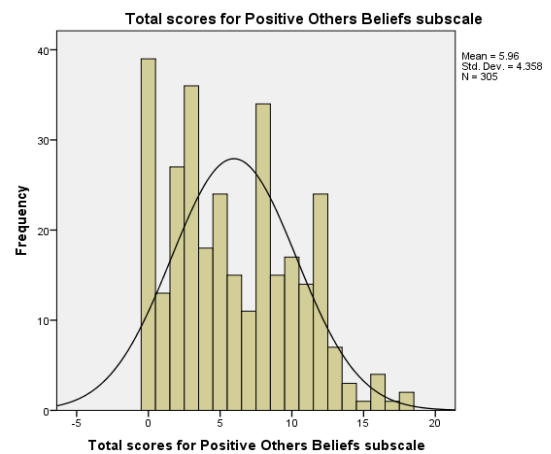
2. Positive Self-Beliefs



3. Negative other beliefs

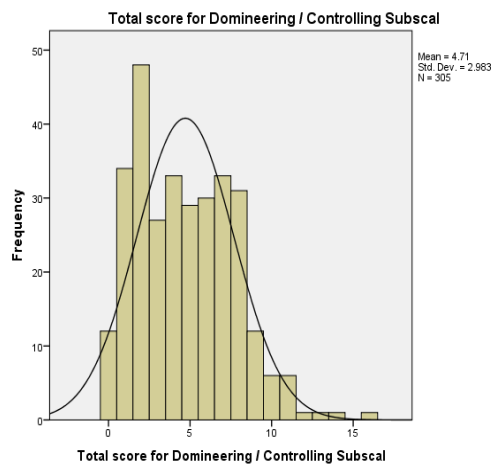


4. Positive other beliefs

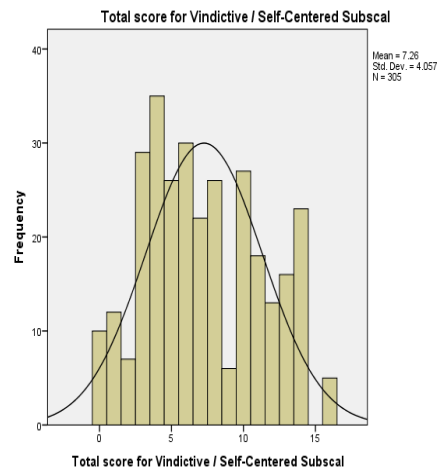


Appendix44 Distribution of scores on subscales of Inventory of Interpersonal Problems (IIP-32).

