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Running Head: Depression Assessment Scale

Developing a New Multi-dimensional Depression Assessment Scale

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Declaration

The MSc by Research thesis has been accomplished by me, Ho Nam Cheung,
and it is all my own work.

Signed

Ho Nam Cheung

Acknowledgement

Many thanks to my supervisor, Prof. Mick Power for guiding me through the study. Thank you to all of my friends, especially Carrie and Sandy for your huge support and assistance.

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Abstract

Depression is a global risk factor of mental health. Empirical studies (e.g. Beck, 1967, 1976) and clinical observations (APA, 1996, 2000) showed that it has symptoms in 4 domains-, emotional, cognitive, somatic and interpersonal. A good depression assessment instrument makes clinicians more effective in screening out non-depressed people and choosing the appropriate treatment. However, commonly used depression assessment scale such as BDI-II, Hamilton depression rating scale, and CES-D put little attention on evaluating interpersonal symptoms. Only three per cent of the total items in all depression scales were on interpersonal domain. Therefore, a new depression assessment scale, aiming to evaluate all 4 domains of depressive symptom, was developed. In Study 1, an 85-item questionnaire containing all the possible depressive symptoms was distributed to 87 participants from mental health professions. Based on their clinical experience and knowledge, they rated how typical each symptom was on a 5-point Likert scale in which 5 represented the most typical symptom and 1 as the least typical symptom. The mean score for each item was calculated and ranked. Items with strong correlations were excluded. Finally, forty-eight Items with the highest mean scores were put into the new multidimensional depression assessment scale, which aimed to assess the severity and symptom pattern of depression. The new depression assessment scale contained 52 items,

48 from the first study and 4 from psychiatrists after checking the validity of the scale. It consisted of 4 subscales, emotional, cognitive, somatic and interpersonal.

One hundred mentally healthy participants finished the questionnaire, as well as BDI-II.

Reliability analysis and Pearson correlation gave high Cronbach's alpha (>0.8) for each subscale and good correlation (>0.7) between the new scale, its subscales, and BDI-II. All the evidence indicated that the new depression scale had good psychometric characteristics.

It was found to be reliable and valid for the use of assessing depression severity and symptoms.

Section 1: Introduction

1. Basic Concepts of Depression

Depression is a mental disorder with heterogeneous cause (e.g. Kessler et al., 2001). It consists of a spectrum of syndromes. Each syndrome is characterized by a group of symptoms, such as depressed mood, loss of appetite, and insomnia. People with same syndrome could either have a large number of symptoms or a few symptoms in severe degree (Bebbington, 2004). According to the formal criteria of diagnosis, DSM-IV, depression could be classified into four categories, unipolar depression, bipolar disorder, mood disorder due to a general medical condition, and substance-induced mood disorder (APA, 1994). Unipolar depression includes Major Depressive Disorder, Dysthymic Disorder, and Depressive Disorder not otherwise specified. Bipolar disorder is also further divided into Bipolar I disorder, Bipolar II disorder, Cyclothymic disorder, and Bipolar disorder not otherwise specified (APA, 1994). Unipolar depression is differed from Bipolar disorder based on the absence of manic, mixed or hypomanic episode and presence of one or more major depressive episode (APA, 1994). Mania is ‘an emotional state or mood of intense but unfounded elation accompanied by irritability, hyperactivity,

talkativeness, flight of ideas, distractibility, and impractical, grandiose plans' (Davison & Neale, 1998, p. 226).

Major depressive disorder is one of the most common mental health problems with lifetime occurrence of seventeen per cent (Blazer et al., 1994; cited in Davison & Neale, 1998). By the year of 2020, it is estimated to become the second most important risk for global health (Murray & Lopez, 1997). It occurs approximately twice as common in women as in men. It is also more common in lower socioeconomic class and among young adults. Fifteen per cent of depression turns to chronic depression that lasts for over two years (Coryell et al., 1994). Apart from its high occurrence, major depressive disorder also has a high rate of relapse and recurrence of about eighty per cent (Coryell et al., 1994).

The diagnosis of major depressive disorder included the occurrence of either depressed mood or loss of interest or pleasure in almost all activities for at least two weeks. Together with at least four other recently occurred or worsened continuous symptoms such as changes in appetite or weight, sleeping problem, reduction in psychomotor activity; decreased energy; feelings of worthlessness or guilt; difficulty thinking, concentrating, or making decisions; and recurrent thoughts of death or suicidal ideation, plans or attempts

(APA, 1994). The symptoms have to be severe enough to induce clinically significant distress or impairment in social, occupational, or other important areas of functioning (APA, 1994). DSM-IV uses specifiers to identify the subtypes of recent major depressive disorder, including melancholic, atypical, psychotic, catatonic, seasonal and disorder with postpartum onset. These subtypes have distinct pathophysiologies and responses to different treatments (Fink & Taylor, 1991; Rosebush et al., 1990; cited in Viguera & Rothschild, 1996). Major specifiers of melancholic feature of depressed disorder are either loss of interest in all or almost all activities, being not responsive to usually enjoyable stimuli and lingering depressed mood (APA, 1994). Atypical depression patients usually experience nonendogenous depression and are responsive to monoamine oxidase inhibitor (MAOI) antidepressants. Seasonal Pattern refers to the onset and remission of depression during a specific time. Postpartum onset of depression often occurs four weeks after giving birth. Psychotic depression indicates the presence of delusions and hallucinations. Finally, Catatonic features are cycles of depression and mania associating a number of somatic symptoms (APA, 1994).

As for bipolar disorder, it is less common than major depressive disorder. The lifetime occurrence is approximately 0.5-1 per cent (Kessler et al., 1994; Weissman & Myers,

1978; cited in Davison & Neale, 1998). Nevertheless, it is associated with many other psychological disorders and is rated among the thirty most influential health problem (Murray & Lopez, 1997; cited in Davison & Neale, 1998). Every year, nine to fifteen men and seven to thirty women are diagnosed (Goodwin & Jamison, 1990; cited in Davison & Neale, 1998) and the occurrence is relatively equal among men and women. The variation across cultures, marital status, society and ethical background is less clear than that in unipolar depression (Bebbington, 2004).

Although unipolar depression and bipolar disorder are often distinguished by the presence of manic episode, presence of mania is not the only difference. In fact, they vary in many ways. For example, bipolar disorder is more genetically bounded than unipolar depression (e.g. Winokur et al., 1993a; cited in Davison & Neale, 1998). Bipolar patients are more likely than unipolar patients to have family members with the same disorder (Angst, 1966; Perris, 1966; cited in Davison & Neale, 1998). Besides that, under similar level of stress, bipolar patients experience an earlier and more acute onset (Winokur et al., 1993b; cited in Davison & Neale, 1998) at late 20s while unipolar patients usually have onset at early 40s (Angst, 1966; Carlsson et al., 1974; Perris, 1966; Winokur et al., 1969; cited in Davison & Neale, 1998). Minor differences between unipolar and bipolar disorder (Beckham et al.,

1995; cited in Davison & Neale, 1998) include more negative interaction between mother and children (Gordon et al., 1989; cited in Davison & Neale, 1998), as well as marital crisis (Perris, 1966; cited in Davison & Neale, 1998). Regarding mood, unipolar patients also reported more anxiety than bipolar patients (Beigel & Murphy, 1971; Katz et al., 1982; cited in Davison & Neale, 1998). Biologically, hypersomnia is more frequent in bipolar patients while individuals with unipolar disorder are more likely to have insomnia (Akiskal et al., 1983; Detre et al., 1972; cited in Davison & Neale, 1998). Finally, bipolar patients react better to lithium (Coppin et al., 1982; cited in Davison & Neale, 1998) but more poorly to tricyclics (Katz et al., 1982; cited in Davison & Neale, 1998) than unipolar patients.

The aim of this project is to construct a multidimensional depression assessment instrument to examine the severity and symptom pattern of Major Depressive Disorder. In the next few chapters, depression assessment and depressive symptoms in four domains, emotional, interpersonal, cognitive, and somatic are extensively reviewed. They provide insights of what should be included in the new depression scale. Two studies were then conducted. In the first study an 85-item questionnaire was designed. It covered almost all the symptoms in depression. A group of mental health professionals rated each item

according to how typical they were as depressive symptoms. The best representatives of depressive symptoms were selected to enter the new depression scale. A 52-item new depression scale was constructed and its psychometric properties were tested in the second study.

2. Emotional Domain of Depressive Symptoms

2.1 Emotional Symptoms of Depression

Emotional symptoms of depression, including sadness, anxiety, anger, guilt, and shame (Blatt, 2004), last throughout the whole course of depression. These emotions could usually be spotted easily from individuals' behaviour and facial expression (Hamilton, 1982). Emotional symptom of depression described by DSM-IV shares many similarities with the clinical observation by Hamilton (1982). Sad mood is most obvious and dominant feature. In fact, depressed mood that lasts for over two weeks is one of the essential diagnostic criteria for Major Depressive Episode (APA, 1994). Depressed individuals describe their mood as depressed, sad, hopeless, discouraged or 'Down in the dumps' (Criterion A1) (APA, 1994) which makes them feel trapped. Initially individuals may not be aware of their sad mood, but will acknowledge it when they are reminded. As the severity of depression increases, their low mood becomes continuous. On the other hand, some individuals experience a milder form of depressed mood, which includes lowering of mood, failure to respond emotionally to events or people, and lacking emotional sensitivity (Hamilton, 1982).

Sadness is not the only mood depressed individuals could feel. Some individuals report that they feel numb and anxious. During the 'prodromal' phase which takes place before the acute onset of depression, anxiety is the major symptom, together with some other mild symptoms (Hamilton, 1982). After depression becomes clinically significant, the central features are depressive mood and guilty feeling. However, anxiety lingers throughout the course of depression, along with other somatic and cognitive symptoms (Hamilton, 1982). Irritation and persistent anger at slightest provocation are expressions of anxiety. These characteristics prevent people from relaxing and thus they consistently feel tensed (Hamilton, 1982).

Other typical emotional symptoms, guilt and sense of worthlessness arise as depressed individuals misattribute the negative consequence of events to personal defects and overestimate their role in untoward events. The feeling can become delusional and people blame themselves for events they cannot control, such as world poverty (APA, 1994).

Empirical studies (e.g. Alexander et al., 1999; Ghatavi et al., 2002) supported the role of guilt in depression by demonstrating that guilt is not only associated with depression but also with thoughts of suicide.

On the other hand, some recent studies (e.g. Andrews et al., 2002; Orth et al., 2006; Stuewig & McCloskey, 2005) pointed out that shame is more related to depression than guilt. Although both shame and guilt are self-conscious emotions that involve a negative evaluation of the self (Tangney, 1999), shame leads to the negative evaluation of the entire self, as people consider themselves failed to meet social standards such as moral standards, competence and aesthetic standards (Tangney, 1999). Consequently they are more likely to attribute negative consequence of life events to internal, stable and global factors (Gotlib & Abramson, 1999). In contrast, guilt is caused by failing to meet moral standards (Baumeister et al., 1994; Haidt, 2003) and thus individuals evaluate their behavior negatively (Tangney, 1999), rather than the entire self. It results in attributions to specific and unstable factors (Gotlib & Abramson, 1999). Shame and guilt elicit different interpersonal motivations. Shame results in an aggression and avoidance while guilt leads to empathy in social interactions (Tangney, 1991; Tangney, et al., 1992). According to Tangney and colleagues (1987), shame, rather than guilt, arises from the discrepancy between the ideal self and perceived self. This discrepancy is consistent with that which is mentioned in cognitive theory. It elicits negative evaluation of the self and thus depression.

Empirical evidence suggested that when guilt and shame are evaluated simultaneously with depression (Alexander et al., 1999; Fontaine et al., 2001; Harder et al., 1992; Stuewig & McCloskey, 2005; Tangney et al., 1992), guilt is comparatively much less associated with depression than shame. For example, Fontaine and colleagues (2001) reported semipartial correlations .35 for shame and depression when guilt is controlled and -.4 for guilt with depression when shame is controlled. Other studies such as those by Stuewig and McCloskey (2005) and Alexander et al. (1999) also reported similar correlations. Finally, Orth et al. (2006) assessed the amount of immediate feeling of shame and guilt after marital failure and examined their relationship with depression. Their findings supported that shame has a greater effect on depression than guilt. Given the findings on both sides, it is certain that neither guilt nor shame should be eliminated from the symptomatology in depression assessment scales.

Beneath the depressed emotions, depressed individuals are found with malfunction of appetitive (positive) and defensive (negative) system as well as unique affective style (e.g. Clark et al., 1994; Depue & Iacono, 1989; Fowles, 1988, c.f. Rottenberg & Gotlib, 2004). This is a unique characteristic only in depression rather than other psychopathologies (e.g. Clark et al., 1994, cf. Rottenberg & Gotlib, 2004). As stated in the emotional context

insensitivity (ECI) hypothesis, depressed individuals are less responsive to positive and negative stimuli and more responsive to novelty (Rottenberg, Gross, & Gotlib, 2005). As a result, the biological disorders that depressed individuals usually experience such as anhedonia, psychomotor retardation, fatigue, anorexia, and apathy could be due to reduced activity in appetitive motivation system (Rottenberg & Gotlib, 2004).

Another piece of evidence comes from measuring neural activity of depressed people, which is less activated than non-depressed counterparts when positive stimuli are presented, such as smiling human faces (Gotlib et al., 2001; cited in Rottenberg & Gotlib, 2004). Researchers also discovered that depressed people generated less response both behaviourally and emotionally (Sloan et al., 2001) when presented with other positive stimuli such as pleasant films, drinks (Berenbaum & Oltmanns, 1992) and slides (Sloan et al., 2001). Indeed, depressed individuals do not only respond less to rewarding stimuli; they also exhibit less response to pervasive stimuli such as heat (Hall & Stride, 1954) and electric shock (Davis et al., 1979). In general, changes in environment have less impact on them (Rottenberg & Gotlib, 2004). Mneimne et al. (2008) drew the same conclusion after measuring the startle blink responses of nonclinical depression samples when seeing novel

pictures, suggesting that the lack of response to stimuli is a universal symptom in clinical and nonclinical depressed populations.

In rewarding and threatening situations, affective style determines one's speed and intensity of emotional and behavioral response (Davidson et al., 2002; Dennis, 2006; Derryberry & Rothbart, 1997; Gray & McNaughton, 2000). The intensity of sensitivity varies among individuals (Higgins, 2006). One component of the affective style, Behavioural approach sensitivity (BAS) is the motivation of responding emotionally to rewarding situation and obtaining positive reinforcement. Another component, behavioural inhibition sensitivity (BIS) is the motivation of responding emotionally to prevent or get rid of potentially threatening situations (Breiter & Rosen, 1999; Carver & Scheier, 1998; Davidson, 1998a; Gray & Higgins et al., 1994; McNaughton, 2000). Low BAS found in depressed subjects (Campbell-Sills et al., 2004; Derryberry & Rothbart, 1997; Kasch et al., 2002), indicating that they experience less positive emotion from rewarding situations as well as being less motivated to seek rewards.

Apart from emotional response, depressed people have lower levels of emotional perception, revealed in their reduced capability to recognize the emotion from facial

expression (Csukly et al., 2009). Neuroscience research using affective imagery (Gehricke & Shapiro., 2000; cited in Rottenberg & Gotlib, 2004), expressive facial stimuli (Wexler et al., 1993; cited in Rottenberg & Gotlib, 2004), startle (Allen et al., 1999; cited in Rottenberg & Gotlib, 2004), and emotional facial expression (Gotlib et al., 2001) reflected less behavioral response and brain activity in depressed individuals (Rottenberg & Gotlib, 2004). Being less sensitive to other people's emotion, depressed individuals are therefore emotionally stereotyped in social situation that makes them fail to respond with appropriate emotion (Rottenberg & Gotlib, 2004).

2.2 Emotional factor as vulnerability factor to depression

While emotion is the predominant characteristic of depression, researchers have started to explore the possibility of emotional disturbance as the vulnerability for depression (Cicchetti *et al.*, 1995; Cole *et al.*, 1994a; Davidson *et al.*, 2003; Garber and Dodge, 1991; Kring and Bacharowski, 1999; cited in Chaplin, 2006). As mentioned before, the behavioural activation system activates under positive stimuli to generate rewarding behaviours and positive emotions. The behavioral inhibition system responds to negative stimuli and gives rise to behavioral inhibition, passive avoidance, and increasing arousal. The two motivational systems are established in early stage and remain stable (e.g. Kagan, 1998; cited in Rottenberg & Gotlib, 2004) over time. They determine the social activity of individuals (Rottenberg & Gotlib, 2004) and are the reasons for inappropriate social behavior and problematic interpersonal relationships.

From studies with vulnerable individuals, malfunction of appetitive and defensive systems are found. These individuals have greater activation of defensive system and greater response to negative social stimuli such as social threats, peer rejection (Boivin *et al.*, 1995), and criticisms from intimates (Hooley & Gotlib, 2000). When they obtain less

positive reinforcement from social interactions, they are more reluctant to participate in social activities (e.g., Lewinsohn et al., 1974). Consequently, these people develop a high risk for depression (Bovin et al., 1995). Although mixed findings are produced on association between appetitive system, social activity and depressive symptoms, there is no doubt that increasing activity of defense system plays a role in the onset of depression (Rottenberg & Gotlib, 2004).

An affective style also contributes to the onset of depression. Specifically, high BAS allows individuals to overcome obstacles for rewards, though they have greater tendency to experience anger when the rewards are blocked and sadness when rewards are lost. On the other hand, high BIS is more likely to elicit withdrawal and anxiety in threatening conditions (Dennis, 2007). In fact, the direct link of BAS and depression has been illustrated in studies by Campbell-Sills et al. (2004), Derryberry and Rothbart (1997), and Kasch et al. (2002). Others studies suggested that the two components of emotional regulation, cognitive reappraisal and expressive suppression combine with affective style to connect to depressive mood and depression (Henriques and Davidson, 2000). Cognitive reappraisal refers to the mental activity to reduce the negative emotion or magnify the positive emotion that future events could bring; expressive suppression inhibits the

ongoing emotional expressive behavior (Dennis, 2007). In fact, individuals with low BAS and those who tend to mobilize cognitive reappraisal, experience more positive emotion, better interpersonal relationship and subjective and objective well-being than those who tend to suppress their emotional behavior (Gross & John, 2002, 2003). They consequently have lower risk for depression.

Social relationships are closely connected to emotional experience (Keltner & Haidt, 1999, cited in Rottenberg & Gotlib, 2004). In fact, the level of positive affects and level of social activity correlate positively (Clark & Watson, 1988). For example, shame and embarrassment are associated with social inferiority to others (Gilbert & Trower, 1990). Anger arises from being mistreated (Lazarus, 1991). Happiness comes from unfettered social play (Boulton & Smith, 1992; cited in Rottenberg & Gotlib, 2004). Apart from that, formation of secure social bonds and social attachment are crucial to eliminate emotions such as anxiety and distress (e.g. Bowlby 1969, 1973; cited in Rottenberg & Gotlib, 2004). Disrupting the secure attachment system leads to abnormal social behavior and negative mood (Bowlby, 1973; cited in Rottenberg & Gotlib, 2004).

Difficulty in restoring negative emotion back to normal with an effective emotional

regulation mechanism (Cole et al. 2004; Cole et al., 1994a; Garber and Dodge 1991; Gross 1998; Schore 1994) results in prolonged negative mood and depression. Berenbaum et al. (2003) pointed out that anger dysregulation could result in more prolonged and intensive depressive symptoms, as well as relapse of depression and distress. In line with their finding, Koh et al. (2002) suggested that depression is highly associated with high level of trait anger experience, anger-in expression, and the suppressed frustration for themselves.