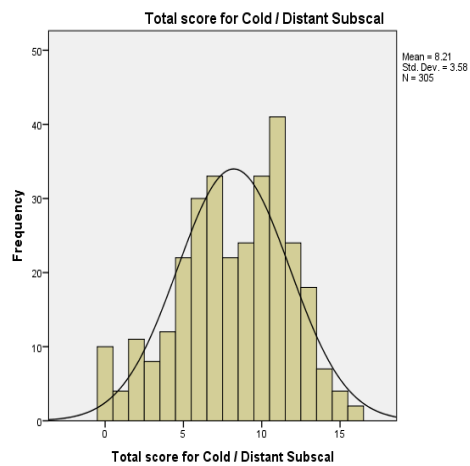
1. Domineering/ Controlling



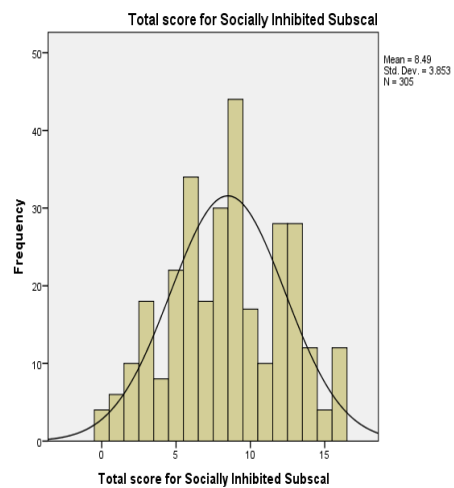
2. Vindictive/ Self-Centred



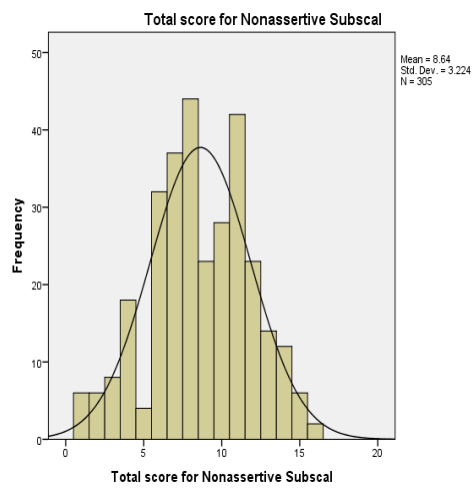
3. Cold/ Distant



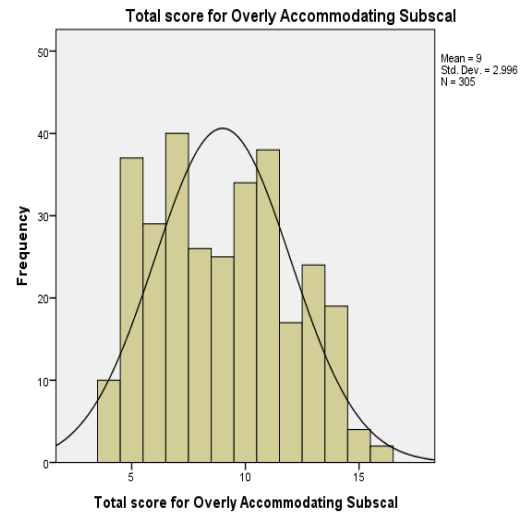
4. Socially Inhibited



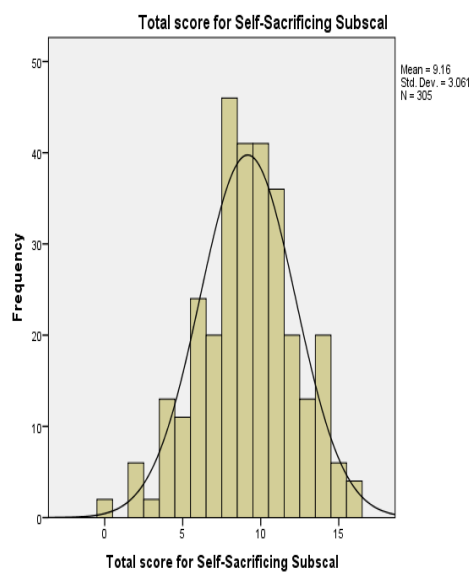
5. Non-assertive



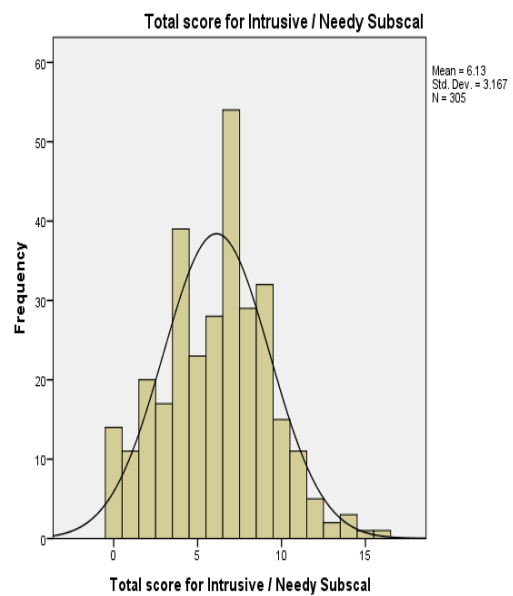
6. Overly Accommodating



7. Self-Sacrificing



8. Intrusive/ Needy

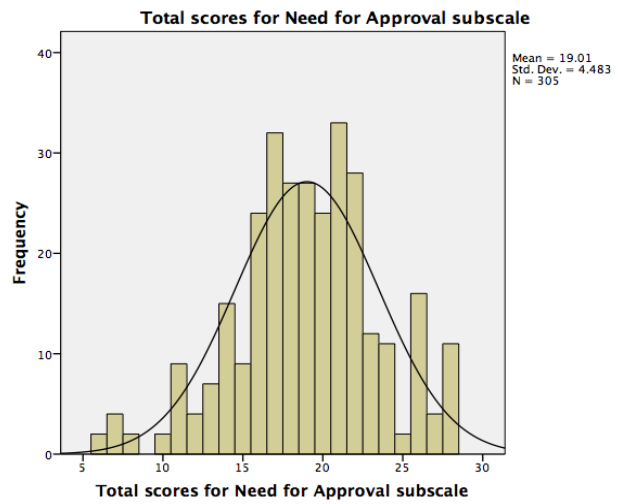


Appendix45 Distribution of scores on subscales of Dysfunctional Attitudes Scale (DAS-26).

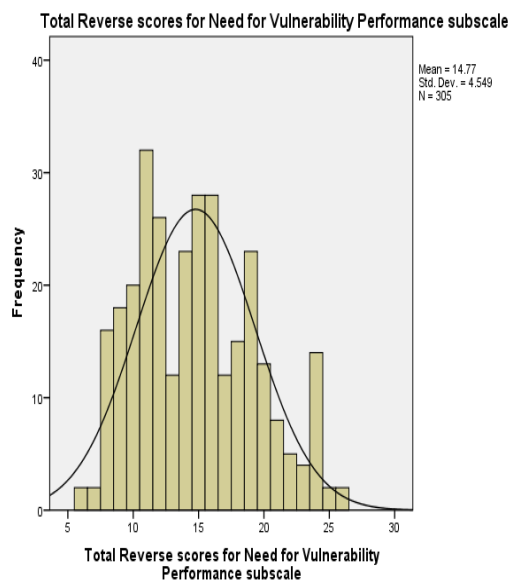
1. Success Perfectionism



2. Need for Approval



3. Vulnerability Performance



4. Need for satisfying others