The difficulty in regulating one's emotion could also interfere with people's social interaction, resulting in social anxiety. For example, stereotyped emotional response leads to awkward social behavior (Rottenberg & Gotlib, 2004), such as inappropriate self-derogation, self-disclosure, and helplessness (Jacobson & Anderson, 1982; cited in Rottenberg & Gotlib, 2004). Studies such as Joiner (2002) with depressed populations found that depressed people are too preoccupied with their problems that they put too much emphasis on seeking reassurance and trying to get others to solve their problems (Joiner, 2002). This could induce frustration in their partners as it violates the emotional-expressive reciprocity of social interaction. Their partners cannot get feedback from them about their performance and the relationship. Gradually depressed individuals become less

welcome in social activities. This leads to their social withdrawal, which is a risk factor for depression (Bovin et al., 1995).

In conclusion, several emotions occur during depression. One very crucial criterion for major depression to be diagnosed, is depressed mood for more than two weeks. Apart from sad mood, depressed individuals experience other emotion such as anxiety, which sometimes comes in the form of irritation and easy to get angry. Depressed persons may also have irrational feeling of guilt and shame. When investigating the mechanism of depressed emotion, researchers found malfunctional appetitive (positive) and defensive (negative) system as well as unique affective style in depressed individuals. Under their influence, depressed individuals tend to respond less emotionally and behaviorally to positive stimuli, while could also be the risk factor for depression.

3. Cognitive Domain of Depression

3.1 Cognitive Symptoms of Depression

Cognition is defined by Neisser (1967) as ‘all the processes by which the sensory input is transformed, reduced, elaborated, stored, recovered, and used’ (p. 4) (cited in Rush, 1987).

Cognitive symptoms of depression such as suicidal thought, poor concentration, and feeling failure, could elicit depressive symptoms in other aspects, including affective, motivational, behavioral and physiological dysfunctions (Rush, 1987). As a result, they catch a great deal of attention from researchers.

Decades ago Hamilton (1982) established a system of depressive symptoms based on clinical observation. It is similar to the diagnostic criteria of DSM-IV (APA, 1994).

According to Hamilton (1982) and DSM-IV (APA, 1994), suicidal thought is a crucial cognitive symptom of depression. It changes progressively from a milder thought of worthlessness of life to preoccupation with death and suicidal plans, following which are suicidal attempts. Another common cognitive symptom, loss of interest, is one of the essential criteria of depression (APA, 1994). Depressed individuals are more likely to exaggerate the negative side of things than nondepressed counterparts. They perceive

themselves, their life, work and activities as failure and worthless (APA, 1994; Hamilton, 1982). They also perceive their future as hopeless, and they benefit little from reassurance and comfort (Hamilton, 1982).

Since Beck developed his cognitive model 40 years ago, cognitive theories of depression have attracted wide attention and are supported empirically (e.g. Dent & Teasdale, 1988). While it is obvious that depressed individuals have negative cognitive functioning (e.g. Beck, 1963, 1987), it is also possible that cognitive dysfunction predicts depression. The negative self perception of vulnerable individuals induces them to process environmental information selectively, and generate a negative evaluation of the world and future. It in turn results in depressive mood and problematic behaviour (Clark et al., 1999; Haaga et al., 1991).

Beck (1963, 1987), in his cognitive model of depression, proposed several cognitive concomitants of depression. They are named the 'cognitive triad', which includes automatic negative thought of the self, the world and the future. Depressed individuals perceive themselves as negative and inadequate. With insufficient reasoning, they establish low self-regard, desire to escape, and suicidal wishes. In Lasher and Lynn's (1981) study,

they discovered that when giving a role-playing task to depressed and non-depressed participants, depressed participants evaluated their performance more negatively than non-depressed counterparts. In addition, Buchwald (1977) and Gotlib (1981) illustrated that depressed people recalled more negative stimuli that were presented to them. They also rated the stimuli more negatively when these were connected to the self. However, when the stimuli were about others, they tended to judge and recall them more objectively. According to Blatt et al. (1982), depressed people are more self-critical. They have lower self-esteem and describe themselves with more negative but fewer positive adjectives.

Depressed individuals believe that the world has too many obstacles for them, so they view it negatively, even though positive interpretation is plausible (Beck, 1967, 1976). They feel that their future is hopeless (e.g. Abramson et al., 1978; Blackburn et al., 1986; Dohr et al., 1989; Hamilton & Abramson, 1983; cited in Bieling & Segal, 2004). When they come across new tasks, they usually expect failure (Beck, 1967, 1976). They also distort neutral and standardized interpersonal experience and achievement (Krantz & Hammen, 1979; Krantz & Liu, 1987; Watkins & Rush, 1983; as cited in Bieling & Segal, 2004). In fact, the world and future domains in cognitive triad are associated with the self (e.g. Beckham et al., 1986; cited in Haaga et al., 1991). The world does not refer to the

world at large, but the subjective world that sets a high standard for individuals to accomplish and obstacles to prevent them from attaining their life goals (Lewinsohn et al., 1982). Similarly, the future is a prediction of one's own fate (Beck et al., 1974), which they perceive as hopeless. Generally speaking, everything associated with the self is perceived negatively by depressed individuals.

Self-defeating attitudes even with the presence of contradictory evidence arise from negative self-schema (Beck, 1967, 1976). Schema is defined by Beck (1964) as 'a structure for screening, coding and evaluating impinging stimuli. In terms of the individual's adaptation to external reality, it is regarded as the mode by which the environment is broken down and organized into its many psychologically relevant facets; on the basis of the matrix of schemas, the individual is able to orient himself in relation to time and space and to categorize and interpret his experiences in a meaningful way.' (p. 564). The schema is a body of knowledge which guides attention, expectancies, interpretations and memory searches (Fiske & Linville, 1980). Schema of depressed individuals consists of unrealistically perfect standard and rigid negative attitude about the self (Beck, 1979). They therefore attend to information that is consistent with their schema, exaggerating the negative information and eliminating the positive (Beck, 1967, 1976). It

results in a negative view of the self, in surroundings as well as their future (Sacco & Beck, 1985). Beck (1976) believed that schemas are established in childhood after negative life events and persists throughout one's life. It remains latent until triggered by a stressful event to become a vulnerable factor of depression (Beck, 1967). Two subtypes of schemas could predict depression. One of them drives people to seek high self-standard, independence and achievement. The other one determines their excessive need for interpersonal intimacy and security (Beck, 1983). When vulnerable people come across with stressor such as failures, the first subtype of schema (autonomy) is triggered. When stressors such as social rejection appear, they activate the second subtype of schema (sociotrophy) (Beck, 1983). Negative schema is both a symptom and a predictor of depression. It determines how information is interpreted and therefore leads to symptoms in other domains. The negative thinking it elicits prevents natural healing by reducing individuals' social activities (Beck et al., 1979). Negative thinking also induces prolonged depressive mood and behavior due to its ruminative and self-focus nature (Beck, 1979). Controlling for the content of negative thought, a reciprocal relation between negative thought and negative mood is established (Persons & Burns, 1985; Teasdale & Fennel, 1982). Brain imagining techniques as fMRI and PET also identifies that negative thinking pattern induces negative mood by changing physiological and cortical activity such as

heart beat rate (Schwartz et al., 1981), respiration rate (Schuele & Wiesenfeld, 1983), as well as the blood flow from the cerebellum to limbic, paralimbic and brainstem (George et al., 1995). In line with the theory, Dent and Teasdale (1988) found that people with more negative thinking took longer time to recover from depression, providing support for the relationship between self evaluation and persistence of depressive symptoms.

3.1.1 Information processing in depressed individuals.

According to Beck (1963, 1987), the problematic information processing in depressed individuals contributes to cognitive distortions. The faulty information processing includes ‘arbitrary inference, selective abstraction, overgeneralization, magnification and minimization, personalization and dichotomous reasoning’ (Beck, 1967, p, 228-240). For example, arbitrary inference refers to drawing negative attribution under opposite evidence or absence of necessary negative evidence. Selective abstraction allows depressed individuals to exaggerate the importance of minor negative component and rely on it to evaluate the whole event negatively. Magnification and minimization lead to overestimation of negative events and underestimation of positive event (Beck, 1963, 1987). When presented with hypothetical scenarios in a study, depressed people had a

greater tendency than other psychiatric patients and mentally-healthy people to draw negative and illogical conclusion beyond the information provided (Haaga et al., 1991). They were also more likely than nondepressed individuals to justify their problematic conclusions (Haaga et al, 1991). Gotlib (1981) discovered that depressed subjects overestimated the punishments and underestimated the reinforcement they gave to themselves, comparing with more accurate judgment that non-depressed controls made. The problematic information processing is greatly determined by negative self-schema (Beck, 1963, 1987).

3.1.2 Memory of depressed individuals

Signal detection provides insights into the difference of memory between depressed and non-depressed people. Depressed individuals have better and faster retrieval of negative materials than non-depressed counterparts (Rude et al., 1988; cited in Haaga et al., 1991). For example, in Lloyd and Lishman (1975)'s study, subjects were required to recall positive and negative memory after seeing a number of neutral cued words. Depressed subjects had shorter response time for negative memory when severity of depression increases. The study by Teasdale and Fogarty (1979) also discovered that the severity of

depressive symptoms was positively correlated with the speed and proportion of recalling negative autobiographic memories. Later on, a series of carefully designed experiments using letter combinations (Slife et al., 1984), segments of a story (Breslow et al., 1981) and self-referent encoding paradigm (Myers et al., 1989) confirmed the better recollection of negative memory in depressed individuals. The evidence supports the view that memory retrieval is more likely than memory encoding to be the difference between depressed and nondepressed people (Haaga et al., 1991). For example, Gotlib (1983) discovered that depressed people recalled feedback from other people more negatively than it really was while non-depressed people and mentally-health individuals did not exhibit significant distortion in memory retrieval.

3.1.3 Attention in depressed people

Bower (1981) and Ingram (1984) demonstrated that depressed people have attentional bias towards negative stimuli. Their negative schema facilitates a more rapid and efficient encoding of negative stimuli (Beck, 1979). Using the Stroop task which requires participants to name words with mismatching colour of word and colour of ink, Gotlib and McCann (1984) demonstrated that depressed individuals were primed to attend to the

negative side of the information as they took more time to name the ink colour of depressed or negative words (I am certain negative words were used). This suggested that the negative stimuli created more distraction and interference than natural words in depressed individuals. At the same time, depressed mood triggers the 'depressive nodes' in the memory system that contain negative concepts and information (Bower, 1981), greater attention to the negative side of an event is resulted (Ingram, 1984).

3.2 Cognitive Vulnerability of depression

According to the definition by Ingram & Luxton (2005), a vulnerability to psychopathology is a pre-existing and stable factor that increases the chance of the disorder to occur. While the dysfunctional cognitive functioning in depressed individuals received wide recognition, many studies (e.g. Alloy et al., 2006; Alloy & Abramson, 1999; Beck, 1967, 1978; Steinberg et al., 2006) start exploring the causal relationship between dysfunctional attitude and depression. In fact, many cross-sectional studies on children, adolescents and adult population successfully identified that negative inferential styles, dysfunctional attitudes, information processing biases and ruminative response styles are vulnerable factors that could increase the risk of depression (e.g. Hankin, 2008; Timbremont & Braet, 2006). When a person experiences negative life events, these cognitions combine with environmental stressors to predict the onset of depression (e.g. Beck, 1967, 1976).

3.2.1 Dysfunctional Attitude

Beck (1967, 1987) postulated that negative self-schema on failure, inadequacy, loss and worthlessness is a vulnerable factor of depression. It determines information processing and results in negative evaluation of the self, world and future. The negative schema shows in the form of dysfunctional attitude, which are stable and traitlike attributes that could lead to depression. High-risk individuals set up high standards to compare the self with and build their happiness based on recognition from other people (Beck, 1967, 1978). Studies with formerly depressed subjects, who are highly vulnerable for depression, found greater uncertainty of the attitude they adopt (Wenzlaff et al., 2002) and a more negative self-schema (Kuiper & Olinger, 1986; Kuiper & Olinger, 1989; Kuiper et al., 1988, as cited in Wenzlaff et al., 2002). They confirm that dysfunctional attitudes are more likely to occur in vulnerable individuals and induce future depressive episodes. However, retrospective studies are controversial to be used as the evidence of the causal relationship of dysfunctional attitude and depression (Alloy et al., 2006). Fortunately, the prospective data from Temple-Wisconsin Cognitive Vulnerability to Depression (CVD) Project (Alloy & Abramson, 1999) provides convincing evidence that dysfunctional attitudes are vulnerability factors for the onset and recurrences of depression (Alloy et al., 1999; Alloy

et al., 2006). The project is the most extensive longitudinal study that lasted for 5.5 years. University freshmen were identified as high risk (HR) or low risk (LR) participants for depression based on Dysfunctional Attitude Scale (DAS; Alloy et al., 2000). Participants' cognition, depressive episodes and stressful life experiences were measured at several week intervals. HR subjects were found to have higher lifetime occurrence of major depression and minor depression than LR subjects (Alloy et al., 2000). Remitted subjects with high risk (HR) were also more likely than those with low risk (LR) to experience a recurrence of depression. The CVD project confirmed the stability of negative inferential styles and dysfunctional attitudes before, after and throughout the course of major depression (Haefffel et al., 2003). Apart from dysfunctional attitudes, the CVD project also concluded that the HR group adopted negative self-referent information processing, possibly guided by their negative self-schema. In a Self-Referent Information Processing Task Battery (SRIP), HR subjects processed negative and depressed-related adjectives with faster speed, greater endorsement, accessibility, memory recall, and certainty than LR subjects (Alloy et al., 1997). Negative self-referent information processing also interacts with negative cognitive style to predict the onset of major depression and minor depression in HR subjects (Steinberg et al., 2006).

Nevertheless, many studies, such as the one by Lewinsohn et al. (1981) did not find differences between dysfunctional attitudes in vulnerable and non-vulnerable individuals. In fact, researchers such as Miranda and Persons (1988) showed that dysfunctional attitudes depend on mood states and will return to normal after people recover from depression (Miranda and Persons, 1988). Dysfunctional attitude in vulnerable individuals combines with negative mood to predict depression. If the mood is controlled, mixed result could be found (Miranda & Persons, 1988). This could put the credibility of causal relationship between dysfunctional attitudes and depression under question.

3.2.2 Depressogenic Attribution

Apart from dysfunctional attitude, the hopelessness theory of depression by Abramson et al. (1989) postulated the contribution of depressogenic attribution to depression under negative life events. This negative inferential style is constructed when (1) people attribute the negative events to global and stable causes, when (2) they perceive the negative events with undesirable consequence as important and influential on one's life in many ways and when (3) they draw negative conclusion of the self after experiencing negative events (Abela et al., 2006; Abela et al., 2004). The diathesis-stress theory of depression provides

additional evidence for the importance of negative life events as the causes of depression. Without them, individuals cannot attribute the cause and sequence to stable and global causes and perceive the self negatively. They also cannot overestimate the likelihood of negative life events to occur. This theory is similar to the lock-and-key hypothesis of depression in which environment stressors are keys to trigger cognitive diathesis (Parker et al., 1998; Parker et al., 2000) and it is supported by numerous studies such as Abramson, & Siler, 2001; Alloy & Clements, 1998; Alloy et al., 2000; Beatty et al., 1997; Hankin et al., 1995; Kaslow et al., 2000; cited in Gladstone et al., 2003).

3.2.3 Ruminative Response Styles

The ruminative response styles theory by Nolen-Hoeksema (2000) is also a cognitive vulnerability-stress model. Rumination is defined by Nolen-Hoeksema (1991, p. 569) as ‘repetitively focusing on the fact that one is depressed; on one's symptoms of depression; and on the causes, meanings, and consequences of depressive symptoms.’ When the initial depressive symptoms appear, individuals with ruminative response styles place great attention on their symptoms and are more likely to maintain depression and develop more severe symptoms (Spasojevic et al., 2003). As it lasted for 5.5 years, the longitudinal study

also connected depressive rumination to the onset of major depression (Nolen-Hoeksema, 2000; Spasojevic & Alloy, 2001). Spasojevic and Alloy (2001) claimed that ruminating one's gloominess is a mediator of other cognitive vulnerabilities (negative cognitive styles, dependency, self-criticism, neediness and other risk factors, such as past history of depression) and onset of major depression. In the opposite way, negative cognitive styles could facilitate rumination which directs one's focus from negative life events to the self (Abramson et al., 2000; cited in Alloy et al., 2006). This elicits depressive mood and symptoms.

3.2.4 Stressful life events and depression

There is no doubt that the interaction between stressful life events and dysfunctional cognitive styles could predict depressive mood and symptoms (Abramson et al., 2002; Garber & Flynn, 2001; Ingram et al., 1998). In Lewinsohn, Joiner, and Rohde's (2001) 1-year longitudinal study with adolescent subjects they found that attributional styles and dysfunctional attitudes interacted with environmental stressors to predict the onset of major depression. They also found that attributional styles were effective even under low stress because the high cognitive vulnerability could compensate the low level of stress

(Abramson et al., 1989). In line with this finding, during the first year of the CVD project stressful life events interacted with negative cognition to predict the onset of major and minor depression (Alloy & Abramson, 1999). Similarly, in the 2-year longitudinal study by Hankin et al. (2004), negative inferential styles and dysfunctional attitude also combined with negative life events to predict the onset of major depression and a boost of depressive symptoms.

3.2.5 Cognitive style and parenting

Many researchers, such as Garber & Flynn (1998) and Gibb (2002) found that genetic, neurochemical, social learning and early traumatic experiences are crucial factors to the formation of negative cognitive styles. In particular, parents' inferential style corresponding to life events could directly affect their children (Alloy et al., 2006). Alloy and colleagues (2001) discovered that parents of high risk (HR) subjects in the CVD project showed more negative attribution regarding the cause and consequence of negative life events which happened to their children. Mother's inferential style, in particular, greatly predicted their children's onset of depression. Negative parenting style marked by emotional coldness and negative psychological control including criticism, intrusiveness

and guilt-induction has large impact on negative cognition and depression (Alloy et al., 2001). According to Parker (1983), this parenting style, 'affectionless control' is correlated with depression and negative cognitive style (e.g. Alloy et al., 2001; Alloy, Abramson, Gibb et al., 2004; Garber & Flynn, 1998). For example, HR individuals had fathers with fewer acceptances than LR subjects' fathers (Alloy et al, 2001), which predicted onset of depression. Negative psychological control by parents predicted ruminative response style in subjects (Spasojevic & Alloy, 2002). Rumination also mediated the overcontrolling parenting style and onsets of major depression (Alloy et al, 2006). Therefore, though the mechanism of parenting and depression remains fairly vague, it is obvious that emotionally distant and overcontrolling parentings partly shape the cognitive style of individuals and are related to onset of depression (Alloy et al., 2006). In addition, negative childhood experience, especially childhood maltreatment could also result in negative cognitive style. Repeated abuse by parents could lead to hopelessness-inducing attributions in which children attribute the abuse from external, unstable and specific factors to internal, stable and global factor, i.e., the self (Rose & Abramson, 1992). Emotional maltreatment is even more powerful than physical and sexual maltreatment to the development of negative cognitive styles as individuals are directly provided with the negative cognitions and attributions (Gibb, 2002; Rose and Abramson, 1992). In the CVD project (Alloy &

Abramson, 1999), HR subjects were also found to have more childhood emotional abuse than LR subjects, from parents, peers, and partners (Gibb et al., 2004). In the follow-up study by Gibb and colleagues (2001), levels of emotional maltreatment and onset of major depression are mediated by negative cognitive styles. A 6-month prospective study by Gibb, Alloy, Walshaw, Comer, Chang, and Villari (2006) also found that increasing in emotional maltreatment results in increasing negativity in attributional style, which is a powerful vulnerable factor for depression.

In conclusion, depressed individuals have dysfunctional attitudes. They hold negative, unrealistic and rigid beliefs about the self, the world and the future. Studies using the Dysfunctional Attitudes Scale (DAS; Weissman, 1979), Crandell Cognitions Inventory (CCI; Crandell & Chambless, 1986), and the Automatic Thoughts Questionnaire (ATQ; Hollon & Kendall, 1980) found that depressed people generally scored higher than other psychiatric patients, mentally health people and recovered depressed people (e.g. Crandell & Chambless, 1986). Maladaptive beliefs are found to be greatly associated with mood. These attitudes worsen as the mood goes down, improve as the mood goes up, and become undetectable when individuals recover. When come across with environmental stress,

vulnerable individuals with dysfunctional attitudes, ruminative response style, and depressogenic attribution are more likely to have depression.

4. Interpersonal Domain of Depression

4.1. Interpersonal Deficit in Depressed Individuals

DSM-IV (APA, 1994) pays considerable attention to cognitive, somatic and emotional symptoms while excluding most of the interpersonal deficits from depressive symptoms without specifying the underlying rationale (Beckham & Leber, 1995). Among all the symptoms as DSM-IV describes, loss of interest in almost all activities is the only item that indirectly indicates interpersonal deficits in depressed individuals. Although, DSM-IV does emphasize that depressive symptoms must be severe enough to cause impairment in social functioning, it focuses more on the magnitude of symptoms, rather than the nature of the symptoms. Despite the fact that interpersonal deficits were not described much in the DSM-IV, the bulk of evidence suggests the reciprocal relationship between interpersonal deficit and depression. Studies (e.g. Lewinsohn, 1974) suggested that it plays a vital role in depression as both a symptom and a risk factor.

Social resources are crucial in depression. They are defined as ‘the amalgamation of people's social networks, close relationships, community ties, enacted and perceived social support and extraverted individual orientation’ (Bessie` re et al., 2008, p. 47). Social

resources are associated with depression and mental health. Individuals with more social resources usually have better psychological functioning. They are less likely to feel lonely and depressed (Barnett & Gotlib 1988; Bruce & Hoff 1994; Finch & Graziano 2001). For example, people with fewer social resources are less likely to be depressed after using the internet to extend social network (Bessie` re et al., 2008; McKenna & Bargh, 1998, 2000). In other words, depressed people have fewer social resources and participate in fewer social activities. They maintain less contact with people in their social network which is smaller than non-depressed individuals (e.g. Youngren & Lewinsohn, 1980, cf Rottenberg & Gotlib, 2004). Depressed individuals often prefer interacting with relatives (Henderson et al., 1981) and therefore have less intimate friends (Brim et al., 1982). This is supported by Youngren and Lewinsohn (1980) who reported that depressed persons rated their social contact as less frequent and more problematic than non-depressed people. The restriction of their social contact is stable that it does not cease even after they recover from the episode (Billings & Moos, 1985a, 1985b; Gotlib & Lee, 1989). Their reluctance to participate in social activities could be due to their social skills deficits which prevent them from obtaining positive reinforcement during social interactions (e.g. Lewinsohn, 1974). They therefore experience social rejection and problematic interpersonal relationships. Social skills, defined as ‘the emission of behaviours which are positively reinforced by

others, is seen as an area of deficit especially important in the development' (Lewinsohn et al., 1969, p. 232). By observing the interaction between depressed and nondepressed people in unstructured interviews (Hinchliffe et al., 1971b), 10-minute monologues (Weintraub & Aronson, 1967), telephone conversations with confidants (Belsher & Costello, 1991) and psychotherapy sessions (Weissman & Klerman, 1973), social skill deficits of depressed people are revealed. Self-report questionnaires also indicated that depressed individuals are aware of their social skill deficits, as they are rated more negatively on their social skills (e.g. Lewinsohn et al., 1980; Meyer & Hokanson, 1985).

Depressed individuals' social skill deficits include inappropriate nonverbal and verbal behaviours. They tend to show greater social anxiety, shyness, low assertiveness, avoidance and less motivation to talk to others, especially to strangers (Weissman & Paykel, 1974). They also worry too much about how others think of them and so they spend a lot of effort in trying to please others. All these characteristics cast a shadow on interpersonal relationship. In terms of verbal performance, depressed individuals speak with lower volume (Darby et al., 1984; Gotlib, 1982), more sentences (Vanger et al., 1992), monotone, lower pitch which is an indication of lacking in emotion (Darby et al, 1984; Kuny & Stassen, 1993; Nilsonne, 1988; Talavera et al., 1994) as well as longer latencies

(Libet & Lewinsohn, 1973). When they are prompted, they have more difficulty than non-depressed people to produce speech (Calev et al., 1989) and their speech is harder for others to comprehend (Lewinsohn et al., 1980). Depressed persons often speak with a sad voice (Tolkmitt et al., 1982) and more spirantization, which refers to generating a loud noise from vocal tract (Flint et al., 1993). In their talking, depressed individuals are particularly skilled in expressing sadness. The emotion could easily be distinguished from their voice, pitch, speech rate, and intonation (Levin et al., 1985), while other emotions, such as happiness and anger are not obvious in their speech (Levin, et al., 1985).

Regarding speech content, depressed people are more likely to talk about negative well-being and sad feeling, especially with people they know. They also prefer revealing negative self-evaluations and asking about others' well-being (Hautzinger et al., 1982).

However, they are more likely to hide the negativity when talking with strangers (Segrin & Flora, 1998). On the other hand, they are less likely to praise others (Gotlib & Robinson, 1982) and provide constructive opinion in solving problems (Kahn, Coyne, & Margolin, 1985). In fact, during conversations they usually select more negative issue (Kuiper & McCabe, 1985) and deliver large negative self-disclosure. The inappropriate timing and the content of their self-disclosure could elicit rejection (Gurtman, 1987).

Depressed people reveal less facial expression, eye contact, gesture and nod. Nevertheless, they are rather skilled at expressing misery. At rest, they tend to show sad facial expression, such as corrugated brow, closed eyes, downward-curved mouth (Ganthrow, et al., 1978), and fewer smiles (Ellgring, 1986; Williams et al., 1972), giving people the impression of being depressed. Depressed individuals also avoid eye contact when speaking, probably due to their negative self-perception and lacking in confidence (Exline, Ellyson, & Long, 1975). This makes them less engaged and skilled in social interaction (Cherulnik, et al., 1978). Finally, depressed individuals use fewer gestures and head-nodding when they talk (Fossi et al., 1984), though they evince a greater tendency to body touch such as rubbing and scratching their hands (Hamilton, 1982). They are often found holding head down (Waxer, 1974) and replacing verbal communications with head movements to express eagerness (Hale et al., 1997).

Dysfunctional social skills prevent depressed individuals from participating in social activities by eliciting rejection (Marcus et al., 2001) and negative perception from others (Coyne, 1976a). The negative mood of depressed persons induces others to experience similar mood with them (Coyne, 1976). In several studies, people become more depressed,

aggressive, anxious, and rejecting after talking with depressed individuals. Depressed mood also elicits anger as people try to reduce their dysphoric mood by pleasing them. When their mood does not change, the respondents become frustrated (Coyne 1976a; Strack & Coyne, 1983). Studies regarding the relationship between depressed college students and their roommates concluded that the non-depressed roommates reported more aggression and less enjoyment towards the end of term (Hokanson et al., 1989). Finally, Marcus et al. (2001) discovered that as depressed people demonstrated more negative affect than normal people, they are more likely to be rejected. Another reason for rejection lies in depressed individuals' excessive reassurance seeking behaviour. Depressed persons constantly doubt whether people truly care about them and seek reassurance to verify that. However, they discredit the reassurance they get and seek more (Coyne, 1976b). When this pattern repeats it frustrates others and leads to their rejection and hostility (Coyne, 1976b).

According to the self-verification theory (Swann, 1990), people seek and accept feedback in line with their self concept and avoid evidence that contradicts their self concept. In this case they could obtain maximum control and prediction (Swann, 1990, 1996, 1997). They tend to ask for, pay attention to and give credibility to self-confirming negative feedback

(Suinn et al., 1962; Swann & Read, 1981a). They also choose partners that hold similar perception with their self perception (Swann et al., 1992). In order to ensure other people hold congruent perception with their self perception, they behave in certain ways intentionally (McNulty & Swann, 1994; Swann & Ely, 1984). As a result, depressed individuals are more likely to embrace a negative social world because it confirms their negative self image and makes them feel more controlled and secure. Depressed people would prefer interacting with people that perceive them negatively. They also want to be assessed more negatively by friends and family (Swann et al., 1992). This feedback-seeking behaviour deteriorates relationships and results in rejection not only by strangers, but also families and friends.

The social conflict, social isolation and problematic interpersonal relationship that depressed individuals experience, together with their hypersensitivity to interpersonal stress lead to higher and more persistent negative cognition and affect (Gunthert et al., 2007). Even less important daily stress could elicit a more persistent unpleasant mood in depressed people (Peeters et al., 2003). Therefore, although their initial reaction to chronic daily stressors may not be equally strong as normal individuals, the 'spillover' of negative

mood and cognition over the following days is crucial to maintaining depressive symptoms (Gunthert et al., 2007; Peeters et al., 2003).

Though it is obvious that interpersonal deficit is an indispensable part of depressive symptomatology, many research studies try to find out whether dysfunctional interpersonal relationships and social skill deficit have predictive power on depression. They are discussed in following paragraphs.

4.2 Interpersonal vulnerability to depression

Coyne's (1976a, 1976b) interpersonal model specified that the problematic behaviour of individuals creates undesirable social environment that could intensify and maintain depression. Several social risk factors come before depression and are demonstrated to have a strong connection with the onset of depression (Hammen, 1999).

Increasingly research studies have identified 'interpersonal sensitivity' as a probable contributor to depression (e.g. O'Neill et al., 2004). Interpersonal sensitivity refers to the easiness of detecting interpersonal stressors and consequent depression under the influence of psychological and environmental factors (Gunthert et al., 2007). The psychological factors include dysfunctional attitudes, schemas, and personality diatheses with interpersonal themes (Schmidt et al., 1999). For instance, personality characteristics such as sociotropy (Beck 1983) and dependency (Blatt & Zuroff 1992) make people depend on affiliation and approval from others to establish the sense of self (Abela et al., 2003). The environmental factors include a lack of social support, experience of rejection (Bieling & Alden, 2001) and interpersonal conflict (Gunthert et al., 2007) due to social skill deficits (Tse & Bond, 2004; Youngren & Lewinsohn 1980). The interplay of the two factors

intensifies the sensitivity of depressed or vulnerable individuals to everyday interpersonal stress (Gunthert et al., 2007), which could result in depression. In particular, vulnerable individuals feel lonely and insecure following interpersonal stressors. Together with the absence of intimacy, they could consequently experience negative cognitions and mood.

Daily interpersonal stressors, such as rejection and dismay have a greater impact (Gunthert et al, 2007) on individuals with unstable self-concept and those who rely on other people's feedback to be reassured of their adequacy, worth, or lovability (Joiner et al., 2001). Not only depressed individuals, individuals with heightened emotional reactivity to everyday interpersonal stress are more vulnerable to depressive symptoms (O'Neil et al, 2004), as they experience more chronic of negative mood and cognition following interpersonal stressor (Gunthert et al., 2007). These vulnerable individuals usually adopt ruminative thinking pattern (Nolen-Hoeksema & Morrow, 1993) or maladaptive coping style (Lyubomirsky & Nolen-Hoeksema, 1995) such as excessive reassurance-seeking (Joiner et al., 2001).

Excessive reassurance seeking predicts depression in many studies (e.g. Coyne, 1976b).

Mildly dysphoric people, who are not clinically significantly depressed, already seek

reassurance to ensure that partners care about them whenever the social world is changed or lost (Coyne, 1976b). However, they are not satisfied with the reassurance they obtained but seek for more. As the pattern repeats they are eventually rejected due to frustration and aggression from people around them. Decreasing social support elicits negative mood and cognition (Beck, 2007), more depressive symptoms and clinically significant depression. The relationship between depression, rejection and excessive reassurance seeking is examined in many studies. Reassurance seeking is demonstrated to be the moderator of current depression and low levels of social support (e.g. Katz & Beach, 1997). It also could be a risk factor for enhancing depressive symptoms under high stress (e.g. Joiner & Metalsky, 2001). In the five-week longitudinal study by Haeffel et al. (2007), excessive reassurance seeking interacts with a perceived reduction of social support to predict future establishment of depression. Finally, meta-analysis by Starr and Davila (2008) also support the correlation of reassurance seeking with depression and interpersonal rejection. On top of that, their study revealed that it is the perceived rejection, more than objective rejection that makes individuals more susceptible to depression. Individuals with high rejection sensitivity have a greater sense of insecurity and desire for reassurance (Starr & Davila, 2008). They are more likely to be rejected and experience depression (Starr & Davila, 2008) as they have a higher propensity to anticipate, respond and expect rejection

(Downey & Feldman, 1996). In some circumstances, such as romantic relationship, excessive reassurance seeking has greater correlation with rejection (Starr & Davila, 2008) to predict depression (Davila et al., 2008).

Another risk factor for depression is a lack of social support. In Leary's (1990) study, social exclusion leads to certain types of depression. Depressed individuals are found to engage in fewer social activities than non-depressed counterparts before the onset of their depression (Eisemann, 1985). Factors associated with social support, including loneliness, social isolation, retirement, and loss of partners are also correlated with depression (Muller-Spahn & Hock, 1994). Social support, especially family support, can buffer the negative impact of life stressors and contribute to individual's well-being (Rich & Bonner, 1987). Similarly, when people expect far more social support than they actually receive, they also have a higher risk of developing depression (Beck et al., 1979). Therefore, being rejected and isolation are predictors of increased negative mood and are increased vulnerability to depression.

Evolutionary theories (Gilbert, 1992b, 2000; Gilbert et al., 2002; Sloman, 2000) have identified the predictor role of social competition theory or social rank theory to

depression. According to Zuroff et al. (2002), social competition is aimed to monitor one's position in the social rank hierarchy to prevent conflict with one's superiors. This process is regulated by an evolved system. As social competition occurs all the time, people unavoidably experience defeat (Zuroff et al., 2007), when individuals fail to receive attention, admiration, and investment to secure their social rank (Gilbert, 1992b, 2004). Once individuals feel defeated, they adopt strategies such as 'fighting', 'flight', seeking help, or lowering their social rank or goal (Gilbert, 1992a, 2000, 2001a, 2001b). However, if they feel that they cannot change or get away from the undesirable circumstances, they experience entrapped defeat which is an intensely stressful situation and also a powerful predictor of Involuntary Defeat Strategy (IDS) (Gilbert, 1992a, 2000, 2001a, 2001b). The IDS is a series of psychobiological changes to suppress more behaviour to compete for resources in order to avoid conflict with more powerful competitors (Zuroff et al., 2007). The components of IDS include (1) feeling of 'personal failure, inferiority, inability, powerlessness, and hopelessness' (Sloman et al., 1994, p. 405; cited in Zuroff et al., 2007); (2) exhibiting submissive behavioural cues so that other competitors no longer attack him; (3) inhibiting display of dominance or aggression to show no intention of climbing up the hierarchy to avoid attack from superior ones; (4) stop seeking help. IDS is effective in entrapped defeat as it encourages individuals to look for alternative goal. However, when

individuals persistently feel entrapped and defeated, clinical depression is eventually developed. This theory has received a lot of empirical support. For example, Kendler and colleagues (2003) found a correlation between depression and perceived humiliation or defeat. Correlation is also discovered between depression and desire to escape from trapped condition (Gilbert, & Irons, 2004; Sturman & Mongrain, 2005), perceived lacking social support (Billings et al., 1983), and feeling inferior (Gilbert & Irons, 2004; Sturman & Mongrain, 2005). Moreover, depression is associated with submissive behaviour (Irons & Gilbert, 2005), low levels of dominance and control in terms of social interaction (Nezlek et al., 2000), and low assertiveness (Hirschfeld et al., 1983). Depressed individuals elicit self-punitive behaviour after being attacked (Forrest, & Hokanson, 1975). They are also found suppressing overt hostility and fearing own anger (Allan & Gilbert, 2002; Gilbert et al., 2004).

Low self-esteem is a symptom of depression as well as a risk factor for the onset and maintenance of depression (Bibring, 1953; Fenichel, 1945; Jacobson, 1975; Rado, 1928, 1951). It is highly associated with interpersonal factors. Self-esteem is a heterogeneous concept. As defined by Becker (1979), it is 'a cognitive-affective product of self-evaluation processes' (p.319). In other words, it is the outcome of self-evaluation and

people's feeling of their self-worth (Roberts & Monroe, 1999). Three of its components, self-esteem regulation process, self-esteem reactivity, and self-esteem stability are highly predictive of depressive symptoms (Roberts & Monroe 1999). Individuals with low self-esteem usually adopt a problematic strategy to evaluate and maintain their self worth. Their self-esteem could collapse more easily following life stressors and negative emotion (Roberts & Monroe, 1999). Some do not form close relationships with others and secure attachment to regulate and maintain their self-esteem. Undesirable life events, such as unemployment and social isolation could result in low self-esteem and negative cognition (Brown & Harris, 1978). Researchers such as Hyland (1987) and Oatley and Bolton (1985) also stated that stressful life events contribute to depression by obstructing individuals' attainment of goals, which in turn, harms their self-worth. On the other hand, it is also possible that negative self-esteem leads to negative interpersonal experiences that result in depression (Roberts & Monroe, 1999). Mixed result on the correlation of self-esteem and depression suggested that more studies are still in need to support its role as the causal factor for depression.

In conclusion, interpersonal deficit is shown to play a pivotal role in depression, both as a symptom and a risk factor. Depressed individuals are found to possess fewer social

resources than their nondepressed counterparts. They are more likely to be rejected by family and friends. This is largely attributed to their inappropriate social behavior that elicits negative mood and frustration in other people. Studies looking into the relationship between interpersonal deficit and depression discovered that many interpersonal factors such as excessive reassurance seeking, interpersonal sensitivity to stressors, social support, and low self-esteem predict depression. All these illustrate that the significance of interpersonal component should not be overlooked.

5. Somatic Domain of Depression

5.1 Somatic Symptoms of Depression

Somatic symptoms of depression are important for several reasons. First, in ‘masked depression’, individuals are aware of their biological dysfunctions rather than cognitive and emotional symptoms. It has a negative influence in the diagnosis of depression (Greden, 2003). Second, residual symptoms that increase the likelihood of relapse are often somatic symptoms (Bakish, 2001; Fava, 2003; Paykel et al., 1995). Depressed individuals who also have somatization exhibit more severe depressive symptoms (Lipowski, 1990). Somatic symptoms such as pain increase the treatment cost (Greenberg et al., 2003). Finally, pain severity is associated with worse depressive symptoms, quality of life and response to treatment (Bair et al., 2004). Therefore, it is obvious that somatic symptoms have a negative impact on diagnosis, treatment and prognosis of depression (Fava, 2003).

Over the past 10 years psychomotor symptoms in depression were measured in massive studies using different observer-rated scales, such as Hamilton Rating Scale for Depression (HRSD; Hamilton, 1960), the Salpêtrière Retardation Rating Scale (SRRS; Widlöcher and

Ghozlan, 1989), The CORE Assessment of Psychomotor Change (CORE; Parker and Hadzi-Pavlovic, 1996), and the Motor Agitation and Retardation Scale (MARS) by Sobin et al. (1998). These scales measure different aspects of psychomotor symptoms. For example, HRSD and MARS examine agitation and retardation. SRSS measures gait, gross and facial movement, speech and thought while CORE evaluates the cognitive processing deficits, agitation and retardation. They correlate well with many experimental psychomotor tasks (e.g. Pier et al., 2004a, b), depressive severity (e.g. Mitchell et al., 1996), and other observational scales (Benazzi et al., 2002). In addition, experiments and clinical observation are also used to assess the psychomotor functioning of depressed individuals (Schrijvers et al., 2008). In experiments, response speed, visual reaction time, memory scanning, motor response, speech rate, work decrement and perseveration are monitored (Parker & Brotchie, 1996, as cited in Schrijvers et al., 2008). Evidence is thus generated on slow gross and fine movement as well as impaired speech ability in depressed individuals (reviewed in the last chapter).

Other somatic symptoms are described in empirical studies and clinical observation. They include fatigue, insomnia (Criterion A4), nausea or vomiting, shortness of breath, palpitation, back pain, diarrhea, headache, chest pain, reduced sexual desire, pain in the

extremities, dizziness, abdominal pain, tinnitus, and joint or limb pain (Nakao et al., 2001).

Sleep maintenance is the most common somatic symptom. Depressed individuals are incapable of getting back to sleep after awakening in the middle of the night. On the other hand, some depressed individuals awake far earlier than normal waking hour and cannot go back to sleep while some have difficulty in falling asleep at night. Hypersonmnia seldom occurs as depressed individuals rarely sleep too much. DSM-IV (APA, 1994) also specified that depressed individuals have reduced appetite and usually do not eat out of pleasure. They report fatigue following undemanding tasks and their work efficiency is considerably reduced (APA, 1994).

5.2. Biological Mechanisms in Depressed individuals

Biological markers of depression are found in previous studies. Researchers (e.g. Haldane & Frangou (2006); Garlow & Nemeroff, 2005) identified dysfunctional neurotransmitters, brain structure and activity as well as genes in depressed individuals. Pezawas and colleagues (2005) located inheritable personality traits in depressed samples that demonstrate the inherent cause of depression. This explains the high chance of depression if the disorder runs in family. The 5-HTTLPR polymorphism in their genes lowers gray matter volume in the perigenulate region surrounding Cg25 and amygdala (Pezawas et al., 2005, cited in Ressler & Mayberg, 2007). It also prevents presynaptic neurons from uptaking serotonin (Lesch et al., 2002) and increases the chance of developing anxious and pessimistic personality (Lesch et al, 1996). As a result, these individuals are born with a greater tendency to feel anxious, pessimistic, and avoidance of harm (Bouchard, 1994). All these personality traits increase their risk for depression when environmental stressors show up (Pezawas et al., 2005).

In addition to genetic factors that predispose individuals to depression, many depressive symptoms are found to associate with dysfunctions of neurotransmitters- norepinephrine,

serotonin, dopamine, γ -aminobutyric acid (GABA), glutamate, neuropeptides, corticotrophin-releasing factor, growth hormone axis, and hypothalamic-pituitary-thyroid axis (Garlow & Nemeroff, 2005). In particular, the deficiency of norepinephrine, synthesized from tyrosine and tyrosine hydroxylase, is widely recognized as a cause of depression (Bunney & Davis, 1965; Prange, 1964; Schildkraut, 1965, cited in Garlow & Nemeroff, 2005). This is described in the catecholamine hypothesis, which postulated that norepinephrine, along with other catecholamines such as dopamine and epinephrine with the catechol ring structure or 1, 2-dihydroxybenzene, are inadequate at important sites in depressed individuals' brain (Garlow & Nemeroff, 2005). Some researchers later proposed that serotonin deficiency is also a cause of depression. Serotonin is synthesized from l-tryptophan which comes from tryptophan hydroxylase (Belmaker & Agam, 2008). Amount of l-tryptophan not only determines the amount of serotonin, it also determines the amount of 5-HT in CNS. Low level of 5-HT is a major pathological mechanism that results in depression (Garlow & Nemeroff, 2005). Low level of l-tryptophan could also lead to depressed mood (Heninger et al., 1992; Smith et al., 1997; Young et al., 1985, cited in Garlow & Nemeroff, 2005) and onset of depression, especially in individuals who have depression in family. Norepinephrine and serotonin are vital mediators in monoaminergic neurotransmission (Belmaker & Agam, 2008). Consequently, the deficiency of serotonin

or norepinephrine neurotransmission (Belmaker & Agam, 2008) affects monoamine transmitters as well as presynaptic and postsynaptic neurons. In experiments, suppressing the activity of serotonin, norepinephrine or monoamine is associated with onset or relapse of depression (Belmaker & Agam, 2008). These studies included tyrosine hydroxylase or dietary tryptophan inhibition that reduce the synthesis of serotonin and norepinephrine, as well as increasing the specific ligand binding to monoamine oxidase A (MAO-A) that elicits malfunction in catalyzing monoamine in presynaptic vesicles. Other experiments that inactivate the functioning of 5-HT1A receptors, 5-HT1B receptors, protein p11, G proteins, cyclic AMP (cAMP), inositol and element-binding protein (CREB) decrease the activity of serotonin and norepinephrine, and thus result in relapse of depression (Belmaker & Agam, 2008).

Peptides such as corticotrophin-releasing factor (CRF), somatostatin, and thyrotropin-releasing hormone (TRH) that regulate the hypothalamic-pituitary-adrenal (HPA) axis and the hypothalamic-pituitary-thyroid (HPT) axis are also crucial depression marker (Plotsky et al., 1995; cited in Garlow & Nemeroff, 2005). Malfunction of Hypothalamic-Pituitary-Thyroid (HPT) Axis results in depressed mood, cognitive impairment, and multiple neurovegetative symptoms. In particular, corticotropin-releasing factor (CRF) controls

endocrine, autonomic, immune, and behavioral response under stress (Arborelius et al., 1999; Nemeroff, 1996; cited in Garlow & Nemeroff, 2005). Consequently, an extraordinarily higher concentration of CRF in depressed individuals predisposes individuals to depression by disturbing their normal regulation strategy under stress (Nemeroff et al., 1984). At the same time, a decreased concentration of somatostatin in CSF in depressed individuals, results in disruption of growth hormone secretion (Bissette et al., 1986; Gerner & Yamada, 1982; Rubinow, 1986; Rubinow et al., 1983; cited in Garlow & Nemeroff, 2005). It changes patterns of sleep, ingestive behavior, activity state, memory, cognition, nociception (Steve et al., 2005) and elicits depressive symptoms.

Eventually, researchers (e.g. Drevets, 2000; Mayberg, 2003; Ressler & Nemeroff, 2000) found abnormal brain structure and activity in depressed individuals. Recent technology such as neuromorphometric studies measured the ventricle-to-brain ratio (VBR) discovered that enlargement of the lateral ventricles is particularly common in elderly depressed individuals (Drevets, 1994). Depressed individuals also show decreased width (Krishnan et al., 1992; cited Garlow & Nemeroff, 2005) and volume (Coffey et al., 1993) of the frontal lobe. In the prefrontal cortex, the gray matter volume is decreased in the anterior cingulate gyrus ventral to the genu of the corpus callosum (Botteron et al., 2002;

Drevets et al., 1997; Hirayasu et al., 1999; cited in Garlow & Nemeroff, 2005) and orbital cortex (Bremner et al., 2002; Lai et al., 2000; cited in Garlow & Nemeroff, 2005). The entire temporal lobe also has volume reduction in depressed individuals (Hauser et al., 1989; Altschuler et al., 1991; cited in Garlow & Nemeroff, 2005). Hippocampal volume has reduced 8-19 per cent (Bremner et al., 2000; Mervaala et al., 2000; Sheline et al., 1996, 1999; Steffens et al., 2000; cited in Garlow & Nemeroff, 2005) and amygdala is demonstrated to have both increase and decrease in volume (Frodl et al., 2002) and width (Sheline et al., 1998; cited in Garlow & Nemeroff, 2005).

Brain activities in those areas are vital for the emotional, cognitive, and interpersonal behaviors. In particular, prefrontal cortex plays a crucial role in emotional processing and experience. Orbital and medial prefrontal cortices (PFC) integrate sensory and emotional information to make decision. They also regulate emotional experience and expression, as well as produce endogenous emotions and thoughts. Lateral, dorsolateral, as well as superior dorsomedial PFC are involved in the working memory visual spatial, language processing, selective attention, and motor output (Ongur & Price, 2000). The anterior cingulate cortices (ACC) located ventral and anterior to the genu of the corpus callosum (named subgenual and pregenual respectively) recall sad memories to produce the feeling of sadness (Damasio et al., 2000; George et al., 1995; Mayberg et al., 1999; cited Drevets

et al, 2005). Orbital cortex helps integrate environmental data with emotional salience and link reward-direct behaviors with the outcome of them. It also modifies behavioral response after obtaining rewarding stimuli from amygdala, ACC, ventral striatum, hypothalamus, and other structures (Ongur & Price, 2000).

Brain imaging studies, including positron emission tomography (PET) and functional magnetic resonance imaging (fMRI) examine the brain activity of depressed people by measuring the change in cerebral blood flow and glucose metabolism in different brain regions. They can identify brain regions with abnormal synaptic transmission that link the cognitive, emotional and interpersonal impairments in depressed individuals. In emotional provoking tasks, the cerebral blood flow (CBF) and metabolism of depressed individuals decreased in dorsolateral and dorsomedial PFC, including dorsal ACC (Bench et al., 1992; cited in Drevets et al., 2005) and Brodmann area 9 (Brevets et al., 2002a; cited in Drevets et al., 2005), indicating an inadequate emotional response and expression. Reduction in CBF in dorsolateral PFC is associated with impoverished speech (Dolan et al., 1993) whereas decreasing CBF in dorsal ACC reflects impaired attention (Dolan et al., 1994). The increase in CBF and metabolism in lateral orbital cortex, ventrolateral PFC, and anterior insula (Kimbrell et al., 2002) found in depressed individuals are associated with

intensifying severity of depression (Drevets et al., 1992, 1995c, 2002e; cited in Drevets et al., 2005). They reveal endogenous suppression of emotional expression. On the other hand, tumors and lesions in the frontal lobe, especial in the orbital cortex could result in maladaptive emotional experience and expression and hence depression (e.g. Starkstein & Robinson, 1989; cited in Drevets, et al., 2005).

Amygdala is found to be overactivated in depression and anxiety disorder (Drevets, 2000; cited in Ressler & Mayberg, 2007). This gives rise to depressed individuals' better retrieval of negative memory and expressing negative emotion (Ressler & Mayberg, 2007).

At rest, depressed individuals have abnormally elevated CBF and metabolism in the amygdala than non-depressed counterparts (Drevets et al., 1992, 1995c, 2002a, 2002b; cited in Ressler & Mayberg, 2007). It is a unique feature for depression, while malfunctions in other brain parts are usually shared by different mental disorders (Charney & Drevets, 2002; cited in Drevets et al., 2005). Depressed individuals have a greater increase in the metabolism in the amygdala during rapid eye movement (REM) sleep (Nofzinger et al., 1999). When presented with fearful faces, depressed children (Thomas et al., 2001; cited in Drevets et al., 2005) and adults (Drevets et al., 2001; cited in Drevets et al., 2005) demonstrate slower hemodynamic response than nondepressed counterparts.

Depressed individuals are also demonstrated to have more persistent CBF (Drevets et al., 2001; cited in Drevets et al., 2005) and hemodynamic response (Siegle et al., 2001; cited in Drevets et al., 2005) in amygdala following emotional stimuli. This prolonged activation of amygdala explains why depressed individuals ruminate over negative memories.

In summary, somatic symptoms of depression include change in appetite, sexual desire, and sleeping pattern, fatigue, agitation, slow movement, and pain sensitivity. The symptoms are reported to associate with dysfunctional genes, neurotransmitters, and brain activities in depressed individuals. While it remains unclear whether the malfunctions of biological mechanism are consequences or risks for depression, more studies are required to provide explanation for the dysfunction in cognitive, somatic, interpersonal and emotional functioning.

6 Assessing the severity and symptom pattern of Depression

6.1 Depression assessment Scales

Depression is a leading global risk factor for mental health

(http://www.who.int/mental_health/management/depression/definition/en/) which also has

negative impact on other mental problems (e.g. Eberhard-Gran et al., 2006). It is therefore

important to include depression assessment as a standard practice in large-scale health

surveys (Bukstein et al., 2000; Tambs & Moum, 1993). Good depression assessment

instruments save space and time. They can be divided into two categories, detecting the

presence of depression, or evaluating severity and symptom pattern (Katz et al., 1995).

The former refers to diagnostic assessment methods that contain inclusion and exclusion

criteria. The latter is used for all subtypes of depression. It evaluates the severity and

pattern of depressive symptomatology. It also describes the descriptive and prognostic

difference between disorders of different subtype (Katz et al., 1995).

As reviewed in previous chapters, empirical studies demonstrated that depressive

symptoms lay in biological, social, cognitive and emotional domains (e.g., Beck, 1967,

1976). Assessment instruments with high reliability and validity facilitate selection of the

most appropriate treatment (Katz et al., 1995). Therefore, selecting the right depressive symptoms for the scale is crucial. In general, Katz et al (1995) described several rules to construct good depression assessment scales. Adequate depression assessment scales should include all dimensions of depressive symptoms, rather than restricting to emotion. On top of that, a reliable and valid depression assessment should be sensitive to the change in depression severity after the treatment. Lastly, they should facilitate the selection of certain interventions to accompany the treatment. For example, psychologists could introduce social skill acquisition programs to assist the therapy for individuals with severe social deficits (Katz et al., 1995).

Standard rating scales and questionnaires are the most popular assessment tools adopted in clinics and research. Though in many studies they show good reliability and validity, Snaith (1993) pointed out that many of them do not strictly follow the clinical definitions of depression. For example, some place too much emphasis on items that are more suitable for assessing anxiety than depression. A more comprehensive evaluation is therefore vital for depression assessment.

In this chapter, self-report assessment scales are reviewed. The most widely used questionnaires are Beck Depression Inventory (BDI-II) (Beck et al., 1996), the Hamilton Depression Rating Scale (HDRS) (Hamilton, 1960), Montgomery-Asberg Depression Rating Scale (MADRS) (Montgomery & Asberg, 1979) and Zung self-rating depression scale (SDS) (Zung, 1965).

Content Analysis of the depression assessment scales

The tables below compare a number of depression assessment scales commonly in use by researchers and clinicians. Items in the scales are categorized into four domains- cognitive, somatic, interpersonal and emotional.

Table 1 Comparing different depression assessment scale:

Depression assessment scale	Assessed symptom categories			
	Cognitive	Somatic	Interpersonal	Emotional
1. BDI-II	11	5	0	5
2. HAD scale (Depression Scale)	5	1	0	1
3. Hamilton Scale	4	9	0	4
4. ZUNG'S S.D. Scale	6	8	1	5
5. PHQ-9	4	4	0	1
6. DASS	8	3	1	8
7. CDS	20	21	2	9
8. GDS	18	3	1	8
9. EPDS	4	0	0	6
10. HRSD (ECDEU version)	10	13	0	4
11. CES-D SCALE	8	5	2	6
12. GHQ-28 (Depression Scale)	6	1	0	0
13. CPRS	10	11	3	4
14. MADRS	4	3	1	3
15. QIDS-SR	4	11	0	1

BDI-II Beck Depression Inventory; HAD scale (Hospital Anxiety and Depression Scale);

Hamilton Scale (Hamilton Depression Rating Scale); ZUNG'S S.D. Scale (Zung Self-Rating Depression

Scale); PHQ-9 (Patient Health Questionnaire 9); DASS (Depression Anxiety Stress Scales); CDS (Carroll

Depression Scale); GDS (Geriatric Depression Scale); EPDS (Edinburgh Postnatal Depression Scale);

HRSD (ECDEU version); CES-D scale (Centre for Epidemiological Studies Depression Scale); GHQ-28

(General Health Questionnaire); CPRS (Cornell Dysthymia Rating Scale); MADRS (Montgomery-Asberg

Depression Rating Scale); QIDS-SR (Quick Inventory of Depressive Symptomatology- Self Report)

In table 1, each depression scale emphasizes different aspects of depressive symptoms. BDI-II, HAD scale (Depression Scale), DASS, Geriatric Depression Scale, CES-D Scale, and GHQ-28 (Depression Scale) put most attention on cognitive symptoms. Hamilton Scale, HRSD (ECDEU version), and QIDS-SR weighted more heavily on somatic symptoms. ZUNG'S S.D. Scale, DASS, and Montgomery Asberg Depression Rating Scale have similar number of items on cognitive, somatic and emotional domains. Eventually, EPDS only measures cognitive and emotional symptoms while PHQ-9 weights heavily on cognitive and somatic symptoms. It becomes obvious that all the depression assessment scales overlook the importance of interpersonal symptoms of depression. None of them contains more than three interpersonal items and some (BDI-II, HAD scale (Depression Scale), Hamilton Scale, PHQ-9, EPDS, HRSD (ECDEU version), GHQ-28 (Depression Scale), and QIDS-SR) do not examine any interpersonal facet of depression. Since interpersonal deficits and dysfunctional social skills are found in many depressed individuals, a new depression scale is needed to equally assess all four facets of depression.

Table 2 Percentage of items in each category that are being assessed in depression scales

Depression assessment scales	Cognitive	Somatic	Interpersonal	Emotional
Percentage of assessed category	43%	30%	3%	24%

Table 2 summarizes the percentage of items from each domain of depressive symptoms.

Cognitive symptoms appeared most adequately in depression scales, followed by somatic and emotional symptoms, while only three per cent of interpersonal symptoms were included in depression scales. This confirms that most depression scales did not emphasize interpersonal aspect of depression.

Since the depression assessment scales have been constructed, their psychometric properties are tested in numerous studies. In general, these depression scales reported good validity and reliability. However, it is believed that a depression scale that assesses symptoms in all four domains could possess greater validity and sensitivity in depression assessment.

Symptom-positive and Symptom-negative items in depression scales

Table 3 Comparing depression assessment scales for symptom-positive and symptom-negative items:

Depression Assessment Scales	Symptom-positive items	Symptom-negative items
1. BDI-II	0	21
2. HAD scale (Depression Scale)	5	2
3. Hamilton Scale	0	17
4. ZUNG SDS	10	10
5. PHQ-9	0	9
6. DASS	0	21
7. Carroll Rating Scale	12	40
8. Geriatric Depression Scale	10	20
9. EPDS	2	8
10. HRSD (ECDEU version)	2	25
11. CES-D Scale	4	16
12. GHQ-28 (Depression Scale)	6	22
13. CPRS	0	28
14. Montgomery Asberg Depression Rating Scale	0	11
15. QIDS-SR	0	16

Table 3 showed depression assessment scales that have items divided into symptom positive and symptom negative categories. Symptom positive items refer to positive feelings, behavior, interpersonal relationships and cognitions such as ‘I felt hopeful about the future’ in CES-D or ‘I look forward with enjoyment to things’ in HAD. BDI-II, Hamilton Scale, PHQ-9, DASS-21, CPRS and Montgomery Asberg Scale do not have any symptom-positive items. Surprisingly, the depression scale in HAD contains five symptom-positive items out of seven items and Zung’s S.D. scale has half of its items as symptom positive. The remaining scales, Carroll Rating Scale had twelve out of fifty two items to be symptom-positive. Geriatric Depression Scale had ten out of thirty. EPDS had two symptom-positive items, among the ten items. HRSD had two symptom-positive items among the twenty seven items. CES-D scale had four symptom-positive items among twenty items, and eventually, GHQ-28 had six items to be symptom positive in the 28-item scale.

Number of scale points

Table 4 Scale points of different depression assessment scales:

Depression Assessment Scales	Number of scale points
1. BDI-II	4
2. HAD scale (Depression Scale)	4
3. Hamilton Scale	4
4. ZUNG'S S.D. Scale	4
5. PHQ-9	4
6. DASS	4
7. Carroll Rating Scale	2
8. Geriatric Depression Scale	2
9. EPDS	4
10. HRSD (ECDEU version)	4
11. CES-D Scale	4
12. GHQ-28 (Depression Scale)	4
13. CPRS	4
14. Montgomery Asberg Depression Rating Scale	7
15. QIDS-SR	4

Table 4 shows the number of scale point in each depression assessment scale. All of the instruments had four scale points, except for Carroll Rating Scale, GDS, and Montgomery Asberg Depression Rating Scale which had two scale points and seven scale points respectively.

Nevertheless, odd-number Likert scales are chosen in many assessment tools so that there is an average position, for the convenient use of the scale. In fact, the impact of different scale points on the reliability of the scale is explored in many empirical studies (e.g. Bendig, 1954). Freyd (1923) claimed that the more scale points, the higher the reliability of the scale, his claim is supported by other researchers such as Jahocla, Deutsch, and Cook (1951) (cited in Lissitz & Green, 1975). In line with this theory, Cicchetti et al (1985) illustrated with computer model that the interrater reliability of a scale increased steadily when the scale points increased up to seven. However, some studies generated opposite result. For example, Lissitz and Green (1975) reported that five is the optimum number of scale point. In addition, the study by Bendig (1954) discovered that the reliability is not influenced by number scale points. In conclusion, number of scale point should be considered when constructing depression assessment scales as they could have impact on the reliability of a depression scale.

Section 2: The current studies

7. Summary and Hypothesis of the study

Summary

Depression is identified as the fourth-most significant mental health problem by the World Health Organization (2000). The assessment of its symptoms is thus important in large-scale health surveys. A good scale could save time and manpower (Eberhard-Gran et al., 2006). While many new depression assessment scales were developed, many existing scales, such as Geriatric Depression Scale (GDS) have been shortened with limited impact in their reliability and validity (Bukstein et al., 2000; Tambs & Moum, 1993).

Therefore, a new depression scale was developed to assess the severity and symptom pattern of depression. It was constructed by depressive symptoms of four domains, cognitive, emotional, somatic and interpersonal. A few hypothesis was been tested in the study.

Hypothesis

1. The new depression scale had good relationship with BDI-II.
2. The new depression scale had good reliability and validity.
3. The new depression scale possessed diagnostic power to screen out nondepressed people from depressed individuals.
4. Each item in the new scale had high item-to-scale correlation.
5. Exploratory factor analysis supported the division into four subscales.

Section 2: The Current Study

8. Study 1

8.1. Design

In this research a correlational design was used.

Participants

Eighty-seven participants took part in this study. Forty-four of them came from U.K., forty-three of them from Norway. Thirty-two of them were male, and fifty-five were female. All of these participants came from mental health professions and were recruited from The University of Edinburgh as well as other universities in Norway, and the Interpersonal Psychotherapy Workshop in Edinburgh (28/11/2009). Participants included sixty-seven clinical psychologists, thirteen psychiatrists, five social workers and one nurse. Their mean age was 36.5, (S.D. = 11.87), while their mean year in the profession was 10.44, (S.D. = 9.34).

Materials

The Multi-dimensional Depression Assessment Scale (See Appendix II)

As reviewed in previous chapters, numerous empirical studies provide evidence on the emotional, cognitive, somatic and social symptoms of depressed people. Examples include Beck's (1976, 1976) cognitive theory of depression, Seligman's (1975; Abramson et al., 1978) learned helplessness model of depression, Coyne's (1976a, 1976b) interpersonal model, and etc. The fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (APA, 1994, 2000) also describes depressive symptoms comprehensively. Therefore, based on previous studies and clinical observations on children, adolescence, and adults, together with other common assessment scales, the 85-item depression questionnaire was designed for the first study. It consisted of four subscales, which covered almost the entire depressive symptomology in emotional, cognitive, somatic and interpersonal domains. Interpersonal aspect of depression was specially added into the questionnaire after a comprehensive review on interpersonal theories. The questionnaire allowed participants to determine the most typical depressive symptoms. It facilitated the construction of the new depression assessment scale. Items were mostly adjectives and

short phrases, so that respondents could have a ‘brief, easily administered, comprehensive, and technically sound instrument for the assessment of depressive symptoms among children, adolescents, and adults’ (Bracken & Howell, 2004, p. 5). Participants answered on a 5-point Likert scale in which five represented highly typical symptoms and one as not-at-all typical symptoms. For Norwegian participants, the questionnaire was translated and back-translated to Norwegian by bilingual clinical psychologists.

Table 5 Questionnaire items in the four subscales:

Emotional	Cognitive	Somatic	Interpersonal
(1) Miserable mood	(18) No Pleasure	(19) Crying	(33) Social withdrawal
(2) Low mood	(27) No Laughter	(20) Trembling	(34) Social avoidance
(3) Sad mood	(28) Worry	(21) Coldness	(35) Aggression towards others
(4) Bad mood	(30) Not relaxed	(22) Tingling	(36) Fear of others
(5) Unpleasant mood	(31) Feeling punished	(23) Agitation	(37) Suspicion of others
(6) Irritable mood	(32) Feeling out of control	(24) Dizziness	(38) Decrease in activities
(7) Dysphoric mood	(59) The future feels bleak	(47) Change in appetite	(39) Feeling worse than others
(8) Gloominess	(60) Feelings of hopelessness	(48) Lower sex drive	(40) Feeling better than others
(9) Low spirits	(61) Thoughts of	(49) Problems with	(41) Feeling let down

	suicide	sleeping	by others
(10) Mournfulness	(62) Poor concentration	(50) Change in weight	(42) Too caring for others
(11) Shame	(63) Poor attention	(51) More pain sensitivity	(43) Unable to love others
(12) Guilt	(64) Feeling distant	(52) Intestinal problems	(44) Feeling less attractive than others
(13) Anxiety	(65) Ruminations	(53) Skin problems	(45) Feel a burden on others
(14) Anger	(66) Feeling overwhelmed	(54) Fatigue	(46) Feel too sensitive to others
(15) Disgust	(67) Wanting to give things up	(55) Feel slowed down	(79) Hypersensitive to criticism
(16) Unhappiness	(68) Failing to complete things	(56) Low energy	(85) Feeling undeserving of others care
(17) Sadness	(69) Feeling a failure	(57) Slowed speech	
(25) Hatred	(70) Dislike of oneself	(58) Slowed movement	
(26) Rage	(71) Self-blame		
(29) Not cheerful	(72) Self-criticism		
	(73) Loss of interest		
	(74) Feeling worthless		
	(75) Feeling contaminated		
	(76) Feeling diseased		
	(77) Feeling bad		
	(78) Feeling loathsome		

	(80) Inability to work		
	(81) Slowed thinking		
	(83) Unable to make decisions		
	(84) Life feels empty		
	(85) Life feels meaningless		

Table 5 showed the detail of the four subscales in the questionnaire. The greatest number of items was located in the cognitive domain. Number of items in the remaining three subscales was almost the same. There were twenty emotional items, thirty-one cognitive items, eighteen somatic items and sixteen interpersonal items. Item 40 (feeling better than others) was a symptom positive item. Item 47 (change in appetite) and item 50 (change in weight), were neutral items. The remaining eighty-two items were all symptom-negative.

The emotional subscale measured negative mood that participants experienced. Items describing sad mood varied in their extent from mild to extreme. Mild form of sad mood had examples such as item 9 (low spirits), item 2 (low mood) and item 1 (miserable mood) while extreme examples of sad mood included item 10 (mournfulness), item 7 (Dysphoric mood), and item 17 (sadness). Other negative emotions such as guilt, anger and disgust

were also included in the subscale. The cognitive subscale provided a comprehensive list of dysfunctional cognitions in depressed individuals. It measured negative perception of the self and the future (e.g. feeling diseased, the future feels bleak). It also evaluated suicidal thoughts, faulty information processing (e.g. unable to make decisions, ruminations) and mental clarity (e.g. poor concentration and slowed thinking). The somatic subscale measured disturbance in the human body such as appetite, sleep, sexual interest, digestive system, movement, cold feeling, and inadequate energy. Finally, the interpersonal subscale measured the dysfunctional social skills (e.g. aggression towards other, hypersensitive to criticism), problematic interpersonal relationship (e.g. unable to love others), and withdrawal from desirable activities.

Procedure

Participants were recruited from trainees attending Clinical Psychology lectures at the University of Edinburgh, and attended at an interpersonal psychotherapy conference in Edinburgh, and students at university lectures in Norway. The purpose of the study was explained to participants before they received the paper form of the questionnaire. A

detailed instruction was also written on top of the questionnaire (see Appendix I). They were also allowed to ask questions regarding the questionnaire.

8.2 Result

Descriptive information of the sample

1. Gender

Table 6 Summary of gender of the sample

Gender	Frequency	Percent
male	32	36.8
female	55	63.2
TOTAL	87	100.0

In table 6, there were 36.8 per cent male and 63.2 per cent female participants.

2. Age

Table 7 Table showing the age of the sample

Age band	Frequency	Percentage
20-30	37	42.53
31-40	24	27.59
41-50	8	9.20
51-60	11	12.64
>61	4	4.60

TOTAL	84	96.55
Missing	3	3.45

In table 7, most of the participants were in their twenties (37 per cent). The mean is 36.5 with a standard deviation 11.87. Three people did not report their age.

3. Profession

Table 8 Table showing the profession of the sample

Profession	Frequency	Percentage
Clinical psychologist	67	77.0
psychiatrist	13	14.9
Social Worker	5	5.7
Nurses	1	1.1
TOTAL	86	98.9
Missing	1	1.1

In table 8, most of the participants were clinical psychologists (77 per cent). Some were psychiatrist (14.9 per cent), and the rest were social workers (5.7 per cent) and nurses (1.1 per cent). One participant did not specify the profession.

4. Number of years in profession

Table 9 Table showing the number of years participants were in profession

Years in Profession	Frequency	Percentage
1-5	35	40.23
6-10	28	32.18
11-15	6	6.90
16-20	2	2.30
21-25	5	5.75
26-30	6	6.90
31-35	2	2.30
36-40	2	2.30
TOTAL	86	98.85
Missing	1	1.15

In table 9 the range of years participants had been practising was between one and forty.

Highest per cent of participants have been in profession for around four years. The mean year they were in profession was 10.44 with S.D. 9.34. One person did not provide this information.

Table 10 Descriptive Information of the items in the questionnaire:

Items	N	Min	Max	Mean	S.D.
1. miserable mood	85	1.00	5.00	3.4118	1.13698
2. low mood	87	2.00	5.00	4.6437	.68160
3. sad mood	86	1.00	5.00	3.8721	1.00348
4. bad mood	86	1.00	5.00	2.8372	.99245

5. unpleasant mood	86	1.00	5.00	2.6395	1.13669
6. irritable mood	86	1.00	5.00	3.6395	.88001
7. dysphoric mood	85	1.00	5.00	3.5882	1.11584
8. gloominess	86	1.00	5.00	3.9419	1.06666
9. low spirits	87	1.00	5.00	4.0230	1.13072
10. mournfulness	86	1.00	5.00	2.9884	.90090
11. shame	87	1.00	5.00	3.5287	1.06574
12. guilt	87	1.00	5.00	3.8621	.94219
13. anxiety	87	1.00	5.00	3.3448	.99799
14. anger	87	1.00	5.00	2.7931	.92934
15. disgust	87	1.00	5.00	2.2184	.95753
16. unhappiness	85	2.00	5.00	3.8588	.92778
17. sadness	86	2.00	5.00	4.0930	.83494
18. no pleasure	87	1.00	5.00	4.6092	.75261
19. crying	87	1.00	5.00	3.6322	.94149
20. trembling	87	1.00	5.00	2.0690	.91236
21. coldness	87	1.00	4.00	1.9080	.87114
22. tingling	87	1.00	5.00	1.7586	.82074
23. agitation	86	1.00	5.00	3.3140	1.03198
24. dizziness	87	1.00	4.00	1.9425	.82626
25. hatred	87	1.00	4.00	2.0460	.92646
26. rage	86	1.00	5.00	2.2209	.99884
27. no laughter	87	1.00	5.00	3.6092	1.00413
28. worry	86	1.00	5.00	3.8256	.97247
29. not cheerful	87	1.00	5.00	3.7356	1.07249
30. not relaxed	87	1.00	5.00	3.1954	1.10852
31. feeling punished	87	1.00	5.00	3.2414	.98790
32. feeling out of control	87	1.00	5.00	3.2759	1.05312
33. social withdrawal	87	2.00	5.00	4.4598	.69558
34. social avoidance	87	1.00	5.00	3.9540	.97537
35. aggression towards others	87	1.00	4.00	2.4368	.81699
36. fear of others	87	1.00	5.00	2.3678	.89071
37. suspicion of others	87	1.00	5.00	2.4253	.93550

38. decrease in activities	87	1.00	5.00	4.4943	.71322
39. feeling worse than others	87	1.00	5.00	3.9885	.85582
40. feeling better than others	85	1.00	3.00	1.2235	.49705
41. feeling let down by others	87	1.00	5.00	3.0575	1.02703
42. too caring for others	86	1.00	5.00	2.2326	1.08112
43. unable to love others	86	1.00	5.00	2.5698	.97668
44. feeling less attractive than others	87	1.00	5.00	3.5747	.99571
45. feel a burden on others	86	1.00	5.00	3.9651	.92606
46. feel too sensitive to others	87	1.00	5.00	3.0690	1.09749
47. change in appetite	87	2.00	5.00	4.3333	.78750
48. lower sex drive	87	2.00	5.00	4.3218	.78495
49. problems with sleeping	87	2.00	5.00	4.5172	.69654
50. change in weight	87	1.00	5.00	3.6667	1.03054
51. more pain sensitivity	87	1.00	5.00	2.8161	1.08401
52. intestinal problems	86	1.00	4.00	2.5116	.94239
53. skin problems	86	1.00	4.00	2.0349	.86020
54. fatigue	87	1.00	5.00	4.0460	.88801
55. feel slowed down	87	2.00	5.00	4.2644	.75421
56. low energy	85	3.00	5.00	4.5412	.66463
57. slowed speech	87	1.00	5.00	3.2184	.98152
58. slowed movement	85	1.00	5.00	3.2471	1.05679
59. the future feels bleak	86	2.00	5.00	4.5698	.66049
60. feelings of hopelessness	87	3.00	5.00	4.7586	.45662
61. thoughts of suicide	87	2.00	5.00	4.2184	.76895
62. poor concentration	87	2.00	5.00	4.3908	.72105
63. poor attention	87	2.00	5.00	4.2874	.77622
64. feeling distant	87	1.00	5.00	3.4253	.92299
65. ruminations	87	1.00	5.00	4.2299	.87206
66. feeling overwhelmed	86	1.00	5.00	3.5698	1.06871
67. wating to give things up	87	2.00	5.00	4.0805	.73482
68. failing to complete things	87	1.00	5.00	3.6437	.98803
69. feeling a failure	87	2.00	5.00	4.2644	.72272

70. dislike of oneself	87	2.00	5.00	4.2529	.71882
71. self-blame	87	2.00	5.00	4.3333	.74188
72. self-criticism	87	2.00	5.00	4.3218	.73917
73. loss of interest	87	3.00	5.00	4.7011	.55227
74. feeling worthless	87	2.00	5.00	4.5517	.60538
75. feeling contaminated	87	1.00	5.00	2.1264	1.07622
76. feeling diseased	87	1.00	5.00	2.6782	1.06197
77. feeling bad	87	1.00	5.00	3.4713	1.06574
78. feeling loathsome	87	1.00	5.00	2.8046	1.14971
79. hypersensitive to criticism	87	1.00	5.00	3.5862	.88333
80. inability to work	86	1.00	5.00	3.4302	.88837
81. slowed thinking	87	1.00	5.00	3.7241	.88514
82. unable to make decisions	87	1.00	5.00	3.7701	.91119
83. life feels empty	87	2.00	5.00	4.2414	.76197
84. life feels meaningless	87	2.00	5.00	4.3218	.70701
85. feeling undeserving of others' care	87	1.00	5.00	3.6322	.83687

Table 10 showed the descriptive information of the eighty-five items. The sample number, range, mean, and standard deviation were listed for each item. Missing value was low.

Regarding the skewness of the items, item 2 (low mood) was negatively skewed

(Skewness -1.893, Kurtosis 2.865). Item 18 (no pleasure) was negatively skewed

(Skewness -2.895, Kurtosis 10.775). Item 22 (tingling) was positively skewed (Skewness

1.123, Kurtosis 1.751). Item 33 (social withdrawal) was negatively skewed (Skewness -

1.126, Kurtosis .829). Item 38 (decrease in activities) was negatively skewed (Skewness -

1.849, Kurtosis 5.524). Item 40 (feeling better than others) was positively skewed

(Skewness 2.197, Kurtosis 4.175). Item 49 (problems with sleeping) was negatively skewed (Skewness -1.331, Kurtosis 1.234). Item 56 (low energy) was negatively skewed (Skewness -1.151, Kurtosis, .133). Item 59 (the future feels bleak) was negatively skewed (Skewness -1.517, Kurtosis 2.093). Item 60 (feelings of hopelessness) was negatively skewed (Skewness -1.599, Kurtosis 1.506). Item 65 (ruminations) was negatively skewed (Skewness -1.331, Kurtosis 2.006), Item 73 (loss of interest) was negatively skewed (Skewness -1.707, Kurtosis 2.035). Item 74 (feeling worthless) was negatively skewed (Skewness -1.329, Kurtosis 2.375). The skewed items were corrected by taking the natural log of the data.

Rankings of Mean scores of items in different subscale

The mean score of each item was calculated and ranked from the highest value to the lowest. Items with the highest ranks and were above 2.5 were considered as the most typical depressive symptoms. They were thus selected to enter the new multi-dimensional depression assessment scale. The tables below listed all the items and their ranks in the four subscales.

Table 11: Ranking of means of emotional symptoms in depression

Items	Mean	Rank
Low mood	4.6437	1
Sadness	4.0930	2
Low spirits	4.0230	3
Gloominess	3.9419	4
Sad mood	3.8721	5
Guilt	3.8621	6
Unhappiness	3.8588	7
Not cheerful	3.7356	8
Irritable mood	3.6395	9
Dysphoric mood	3.5882	10
Shame	3.5287	11
Miserable mood	3.4118	12
Anxiety	3.3448	13
Mournfulness	2.9884	14
Bad mood	2.8372	15
Anger	2.7931	16
Unpleasant mood	2.6395	17
Rage	2.2209	18
Disgust	2.2184	19
Hatred	2.0460	20

Table 11 showed the ranks of the twenty items in the emotional subscale. Items that were considered as highly typical were mostly sad mood in different extent, while emotions like rage and anger were considered as less typical. Only three items had mean scores more

than four. Ten items had mean scores higher than three and the mean scores of seven items exceeded two. This revealed that most professionals paid more attention to the most prominent feature of emotional symptom, the sad mood than shame and anxiety.

Table 12 Ranking of means of cognitive symptoms in depression

Items	Mean	Rank
Feelings of hopelessness	4.7586	1
Loss of interest	4.7011	2
No pleasure	4.6092	3
The future feels bleak	4.5698	4
Feeling worthless	4.5517	5
Poor concentration	4.3908	6
Self-blame	4.3333	7
Self-criticism	4.3218	8
Life feels meaningless	4.3218	9
Poor attention	4.2874	10
Feeling a failure	4.2644	11
Dislike of oneself	4.2529	12
Life feels empty	4.2414	13
Ruminations	4.2299	14
Thoughts of suicide	4.2184	15
Wanting to give things up	4.0805	16
Worry	3.8256	17
Unable to make decisions	3.7701	18
Slowed thinking	3.7241	19
Failing to complete things	3.6437	20

No laughter	3.6092	21
Feeling overwhelmed	3.5698	22
Feeling bad	3.4713	23
Inability to work	3.4302	24
Feeling distant	3.4253	25
Feeling out of control	3.2759	26
Feeling punished	3.2414	27
Not relaxed	3.1954	28
Feeling loathsome	2.8046	29
Feeling diseased	2.6782	30
Feeling contaminated	2.1264	31

The ranks of items in cognitive subscale were listed in table 12. Items ranked high in the subscale (1-12) were mostly negative perception towards the self and the future, suicidal thoughts, and concentration difficulty. Sixteen items had mean scores above four. Twelve items had mean scores higher than three, while only three items had mean scores above two. High mean scores indicated that professionals were familiar with cognitive symptoms, probably due to the fact that most depression assessment scales put considerable emphasis on cognitive symptoms.

Table 13 Ranking of mean scores of somatic symptoms in depression

Items	Mean	Rank
Low energy	4.5412	1
Problems with sleeping	4.5172	2
Change in appetite	4.3333	3
Lower sex drive	4.3218	4
Feel slowed down	4.2644	5
Fatigue	4.0460	6
Change in weight	3.6667	7
Crying	3.6322	8
Agitation	3.3140	9
Slowed movement	3.2471	10
Slowed speech	3.2184	11
More pain sensitivity	2.8161	12
Intestinal problems	2.5116	13
Trembling	2.0690	14
Skin problems	2.0349	15
Dizziness	1.9425	16
Coldness	1.9080	17
Tingling	1.7586	18

Table 13 described items with high mean rankings in the somatic subscale. Items considered as the most typical (e.g. low energy, sleeping and appetite problem, and low sex drive) appeared frequently in DSM-IV and other depression assessment scales, such as BDI-II and Hamilton rating scale. Items less frequently mentioned in literature such as

coldness and dizziness were considered as less typical by professionals. Compared to other subscales, only six items had mean score exceeding four. This is probably because somatic items were less frequently assessed in depression scales.

Table 14 Ranking of means of interpersonal deficits in depression

Items	Mean	Rank
Decrease in activities	4.4943	1
Social withdrawal	4.4598	2
Feeling worse than others	3.9885	3
Feel a burden on others	3.9651	4
Social avoidance	3.9540	5
Feeling undeserving of others care	3.6322	6
Hypertensive to criticism	3.5862	7
Feeling less attractive than others	3.5747	8
Feel too sensitive to others	3.0690	9
Feeling let down by others	3.0575	10
Unable to love others	2.5698	11
Aggression towards others	2.4368	12
Suspicion of others	2.4253	13
Fear of others	2.3678	14
Too caring for others	2.2326	15
Feeling better than others	1.2235	16

Table 14 described the rankings of items in the interpersonal subscale. The item with highest rank (decrease in activities) was the only symptom described in DSM-IV. Only two items had mean scores above four and one item, feeling better than others, had mean score less than two. This showed that participants rated symptom-positive item as highly untypical.

Table 15 Comparing ratings of psychologists and other professions:

Items	Profession	N	Means across profession	Significance Level
(2) Low Mood	Psychologists	67	4.7761	.041
	Other	19	4.2632	
(3) Sad Mood	Psychologists	67	4.0606	.002
	Other	19	3.2632	
(4) Bad Mood	Psychologists	67	2.9697	.020
	Other	19	2.3684	
(8) Gloominess	Psychologists	67	4.1212	.022
	Other	19	3.3158	
(9) Low Spirits	Psychologists	67	4.2090	.012
	Other	19	3.3158	
(10) Mournfulness	Psychologists	67	3.0896	.046
	Other	19	2.6111	
(13) Anxiety	Psychologists	67	3.1791	.003
	Other	19	3.9474	
(16) Unhappiness	Psychologists	67	4.0000	.045
	Other	19	3.3889	

(61) Thoughts of suicide	Psychologists	67	4.1343	.024
	Other	19	4.5789	
(62) Poor concentration	Psychologists	67	4.2687	.000
	Other	19	4.7895	
(75) Feeling contaminated	Psychologists	67	1.9104	.006
	Other	19	2.8947	
(76) Feeling diseased	Psychologists	67	2.4776	.001
	Other	19	3.3684	
(80) Inability to work	Psychologists	67	3.2388	.000
	Other	19	4.1667	
(81) Slowed thinking	Psychologists	67	3.5821	.006
	Other	19	4.2105	
(47) Change in appetite	Psychologists	67	4.2388	.004
	Other	19	4.6842	
(49) Problem with sleeping	Psychologists	67	4.4179	.000
	Other	19	4.8947	
(50) Change in weight	Psychologists	67	3.5075	.008
	Other	19	4.2105	
(57) Slowed speech	Psychologists	67	3.0448	.001
	Other	19	3.8947	
(58) Slowed movement	Psychologists	67	3.0615	.001
	Other	19	3.9474	
(43) Unable to love others	Psychologists	67	2.4545	.032
	Other	19	3.0000	
(37) Suspicion of others	Psychologists	67	2.2985	.014
	Other	19	2.8947	

Table 15 listed items that psychologists and other professionals rated differently. Eight items came from the emotional subscale, six items from the cognitive subscale, five items from the somatic subscale and two items from the interpersonal subscale. Though

significant differences were found between items' mean scores rated by psychologists and other professionals, most items, except four of them had mean scores above three across the two professions. This indicated that participants from different professions considered most items to be equally typical.

Exploratory Factor Analysis and correlation between items

In order to confirm that the eight-five items could be fit into the four subscales, exploratory factor analysis was performed. Natural log of skewed data ensured that they were normally distributed for the best result. Two, four, five, and six-factor analysis was tested using principal component analysis and maximum iterations 150. Data were extracted with varimax rotation. The missing data were replaced with mean.

Two-factor Analysis

Table 16. Principal components of the two factor analysis

Items	Component	
	1	2
Miserable mood	.420	-.112
Low mood		.258

Sad mood		.285
Bad mood		.403
Unpleasant mood	.194	.102
Irritable mood		.197
Dysphoric mood		.356
Gloominess		.563
Low spirits	-.207	.637
Mournfulness	.100	.427
Shame	.437	.171
Guilt	.331	.228
Anxiety	.467	.340
Anger	.415	-.170
Disgust	.545	-.344
Unhappiness		.220
Sadness		.430
Hatred		.443
Rage	.470	.179
Not cheerful	.521	
No pleasure	.585	
No laughter	.400	.214
Worry	.335	.190
Not relaxed	.469	
Feeling punished	.582	-.382
Feeling out of control	.522	-.377
The future feels bleak	.355	.418
Feelings of hopelessness	.177	.555
Thoughts of suicide	.181	.637
Poor concentration	.401	.415
Poor attention	.534	
Feeling distant	.554	.189
Ruminations	.507	.503
Feeling overwhelmed	.504	.319
Wanting to give things up	.519	

Failing to complete things	.389	.117
Feeling a failure	.550	
Dislike of oneself	.254	.415
Self-blame	.257	.535
Self-criticism	.206	-.292
Loss of interest	.588	
Feeling worthless	.378	-.111
Feeling contaminated	.516	.164
Feeling diseased	.364	.471
Feeling bad	.383	.526
Feeling loathsome	.450	.179
Inability to work	.444	.412
Slowed thinking	.334	.509
Unable to make decisions	.442	.498
Life feels empty	.578	.287
Life feels meaningless	.555	.133
Crying	.420	
Trembling	.590	
Coldness	.439	.336
Tingling	.417	.397
Agitation	.340	.491
Dizziness	.570	.142
Change in appetite	.568	.117
Lower sex drive	.399	
Problems with sleeping	.407	.276
Change in weight	.428	
More pain sensitivity	.377	.395
Intestinal problems	.453	.239
Skin problems	.457	.201
Fatigue	.287	.329
Feel slowed down	.464	
Low energy	.489	.350
Slowed speech	.583	.380

Slowed movement	.573	.497
Social withdrawal	.560	.271
Social avoidance	.568	.479
Aggression towards others	.505	.470
Fear of others	.164	.405
Suspicion of others	.456	.225
Decrease in activities	.633	-.276
Feeling worse than others	.424	.180
Feeling better than others	.544	.275
Feeling let down by others	.695	-.122
Too caring for others	.591	
Unable to love others	.510	.298
Feeling less attractive than others	.631	.232
Feel a burden on others	.613	.233
Feel too sensitive to others	.517	.403
Hypersensitive to criticism	.546	.348
Feeling undeserving of others care	.319	.388

Factor loadings of the eighty-five items were shown in Table 16. The two-factor analysis accounted for 31.11 per cent of variance. KMO test reported adequacy of 0.1 while Bartlett's test reported $\gamma^2 = 6536.64$, $p < 0.01$. Nearly all items loaded on both factors. The pattern indicated that two-factor solution is inappropriate to divide items into different categories.

Four-factor Analysis

Table 17 Principal components of the four factor analysis:

Items	Component			
	1	2	3	4
Miserable mood			.569	
Low mood				.470
Sad mood				.554
Bad mood		.214		.665
Unpleasant mood			.335	.411
Irritable mood		-.200		.289
Dysphoric mood				.391
Gloominess			-.210	.688
Low spirits			-.426	.646
Mournfulness		.288		.650
Shame	.410		.398	
Guilt	.472		.245	
Anxiety	.354	.364		.273
Anger			.530	
Disgust		.306	.599	
Unhappiness				.390
Sadness	.225			.441
Hatred			.776	
Rage		.243	.560	-.220
Not cheerful	.416			.589
No pleasure	.207		-.402	
No laughter	.472	.271		
Worry	.260	.343	-.218	.428
Not relaxed	.315	.314		.421
Feeling punished	.359		.423	
Feeling out of control	.409		.473	.259
The future feels bleak	.294		.271	

Feelings of hopelessness	.565			
Thoughts of suicide	.579			-.298
Poor concentration	.739			
Poor attention	.637			
Feeling distant	.413		.284	
Ruminations		.280		.396
Feeling overwhelmed	.337		.440	
Wanting to give things up	.636			
Failing to complete things	.614	.240	.228	
Feeling a failure	.780			
Dislike of oneself	.672		.345	
Self-blame	.711			.220
Self-criticism	.696			.225
Loss of interest	.583			
Feeling worthless	.589		.257	
Feeling contaminated		.603	.401	-.206
Feeling diseased		.661		
Feeling bad	.333	.273	.381	.379
Feeling loathsome	.212	.377	.586	
Inability to work	.475	.441		
Slowed thinking	.506	.433		
Unable to make decisions	.503	.380	.216	
Life feels empty	.427	.537		
Life feels meaningless	.407	.534		
Crying	.312	.384		
Trembling		.534	.220	
Coldness		.588	.349	
Tingling		.492		.244
Agitation		.428		
Dizziness		.596		
Change in appetite	.537	.464		
Lower sex drive	.534	.426	-.306	
Problems with sleeping	.624	.337		

Change in weight	.517	.401		
More pain sensitivity	.203	.641		
Intestinal problems		.603		
Skin problems		.564	.281	
Fatigue	.520			
Feel slowed down	.519	.249		
Low energy	.583			
Slowed speech	.318	.662		
Slowed movement	.291	.670		
Social withdrawal	.557	.231		.382
Social avoidance	.345	.346	.228	.317
Aggression towards others		.506	.330	
Fear of others		.411		
Suspicion of others		.503	.342	
Decrease in activities	.440			
Feeling worse than others	.424			.418
Feeling better than others			.376	
Feeling let down by others	.312		.545	
Too caring for others			.388	
Unable to love others	.381	.366		
Feeling less attractive than others	.429	.209		.372
Feel a burden on others	.519	.308		.250
Feel too sensitive to others		.396	.294	.367
Hypersensitive to criticism	.302	.274	.464	
Feeling undeserving of others care	.511			

The four-factor analysis showed a pattern of factor loadings, though not very distinctive.

Items such as shame, guilt, anger, disgust, hatred, and rage did not load on the same factor as other negative emotional items. In contrary, all cognitive items, except rumination,

feeling diseased and feeling contaminated, loaded on the same factor. Regarding the somatic subscale, fatigue and low energy did not load on the same factor as the others. Finally, interpersonal items had the most dispersed factor loadings. The Kaiser-Meyer-Olkin (KMO) test that measures sampling adequacy and Bartlett's test of sphericity were also conducted. Bartlett's test reported $\chi^2 = 6537.82$, $p < 0.01$. KMO test reported adequacy of 0.1 which was a relatively low value, indicating that the four-factor solution gave mixed evidence on four subscales. Four factors accounted for total variance of 40.36 per cent.

Five-factor Analysis

Table 18 Principal components of the five factor analysis:

Items	Component				
	1	2	3	4	5
Miserable mood	.238			.570	.243
Low mood			.234		.397
Sad mood					.696
Bad mood		.212			.787
Unpleasant mood				.332	.502
Irritable mood					.449
Dysphoric mood					.505
Gloominess			.385	-.246	.552
Low spirits			.307	-.456	.538
Mournfulness		.279			.710
Shame	.323		.354	.356	
Guilt	.458			.214	
Anxiety	.244	.351	.356		
Anger				.542	.220

Disgust		.308		.613	
Unhappiness		-.218	.379		.211
Sadness			.251		.400
Hatred				.773	
Rage		.243		.567	
Not cheerful	.257		.498		.454
No pleasure				-.418	
No laughter	.288	.254	.485		
Worry		.325	.394	-.257	.298
Not relaxed		.287	.502		.253
Feeling punished	.284		.294	.392	
Feeling out of control	.284		.451	.425	
The future feels bleak	.270			.254	
Feelings of hopelessness	.529		.222		
Thoughts of suicide	.666				
Poor concentration	.829				
Poor attention	.769				
Feeling distant	.433			.265	
Ruminations		.272			.404
Feeling overwhelmed	.387			.430	
Wanting to give things up	.602		.239		
Failing to complete things	.548	.240	.325		
Feeling a failure	.667		.449		
Dislike of oneself	.572		.412	.292	
Self-blame	.610		.423		
Self-criticism	.602		.407		
Loss of interest	.596				
Feeling worthless	.538		.272	.218	
Feeling contaminated		.592		.401	-.273
Feeling diseased		.648	.228		
Feeling bad	.227	.254	.396	.340	.294
Feeling loathsome	.231	.376		.579	
Inability to work	.464	.453			

Slowed thinking	.482	.441			
Unable to make decisions	.473	.385	.201		
Life feels empty	.347	.535	.268		
Life feels meaningless	.288	.524	.351		
Crying	.240	.379	.238		
Trembling		.531		.215	
Coldness		.574		.342	
Tingling		.471	.342		
Agitation		.436			
Dizziness		.592			
Change in appetite	.582	.491			
Lower sex drive	.507	.442		-.327	
Problems with sleeping	.656	.361			
Change in weight	.468	.405	.230		
More pain sensitivity		.638			
Intestinal problems		.616			
Skin problems		.574		.292	
Fatigue	.462		.268		
Feel slowed down	.459	.252	.255		
Low energy	.413		.493		
Slowed speech	.274	.667			
Slowed movement	.281	.679			
Social withdrawal	.403	.214	.515		.250
Social avoidance	.260	.335	.324		.264
Aggression towards others		.510		.341	
Fear of others		.384	.380		
Suspicion of others		.482	.293	.323	
Decrease in activities	.228		.540		
Feeling worse than others			.671		
Feeling better than others				.388	
Feeling let down by others			.540	.494	
Too caring for others			.324	.360	
Unable to love others		.339	.541		-.256

Feeling less attractive than others			.650		
Feel a burden on others	.330	.290	.518		
Feel too sensitive to others		.373	.326	.267	.277
Hypersensitive to criticism	.315	.273		.448	.247
Feeling undeserving of others care	.300		.568		

Factor loadings of the five-factor analysis showed less clear pattern than that of the four-factor analysis. The five factors accounted for total variance of 44.57 per cent. KMO test reported adequacy of 0.1 while Bartlett's test reported $\chi^2 = 6537.82$, $p < 0.01$. Factor loadings were more dispersed. The pattern was less distinct than the four-factor model.

Table 19 Principal components of the six factor analysis:

Items	Component					
	1	2	3	4	5	6
Miserable mood				.592		.326
Low mood					.566	
Sad mood					.501	.462
Bad mood					.408	.692
Unpleasant mood				.356	.208	.473
Irritable mood		-.252				.630
Dysphoric mood					.203	.499
Gloominess			.251	-.234	.544	.308
Low spirits				-.446	.607	.230

Mournfulness		.264			.396	.613
Shame			.530	.373		.243
Guilt	.330		.396	.240		.304
Anxiety	.213	.344	.365			
Anger	.200			.559		
Disgust		.295		.613		
Unhappiness					.464	
Sadness	.215				.550	
Hatred				.768		
Rage		.254		.557		-.201
Not cheerful	.244		.397		.527	
No pleasure			.283	-.402		.368
No laughter	.271	.261	.463			
Worry		.336	.316	-.249	.348	
Not relaxed		.301	.447		.319	
Feeling punished			.474	.399	-.214	
Feeling out of control	.221		.459	.434		
The future feels bleak	.227		.221	.259		
Feelings of hopelessness	.503		.272			
Thoughts of suicide	.624				-.278	
Poor concentration	.853					
Poor attention	.792					
Feeling distant	.469			.284	.262	
Ruminations		.271			.316	.277
Feeling overwhelmed	.429			.438		
Wanting to give things up	.629				.207	
Failing to complete things	.591	.250	.226	.202	.343	
Feeling a failure	.616		.505			
Dislike of oneself	.479		.531	.308		
Self-blame	.566		.460			
Self-criticism	.565		.424		.219	
Loss of interest	.573					
Feeling worthless	.512		.302	.232		

Feeling contaminated		.613		.380		-.258
Feeling diseased		.664				
Feeling bad	.205	.263	.345	.353	.323	
Feeling loathsome	.227	.372		.585		
Inability to work	.462	.422				
Slowed thinking	.473	.415	.237			
Unable to make decisions	.510	.384		.201		
Life feels empty	.425	.552			.317	
Life feels meaningless	.335	.541	.255		.243	
Crying		.341	.389			
Trembling		.520		.220		
Coldness		.565	.234	.338		
Tingling		.479	.322			
Agitation		.383				.413
Dizziness		.611				
Change in appetite	.561	.426				.282
Lower sex drive	.497	.396	.228	-.308		
Problems with sleeping	.658	.312				.235
Change in weight	.458	.383	.276			
More pain sensitivity		.615	.245			
Intestinal problems		.577				.336
Skin problems		.541		.297	-.217	
Fatigue	.434		.309			
Feel slowed down	.380	.204	.404			.250
Low energy	.355		.537			
Slowed speech	.300	.655				
Slowed movement	.328	.669				
Social withdrawal	.343	.203	.534		.252	
Social avoidance	.284	.349	.229	.206	.354	
Aggression towards others		.527		.343		
Fear of others		.398	.371			
Suspicion of others		.507	.239	.308		
Decrease in activities			.561			

Feeling worse than others			.700			
Feeling better than others	-.219			.385		
Feeling let down by others			.467	.483		-.285
Too caring for others			.272	.346		-.282
Unable to love others		.340	.606			
Feeling less attractive than others			.609		.274	
Feel a burden on others	.253	.269	.599			
Feel too sensitive to others		.397	.231	.270	.324	
Hypersensitive to criticism	.347	.281		.462	.289	
Feeling undeserving of others care	.248		.568			

Comparing to the four-factor analysis, the six-factor analysis of the items did not show a clear pattern of factor loadings. It is difficult to distinguish the six factors from the table.

This indicated that dividing the items into six subscales was less appropriate than four subscales. KMO test reported adequacy of 0.1 while Bartlett's test reported $\gamma^2 = 6537.82$, $p < 0.01$. Six factors accounted for total variance of 47.89 per cent.

Table 20 Items with high correlation

Items	Items	Correlation
Poor Concentration	Poor Attention	0.836
Self-blame	Self-criticism	0.841
Slowed speech	Slowed movement	0.820

In table 20, highly correlated items (correlation >0.8) were listed. A high correlation indicated that participants regarded the two items as the same meaning. And therefore one of them will not be selected for the new depression assessment scale.

??Table 16 does not report correlations. It is the 2 factor solution (see p77). Please clarify.

I am unclear what you mean by the above paragraph.

8.3 Discussion

The aim of this study was to select the most typical depressive symptoms for the following pilot study to construct a valid and reliable new multi-dimensional depression scale.

Eighty-seven participants rated a list of eighty-five items which almost covered all the depressive symptoms in four domains; emotional, cognitive, somatic and interpersonal.

Several analyses were performed to identify the most appropriate representatives to assess depression. Forty-eight items were finally chosen, twelve from each subscale, based on several criteria. These included the rankings of mean score of each item, different mean score of each item across professions, the correlation between items and factor loadings of items in the factor analysis. Items with highest twenty rankings of mean score were first considered. For items with high correlation, the ones ranked higher were chosen. On the Likert scale, three is a cut point that distinguishes typical and untypical items. Although psychologists and other professional scored certain items differently, the difference in mean scores did not reflect the difference of how typical the items were as depressive symptoms. Most of the items were rated above three. This indicated that psychologists and other professionals regarded them as the same appropriateness to represent depressive symptoms. Though three items (mournfulness, feeling diseased, and unable to love others)

varied across three, it did not have impact on their rankings. In general, less emphasis was put on the difference in ranking across professions. Finally, items with high factor loadings were also considered, though it was not the major criteria of selection.

In the emotional subscale, the first eleven items with highest ranks were chosen. The thirteenth item, anxiety appeared in most literatures and assessment scales. Therefore it replaced mournfulness which had similar semantics as low spirits. In the cognitive subscale, items with the first twelve ranks were chosen. The eighth item, self-criticism, was highly correlated to the seventh item, self-blame so it was excluded. The tenth item, poor attention was also discarded as it had high correlation with the sixth item, poor concentration. The fourteenth item (rumination), the fifteen item (thoughts of suicide), and the eighteenth item (unable to make decision) were more well researched than items with higher ranks. Therefore they replaced the twelfth item (dislike of oneself), the thirteenth item (life feels empty) and the sixteenth item (wanting to give things up). In somatic subscale, the eleventh item, slowed speech was discarded for its high correlation with the tenth item, slowed movement. Therefore, the thirteenth item, intestinal problem was included. In interpersonal subscale, the first twelve items were chosen, as no items shared high correlation with each other.

Four additional items added to the new multi-dimensional depression scale

Psychiatrists from mental facilities were invited to check the content validity of the selected items in assessing depressive symptoms. They suggested four additional cognitive items which were also typical symptoms of depression. They included poor memory, unable to plan things, feeling disorganized, and unable to care for myself. As a result, a total number of fifty-two items were used in the new multi-dimensional depression scale to assess the severity and symptom pattern of depression. The psychometric characteristics of the new subscale were tested in the second study.

In summary, table 21 listed the fifty-two items in the new multi-dimensional depression assessment scale. Participants would have to rate the frequency of experiencing each symptom on a 5-point scale with one representing the least frequent and five the most frequent symptom.

Table 21 Items selected for the new multi-dimensional depression scale

Emotional	Cognitive	Somatic	Interpersonal
(1) Low mood	(13) Feelings of hopelessness	(25) Low energy	(37) Decrease in activities
(2) Sadness	(14) Loss of interest	(26) Problems with sleeping	(38) Social withdrawal
(3) Low spirits	(15) No pleasure	(27) Change in appetite	(39) Feeling worse than others
(4) Gloominess	(16) The future feels bleak	(28) Lower sex drive	(40) Feel a burden on others
(5) Sad mood	(17) Feeling worthless	(29) Feel slowed down	(41) Social avoidance
(6) Guilt	(18) Poor concentration	(30) Fatigue	(42) Feeling undeserving of others care
(7) Unhappiness	(19) Self-blame	(31) Change in weight	(43) Hypersensitive to criticism
(8) Not cheerful	(20) Life feels meaningless	(32) Crying	(44) Feeling less attractive than others
(9) Irritable mood	(21) Feeling a failure	(33) Agitation	(45) Feel too sensitive to others
(10) Dysphoric mood	(22) Ruminations	(34) Slowed movement	(46) Feeling let down by others
(11) Shame	(23) Thoughts of suicide	(35) More pain sensitivity	(47) Unable to love others
(12) Anxiety	(24) Unable to make decision	(36) Intestinal problems	(48) Aggression towards others
	(49) Poor memory		
	(50) Unable to plan things		
	(51) Feeling disorganized		
	(52) Unable to care for myself		

9. Study 2

9.1 Introduction

In previous study forty-eight items were chosen to enter the new multi-dimensional depression assessment scale. Together with four additional cognitive items that psychiatrists believe were also the symptoms of depression, a total of 52-item scale was generated, divided into four subscales. The psychometric property was tested in this study so that it could be used in clinical practices to evaluate the severity and symptom pattern of depression. This study also aimed to eliminate inappropriate items in assessing depressive symptoms. Participants were required to complete both the new depression scale and BDI-II. The correlation between the new scale and BDI-II, Cronbach's alphas of each subscale, item-scale consistency of each item, factor analysis using principal-axis factoring method, as well as discriminate group validity were examined.

Design

A between-subject correlational design was used for this study.

Participants

One hundred and thirty questionnaires were distributed to universities and schools through email. Each participant received two set of questionnaire, the new multi-dimensional depression assessment scale and the BDI-II. One hundred of them, aged between sixteen and fifty responded. Participants were mainly teachers and university graduates. Their mean age was 26.12, with standard deviation 5.399. Twenty-eight participants were male and sixty-five were female. As the participants were not recruited from non-psychiatric settings, and thus their mental status were not assessed before the study.

Materials

1. The New Multi-dimensional Depression Scale (See Appendix II)

In last study, the new multi-dimensional depression scale was constructed. The 52-item assessment scale evaluated participants' behaviour and feeling in four domains. They responded on a 5-point Likert scale where one referred to the least frequent occurred symptom while five as the most frequently occurred symptom in the past two weeks.

Emotional Subscale

The emotional subscale contained twelve items- Low mood, Sadness, Low spirits, Gloominess, Sad mood, Guilt, Unhappiness, Not cheerful, Irritable mood, Dysphoric mood, Shame, and Anxiety.

Cognitive Subscale

The cognitive subscale contained sixteen items-twelve came from the first study while the four remaining items came from psychiatrists. Items included feelings of hopelessness, Loss of interest, No pleasure, The future feels bleak, Feeling worthless, Poor concentration, Self-blame, Life feels meaningless, Feeling a failure, Ruminations, Thoughts of suicide, Unable to make decision, Poor Memory, Unable to plan things, Feeling disorganized, and Unable to care for myself

Somatic Subscale

The somatic subscale was composed of twelve items from the first study. They included low energy, Problems with sleeping, Change in appetite, Lower sex drive, Feel slowed

down, Fatigue, Change in weight, Crying, Agitation, Slowed movement, More pain sensitivity, and Intestinal problems.

Interpersonal Subscale

The interpersonal subscale involved twelve items - decrease in activities, social withdrawal, feeling worse than others, feel a burden on others, social avoidance, feeling undeserving of others care, hypersensitive to criticism, feeling less attractive than others, feel too sensitive to others, feeling let down by others, unable to love others, and aggression towards others.

2. Beck Depression Inventory (BDI-II) (See Appendix III)

The BDI is the most widely used self-report depression assessment scale (e.g., Brown et al., 1995). It is a 21-item questionnaire in which respondents rate themselves on a 4-point Likert scale (0-3) with increasing severity. The BDI is found to have good split-half reliability, ranging from .58 to .93 (Beck & Beamesderfer, 1974; Gallagher et al., 1982; Reynolds & Gould, 1981; Strober et al, 1981, cited in Katz et al., 1995), and item-total correlations, ranging from .22 to .88 (Strober et al., 1981, cited in Katz, 1985). It also correlates well with most other self-report depression assessment scales (Katz et al., 1995).

For example, Beck, Steer, and Garbin (1988) review thirty-five studies and reported high correlation coefficients between BDI and other measures, such as Zung's SDS, HRSD (.86) and clinicians' ratings of depth of depression (.96) (Gallagher et al., 1982; Strober et al., 1981; cited in Katz et al., 1995).

The BDI focuses mostly on psychological domain of depression. The original version received a lot of criticism due to its poor test-retest reliability and skewed mean score. The latter put its ability to discriminate depressed individuals with different severity under question (Richter et al., 1998). Nevertheless, the revised version, BDI-II developed by Beck and colleagues in 1996 replaced many items to make it more consistent with the diagnostic criteria of DSM-IV. The reliability has also raised to 0.88 (Steer et al., 2001). Its better diagnostic power also makes it one of the most popular depression assessment scales used by clinicians.

Procedure

The two sets of questionnaire were sent to participants via email. They were given two weeks to complete them and send them back. The instruction of each questionnaire was

written clearly on the top of the questionnaire. Participants could also ask any questions regarding the questionnaires.

The reflection on ethics

The Study

In order to develop a new multi-dimensional depression assessment scale that measured the severity and symptom pattern of depression, I conducted two studies. In the first study, a group of clinical psychology doctoral students and professionals that attended the interpersonal psychotherapy conference were invited to complete an 85-item questionnaire which listed almost all the depressive symptoms. Participants were required to determine how typical each item was as a depressive symptom, based on their knowledge and experience. Forty-eight most typical symptoms were selected, together with four additional items suggested by psychiatrists, a 52-item new multi-dimensional depression assessment scale was generated. The psychometric properties of the measure was tested with a group of community dwelling participants which mainly comprised of students. At the same time, participants also needed to complete a Beck Depression Inventory (BDI-II). The validity and reliability of the new depression scale was examined by comparing participants'

scores on the new scale with that on BDI-II. Based on the cut point (13) of BDI-II, participants with BDI-II scores of 14 and above were categorized as depressed while those with scores less than 14 were categorized as non-depressed. Seventeen out of one hundred participants were in the depressed group. A good reliability and validity were found in the new scale.

Selection of participants and inviting them to participate

One hundred and fifteen sets of questionnaire were sent out through email using a ‘snowball’ procedure for recruitment. Participants were persons that I knew personally such as friends, flatmates, classmates, and university juniors. And at the same time, some participants had a more distant relationship with myself, such as parents’ friends, colleagues, and friends of my friends. In my email to them, I explained the nature of the study, what they needed to do and where they could find the result. I also assured them their personal information would be confidential and used for research only.

Consent and termination of the study

Participants were informed that it was not their obligation to complete the questionnaire. In fact, it was their decision to choose whether to send back the completed questionnaires. I

did not urge them in filling in the questionnaires. At any point when they felt uncomfortable, they did not need to proceed. They could also choose to ignore any question they felt uncomfortable with. All these were stated clearly in the email I sent them.

Eliminating possible risks for participants during and after the study

Withdrawing from the study was believed to be the best way to eliminate any negative response following the questionnaire. Moreover, I did make sure that participants all knew my contact information. They were encouraged to discuss with me about their concerns regarding the study and the possible effect of probing the symptoms, such as lowering of mood. They were also reassured that the scores were state dependent and did not directly reflect their mental health. Participants were not informed how to calculate the total scores on BDI-II and what the scores they achieved could mean. They also did not know the cut-off point in the BDI-II. This could avoid the possibly caused anxiety. For individuals who had particular concern about their BDI-II scores, they received explanation through email.

Confidentiality

The personal information name, occupation, marital status was asked in BDI-II. However, participants were told that they were only required to provide minimum personal information which was age and sex. Only gender and age were reported in the result section of the second study. Therefore the confidentiality was guaranteed in my study. Participants were also assured that their information would remain confidential.

Thinking through the ethics

The first study

The first study in my research project utilized the result of a classroom activity at Clinical Psychology training program and Interpersonal Psychotherapy Training workshop. An 85-item questionnaire was designed for the trainees to test their knowledge and understanding of depressive symptoms. For the IPT workshop, the questionnaire allowed participants to identify the essential interpersonal symptoms of depression. As interpersonal domain of depressive symptoms were missing from almost all the depression assessment scales, the IPT workshop, which focused specially on interpersonal aspect of depression probed them to pay more attention on interpersonal symptoms of depression and to evaluate their knowledge on the interpersonal domain.

Though it was a classroom activity of the training program, participants were not obliged to complete the questionnaire. In fact, they could leave the questionnaire on their desk if they did not wish to complete it. The ethical issue should have been cleared before the participants took part in the training program. They should understand that as a part of the training program, their knowledge regarding depressive symptoms would be evaluated.

Therefore I did not apply for ethics approval for the first study, though it would be better next time to consult the school regarding ethical issues before I utilized the data. Moreover, participants rated items based on their knowledge. It was unrelated to their psychological well-being. Based on the result of the first questionnaire a new multidimensional depression assessment was established.

The second study

After the new multidimensional depression assessment scale was constructed, its psychometric property should be tested. Although a group of clinically depressed patients would be the most appropriate participants, it was difficult to recruit them in such a short time frame. A professor from Norway had promised to get the clinical samples for me.

However, when I learned that I could not get depressed patients to fill in the questionnaires after two months' waiting, I realized that I was falling behind the schedule and was

worried that I could not finish the thesis in time. Under such circumstance, I intended to recruit student sample to finish the study, despite the fact that it could make the result less desirable than using clinical sample. I therefore turned to Psychology undergraduate students in School of Psychology, Philosophy and Language Science at the University of Edinburgh. According to past experience, recruiting students from that school required ethics approval from corresponding ethics committee instead of the ethics committee from my own school, which refers to the School of Health. And therefore, I handed in my application form to Ms Fiona Graham, from the School of Psychology. The day after I submitted the hard copy of the application, I emailed her the soft copy. Unfortunately I hadn't heard from her ever since. I tried to call her twice to see if she had handed in my application to the ethics committee. Unfortunately she could not be reached. I thought that it may take her longer to process my application and I never imagined that she would lose my application, both hard copy and soft copy. As my study was very straight-forward and harmless, I believed that it was a matter of time that I was granted the approval so I decided to start collecting data while waiting for the outcome of ethics approval.. I later learned that this was inappropriate in conducting research and should never happen again. I should have stopped and wait for the further instruction from my supervisor or the ethics committee. The other PhD students from my department also suggested that there

wouldn't be any problem in my application and I could easily get the approval very soon. However, without the ethics approval from the School of Psychology, I did not recruit Psychology students. Rather, I turned to the people I knew personally and sent out the questionnaires by the method of snowball. Some of the participants were friends of my mother and father. My friends also helped me distributed a few questionnaires to their friends. Although I did not talk much to those people who were not contacted directly by me, I could find ways to get in touch with them. At that point I did not intend to contact my participants regarding their BDI-II scores because I did not believe that it was necessary for me to do so. Eventually, one hundred questionnaires were filled up and I spent the rest of the time analyzing the data.

During my data analysis, I was aware that I should categorize participants into depressed and non-depressed groups according to the cut point of BDI-II. Although I knew that BDI-II was not a tool to screen out depressed individuals from nondepressed ones, categorizing participants into depressed group confused me to think that at least, they were in a low mood and may need to talk to some professions. So as a friend I approached the seventeen participants informally to show my care about their emotional state. At the late stage of data analysis Prof. Power emphasized the importance not confusing the 'depressed' group

with clinically depressed individuals. Individuals scoring above the cut point of BDI-II were not diagnosed as clinically depressed but as dysphoric group. Although my letter to these participants did not suggest that they were clinically depressed, in order not to confuse them, they should not be notified about their scores on BDI-II.

After viva I realize that the application document was lost and a retrospective approval was needed. So I filed my application again to the head of the ethics committee together with my thesis. However, the feedback from Dr. Wendy Johnson pointed out that it was important to conduct my study strictly under the guidelines by British Psychology Society, which referred to consent, termination of the study, debriefing, and confidentiality.

Following the spirit of the guidelines was not adequate. From the guidelines of BPS as well as the feedback from Dr. Johnson, I learned that participants should be informed the result of the study, the nature of the study and harms should be identified for future assistance. Apparently, I had different interpretation of the meaning of debriefing with Dr. Johnson. I later learned that participants should be explained the nature of the study instead of their individual BDI-II scores. The part that 'harm should be identified and assistance provided' lead me to put my attention on the participants with BDI-II scores exceeding 14. In my understanding of the requirement of debriefing, I believed that it was

important to warn the participants with BDI-II score more than 14 that their psychological well-being could be at risk and point out that they talk with professionals, which was my supervisor, Prof. Mick Power. After the ethics review I realized that it should be the result of the study I should be paying attention to, instead of the well being of individuals. In fact, it should be my supervisor's responsibility to get in touch with them and offer professional opinion. Clearly, the different interpretation of debriefing between me and members from ethics committee led to an inappropriate step in the study. Since I had never encounter ethical issues in my previous study, I was unfamiliar with the meaning of ethical guidelines by BPS. The initiative I took in concerning for the wellbeing of participants with BDI-II above 14 was for good but it ended in an undesirable way that the participants received my letter out of a sudden could feel uncomfortable or anxious.

Looking back at the whole process of my Master's education, I therefore learned that my data collection should come after I get the ethics approval. Back then, as I only had three months left and the data for my second part of the thesis had not been collected. I was very anxious that I underestimated the importance of ethics approval, the difficulty in granting the approval and overestimated the chance that I could be granted the approval. I was rushing to hand in the thesis before 31/8/2009. I later realized that this is not the deadline

of the thesis submission. If I did not finish my thesis before that, I could hand in the thesis anytime I want. As a result, although some time was spent on waiting for the outcome of ethics, I can always postpone thesis submission to compensate the time spent on waiting. It was only the wish to finish my thesis and return home early urged me to finish my thesis on time. Unfortunately the retrospective approval had cost me even more time and effort than what I should have spent on waiting for the approval before my study. I also learned that it is very important to consult my supervisor before I take actions, as he is a highly experienced and knowledgeable scholar, he would guide me to correctly interpret what BPS means in its ethical code of conduct. I should also make sure that Ms Fiona Graham had processed my application, instead of assuming that she was processing it. In general, with more effort and consultation, as well as the benefit of this unfortunate experience, I believe that this unfortunate incident shall not happen in the future.

9.2. Results

Descriptive information of the sample

1. Age

One hundred people completed both the new multi-dimensional depression assessment scale and the BDI-II. Tables 22-24 below showed the descriptive information.

Table 22. Age of the participants

Age band	Frequency	Percentage
10-20	6	6.32
21-30	74	77.89
31-40	13	13.68
41-50	2	2.11
Total	95	95.0
Missing	5	5.26
TOTAL	100	100

From Table 22, participants had ages ranging from sixteen to fifty with a mean of 26.12 and standard deviation 5.399. Their age was slightly positively skewed (1.758) with positive kurtosis (4.433). Most participants (sixteen per cent) were twenty-four years old.

Five people did not report their age.

2. Gender

Table 23. Gender of participants:

Gender	Frequency	Percent
Male	28	28.0
Female	65	65.0
Missing	7	7.0
TOTAL	100	100.0

In total sample of one hundred, twenty-eight per cent were males, sixty-five per cent were females. Seven people did not report their gender. The number of female participants was greater than that of male participants.

Psychometric properties of the new multi-dimensional depression scale

Descriptive information of the new depression scale and BDI-II

Table 24 Descriptives of total scores of the BDI-II, the new depression scale and the four

subscales in the new scale:

Scale/Subscale	N	Min	Max	Mean	S.D.
BDI total score	100	.00	25.00	7.5100	6.35403
New scale total score	100	61.00	164.00	94.0400	22.39450
emotional subscale total score	100	15.00	42.00	24.4200	5.38644

Cognitive subscale total score	100	17.00	52.00	28.7800	7.92844
Somatic subscale total score	99	10.00	36.00	20.7778	5.66867
Interpersonal subscale total score	100	12.00	43.00	20.0600	6.74023

Table 24 described the sample number, minimum value, maximum value, mean and standard deviation of the total score of the new depression scale, the BDI-II, as well as the four subscales in the new depression scale. Except for the somatic subscale in the new depression scale, other scales did not have missing value. As the samples were mentally healthy in this study, the mean score for BDI-II was below fourteen, the cut point for depression to be diagnosed.

Reliability, correlation and factor analysis of the new depression assessment scale

BDI-II is the most widely used instrument to evaluate depressive symptoms and severity (e.g. Katz et al., 1995). Its result is not affected by ethnicity and age (Beck et al., 1996).

The new depression assessment scale was therefore compared with the BDI-II to investigate its psychometric characteristics- reliability and validity. Cronbach's alpha

provided good indication of the reliability of the new scale. Pearson correlation between the new depression scale and the BDI-II showed the relationship between the new scale and BDI-II. Factor analysis using principal-factoring method with varimax rotation revealed whether it is appropriate to divide the new depression scale into four categories. The cut point of BDI-II, fourteen, divided participants into two groups- depressed group and non-depressed group. Discriminate group reliability was examined by measuring the difference between the two groups of participants on each item in the new depression scale. Finally, item-scale correlation between individual items in the new depression scale and the total score of the new depression scale helped eliminate items that were not adequately related to the scale. Items with item-scale correlation less than 0.3 were considered with poor scale consistency and inadequate to be put in the scale. In addition to reliability, content validity was also investigated to ensure that the items were appropriate representatives of depressive symptoms. This was done by inviting psychiatrists from mental facilities to evaluate the content of the depression scale. Items that they think were not useful in evaluating depressive symptoms were excluded.

Table 25. Pearson Correlation between the total score of BDI-II and new depression scale:

The new depression scale	BDI-II total score
New scale total score	.765 **
Emotional subscale	.590 **
Cognitive subscale	.730 **
Somatic subscale	.712 **
Interpersonal subscale	.626 **

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

Table 25 describes the Pearson correlation between the total score of the new depression scale and BDI-II. A rather high correlation, i.e. >0.7 indicated that the new depression scale had good relationship with BDI-II. The four subscales in the new depression scale, as well as the whole scale had correlation with BDI-II ranged from 0.626 to 0.765. Cognitive and somatic subscales have correlation above 0.7 while emotional and interpersonal subscale had correlation below 0.6 and 0.7 respectively.

Table 26. Discriminate group validity for each item in the new depression scale:

Item	BDI-II score divided by cut point	N	Mean	S.D	t
1. low mood	>= 14.00	18	3.00	.767	4.477**
	< 14.00	82	2.23	.634	
2. sadness	>= 14.00	18	2.33	.485	2.752*
	< 14.00	82	1.93	.583	
3. low spirits	>= 14.00	18	2.56	.511	2.186*

	< 14.00	82	2.20	.656	
4. gloominess	>= 14.00	18	2.67	.686	5.133**
	< 14.00	80	1.79	.650	
5. sad mood	>= 14.00	18	2.72	.826	4.336**
	< 14.00	82	1.83	.605	
6. guilt	>= 14.00	18	2.44	1.042	3.411**
	< 14.00	82	1.70	.796	
7. unhappiness	>= 14.00	18	2.56	.784	2.971*
	< 14.00	81	1.98	.570	
8. not cheerful	>= 14.00	18	2.61	.916	2.243*
	< 14.00	82	2.11	.521	
9. irritable mood	>= 14.00	18	2.33	.686	2.161*
	< 14.00	82	1.99	.598	
10. dysphoric mood	>= 14.00	15	2.40	.632	3.430**
	< 14.00	81	1.83	.587	
11. shame	>= 14.00	18	2.00	1.029	2.671*
	< 14.00	82	1.46	.706	
12. anxiety	>= 14.00	18	2.78	1.060	2.181*
	< 14.00	82	2.26	.886	
13. feelings of hopelessness	>= 14.00	17	2.35	.702	4.695**
	< 14.00	82	1.49	.689	
14. loss of interest	>= 14.00	18	2.56	.984	3.989**
	< 14.00	82	1.71	.778	
15. no pleasure	>= 14.00	18	2.61	.850	4.894**
	< 14.00	81	1.65	.727	
16. the future feels bleak	>= 14.00	18	2.28	.895	3.478**
	< 14.00	82	1.60	.718	
17. feeling worthless	>= 14.00	18	2.44	1.042	3.658**
	< 14.00	82	1.50	.724	
18. poor concentration	>= 14.00	18	2.83	.985	2.662*
	< 14.00	82	2.21	.885	
19. self-blame	>= 14.00	18	2.50	.786	3.817**
	< 14.00	82	1.73	.771	

20. life feels meaningless	>= 14.00	18	1.94	.873	3.179*
	< 14.00	80	1.26	.545	
21. feeling a failure	>= 14.00	18	2.61	1.092	3.527*
	< 14.00	82	1.67	.630	
22. ruminations	>= 14.00	17	2.59	.795	2.112*
	< 14.00	82	2.11	.861	
23. thoughts of suicide	>= 14.00	18	1.44	.616	2.782*
	< 14.00	82	1.04	.189	
24. unable to make decision	>= 14.00	18	2.67	1.188	2.361*
	< 14.00	82	1.98	.769	
25. low energy	>= 14.00	17	2.94	.556	4.056**
	< 14.00	82	2.12	.792	
26. problems with sleeping	>= 14.00	18	2.28	.826	3.091*
	< 14.00	82	1.66	.757	
27. change in appetite	>= 14.00	18	2.39	.778	5.741**
	< 14.00	82	1.45	.591	
28. low sex drive	>= 14.00	18	2.56	1.097	4.046**
	< 14.00	81	1.47	.654	
29. feel slow down	>= 14.00	18	2.33	.767	2.541*
	< 14.00	82	1.79	.828	
30. fatigue	>= 14.00	18	3.06	.938	4.350**
	< 14.00	82	2.10	.826	
31. change in weight	>= 14.00	18	2.17	1.043	2.716*
	< 14.00	82	1.48	.593	
32. crying	>= 14.00	17	1.94	.827	2.703*
	< 14.00	82	1.44	.668	
33. agitation	>= 14.00	17	2.53	1.007	3.296*
	< 14.00	82	1.68	.718	
34. slowed movement	>= 14.00	18	2.22	.808	4.450**
	< 14.00	82	1.45	.632	
35. more pain sensitive	>= 14.00	18	1.78	.943	2.983*
	< 14.00	81	1.27	.570	
36. intestinal problem	>= 14.00	17	2.47	1.007	3.690**

	< 14.00	82	1.29	1.232	
37. decrease in activities	>= 14.00	18	2.33	1.029	3.620**
	< 14.00	81	1.57	.757	
38. social withdrawal	>= 14.00	18	2.17	1.098	2.288*
	< 14.00	81	1.64	.826	
39. feeling worse than others	>= 14.00	18	2.67	.767	4.698**
	< 14.00	81	1.65	.839	
40. feel a burden on others	>= 14.00	18	2.00	.767	3.081*
	< 14.00	82	1.43	.703	
41. social avoidance	>= 14.00	18	2.06	1.056	2.020*
	< 14.00	82	1.61	.797	
42. feeling undeserved of others care	>= 14.00	18	2.17	1.150	2.809*
	< 14.00	82	1.38	.660	
43. hypersensitive to criticism	>= 14.00	18	2.39	.778	3.810**
	< 14.00	81	1.64	.747	
44. feeling less attractive than others	>= 14.00	18	2.50	.786	3.300**
	< 14.00	82	1.77	.865	
45. feel too sensitive to others	>= 14.00	18	2.39	.778	3.079*
	< 14.00	82	1.68	.901	
46. feeling let down by others	>= 14.00	18	2.33	.907	3.749**
	< 14.00	82	1.60	.718	
47. unable to love others	>= 14.00	18	2.00	1.237	2.343*
	< 14.00	82	1.29	.711	
48. aggression towards others	>= 14.00	18	1.89	.963	2.171*
	< 14.00	82	1.38	.559	
49. poor memory	>= 14.00	18	3.11	1.132	6.036**

	< 14.00	82	1.76	.794	
50. unable to plan things	>= 14.00	18	2.56	1.042	3.993**
	< 14.00	81	1.53	.672	
51. feeling disorganized	>= 14.00	18	2.78	1.263	2.534*
	< 14.00	82	1.99	.839	
52. unable to care for myself	>= 14.00	17	2.00	1.118	2.080
	< 14.00	82	1.41	.684	

*p<0.05

**p<0.001

The cut point of BDI-II, thirteen, divided participants into depressed and non-depressed groups. participants scoring above fourteen were considered to be depressed while those scoring below fourteen were not. Independent sample t test were used to compare the different scores between two groups of participants on each item in the new depression scale. This could determine the ability of each item to discriminate depressed and nondepressed participants. A statistically significant difference was found for the first fifty-one items. This indicated that fifty-one items had good ability in distinguishing depression and depressed participants. However, item fifty-two, unable to care for myself, had significant level slightly higher than 0.05. Its power to determinate depressed and non-depressed people should be further tested.

Table 27 Cronbach's Alpha of the 4 subscales in the new depression scale:

Subscales of the new depression assessment scale	Cronbach's Alpha
Emotional	0.865
Cognitive	0.883
Somatic	0.832
Interpersonal	0.890

Table 27 shows the Cronbach's Alphas for each subscale in the new depression scale. The rather high Cronbach Alphas (> 0.8) indicated good scale consistency of the new scales.

Each subscale could perform well in measuring the corresponding dimension of depressive symptom.

Table 28 Descriptives and Reliability Analysis of the Emotional subscale:

	Item Descriptives		Reliability Analysis	
	Mean	S.D	Item-Total Correlation	α if Item Deleted
(1) Low mood	2.37	.720	.655	.845
(2) Sadness	2.00	.586	.640	.848
(3) Low spirits	2.26	.645	.477	.856
(4) Gloominess	1.95	.737	.709	.841
(5) Sad mood	1.99	.732	.705	.842
(6) Guilt	1.83	.888	.553	.852
(7) Unhappiness	2.08	.650	.596	.849
(8) Not cheerful	2.20	.636	.505	.854
(9) Irritable mood	2.05	.626	.346	.862
(10) Dysphoric mood	1.92	.627	.523	.854
(11) Shame	1.56	.795	.456	.858
(12) Anxiety	2.35	.936	.472	.859
(32) Crying	1.53	.719	.320	.865

Higher percentage (app. 60 per cent) of participants chose the same answer, *seldom*, for items with similar semantics such as low mood, sadness, low spirits, sad mood, unhappiness, and not cheerful. As shown in table 28 items in the emotional subscale had Cronbach's alphas above 0.8, an indication of their good scale consistency. The significant high and positive correlation between items and total score of the scale indicated that they had good relationship with the scale. Among the items, *crying*, and *irritable mood* had

item-total correlation less 0.4 respectively, showing that they were poorer measurement of emotional symptoms in depression. The only skewed item was item 11 (shame). It was positively skewed (1.704) with positive Kurtosis (2.910). No items would improve the Cronbach's alpha of the subscale, 0.865, if deleted.

Table 29 Descriptives and Reliability Analysis of the Cognitive subscale:

	Item Descriptives		Reliability Analysis	
	Mean	S.D	Item-Total Correlation	α if Item Deleted
(13) Feelings of hopelessness	1.65	.761	.501	.877
(14) Loss of interest	1.85	.872	.647	.871
(15) No pleasure	1.82	.846	.706	.868
(16) The future feels bleak	1.70	.791	.620	.872
(17) Feeling worthless	1.60	.796	.715	.868
(18) Poor concentration	2.29	.904	.510	.877
(19) Self-blame	1.88	.832	.632	.872
(20) Life feels meaningless	1.35	.619	.517	.877
(21) Feeling a failure	1.81	.756	.579	.874
(22) Ruminations	2.15	.859	.346	.884
(23) Thoughts of suicide	1.10	.332	.347	.883
(24) Unable to make decision	2.12	.907	.363	.884
(49) Poor memory	1.96	.966	.517	.877
(50) Unable to plan things	1.68	.810	.571	.874
(51) Feeling disorganized	2.12	.954	.500	.878
(52) Unable to care for myself	1.51	.802	.499	.877

Table 29 showed the descriptives of the sixteen items in the cognitive subscale as well as their correlation with the total scale. Significant high and positive correlation showed good association with the whole scale. Deleting item 24 (unable to make decision) and item 22, (rumination) slightly increased 0.001 of the Cronbach alpha of the subscale.

The cognitive subscale, unlike the emotional subscale, had items with distinctive meanings. Therefore, participants did not tend to give same answers to different items. Most of them chose *not at all* and *seldom* for the items. Item 13 (feeling of hopelessness) was positively skewed (1.149) with positive Kurtosis (1.093). Item 20 (life feels meaningless) was positively skewed (1.906) with positive Kurtosis (3.799). Item 21 (feeling a failure) was positively skewed (1.109) with positive Kurtosis (1.890). Item 23 (thoughts of suicide) was positively skewed (3.254) with positive kurtosis (10.845). Item 52 (unable to care for myself) was positively skewed (1.475) with positively Kurtosis (1.373). They were corrected by taking natural log of the data.

Table 30 Descriptives and Reliability Analysis of the somatic subscale:

	Item Descriptives		Reliability Analysis	
	Mean	S.D	Item-Total Correlation	α if Item Deleted
(25) Low energy	2.26	.815	.502	.820
(26) Problems with sleeping	1.77	.802	.452	.825
(27) Change in appetite	1.62	.722	.646	.806
(28) Low sex drive	1.67	.857	.614	.816
(29) Feel slowed down	1.89	.840	.732	.795
(30) Fatigue	2.27	.920	.600	.811
(31) Change in weight	1.60	.739	.549	.821
(33) Agitation	1.83	.833	.273	.843
(34) Slowed movement	1.59	.726	.568	.813
(35) More pain sensitive	1.36	.677	.484	.825
(36) Intestinal problem	1.49	1.273	.437	.826

The data in somatic subscale could not be used directly to calculated item-total correlation and Cronbach's Alphas. Item 28 (low sex drive) was positively skewed (1.400) with positive Kurtosis (2.024). Item 31 (change in weight) was positively skewed (1.412) with positive Kurtosis (3.253). Item 35 (more pain sensitive) was positively skewed (2.627) and with positive kurtosis (9.650). On the other hand, item 36 (intestinal problem) was

negative skewed (-3.823) and with positive kurtosis (31.493). The problem with this subscale was that item 32 (crying) was found to have very low correlation (0.058) when included in the subscale. This indicated that item 32 had low scale consistency and was inappropriate to measure somatic symptoms of depression. It was found to have highest correlation when put in emotional subscale. After eliminating item 32 and logging the skewed items, the Cronbach's alpha for the somatic subscale was greatly improved to 0.832. Only one item, agitation showed an increase in Cronbach's alpha (from 0.832 to 0.843) when deleted.

Table 31 Descriptives and Reliability Analysis of the Interpersonal subscale:

	Item Descriptives		Reliability Analysis	
	Mean	S.D	Item-Total Correlation	α if Item Deleted
(37) Decrease in activities	1.71	.860	.429	.890
(38) Social withdrawal	1.74	.899	.652	.877
(39) Feeling worse than others	1.84	.911	.680	.876
(40) Feel a burden on others	1.53	.745	.629	.879
(41) Social avoidance	1.69	.861	.686	.876
(42) Feeling undeserved of others' care	1.52	.822	.621	.879
(43) Hypersensitive to criticism	1.78	.802	.586	.881
(44) Feeling less attractive than others	1.90	.893	.636	.878
(45) Feel too sensitive to others	1.81	.918	.569	.882
(46) Feeling let down by others	1.73	.802	.656	.878
(47) Unable to love others	1.42	.867	.534	.884
(48) Aggression towards others	1.47	.674	.479	.887

In interpersonal subscale, item 37 (decrease in activities) and item 48 (aggression towards others), had item-scale correlation less than 0.5. Item 43 (hypersensitive to criticism), item 45 (feel too sensitive to others) and item 47 (unable to love others) had item-total correlation less than 0.6, while the remaining had correlation exceed 0.6. In general, no

items having low item-total correlation (<0.3) indicated that they were very adequately related to the multi-dimensional depression scale. No items, if deleted, would increase the Cronbach's alpha of the subscale (0.890), showing that they should all be included in the scale.

In terms of skewness, item 40 (feel a burden on others) was positively skewed (1.467) with positive kurtosis (1.997). Item 42 (feeling undeserved of others care) was positively skewed (1.769) with positive Kurtosis (3.275). Item 48 (aggression towards others) was positively skewed (1.528) with positive kurtosis (2.615). Item 47 (unable to love others), were positively skewed (2.389) and with positive kurtosis (5.746). They were corrected by taking natural log. This could ensure that Cronbach's Alphas of items would not be affected by skewed data.

Factor Analysis of the 52 items

Factor analysis using Principal-axis factoring and varimax rotation was performed. It was aimed to examine how the items were loaded on four factors, which represented the four subscales.

Table 32 Four-factor solution of the 52 items

Items	Factors			
	1	2	3	4
1. Low mood	.189	.685		.243
2. Sadness	.197	.621	.287	
3. Low spirits	.209	.632		
4. Gloominess	.211	.620	.247	.224
5. Sad mood	.109	.684	.323	.133
6. Guilt	.115	.399	.358	.152
7. Unhappiness	.378	.540	.139	.185
8. Not cheerful		.612		.273
9. Irritable mood	-.135	.332	.279	
10. Dysphoric mood		.464	.187	.227
11. Shame	.345	.201	.460	.165
12. Anxiety		.502	.435	
13. Hopelessness	.437	.430	.224	
14. Loss of interest	.623	.305		.277
15. No pleasure	.566	.434	.127	.335
16. The future feels bleak	.503	.390	.321	
17. Feeling worthless	.552	.381	.371	.164
18. Poor concentration	.712	.167		.183
19. Self-blame	.322	.405	.513	
20. Life feels meaningless	.542	.251	.180	.254
21. Feeling a failure	.413	.345	.391	
22. Ruminations	.197	.195	.162	.156
23. Thoughts of suicide	.146		.472	.248
24. Unable to make decision	-.131	.386	.104	.428
25. Low energy	.534	.452	-.351	.283
26. Problems with sleeping				.551
27. Change in appetite	.174	.344	.175	.642
28. Lower sex drive	.323		.380	.652
29. Feel slowed down	.602	.115		.490

30. Fatigue	.355	.180		.375
31. Change in weight	.488		.172	.382
32. Crying	-.213	.219	.429	.106
33. Agitation	.126	.203	.494	.173
34. Slowed movement	.425	.200		.580
35. More pain sensitivity			.382	.623
36. Intestinal problems		.176	.305	.521
37. Decrease in activities	.404		.101	.596
38. Social withdrawal	.694		.290	.218
39. Feeling worse than others	.546	.542	.375	
40. Feel a burden on others	.632	.128	.205	.139
41. Social avoidance	.687	-.164	.349	
42. Feeling undeserving of others care	.443	.337	.432	
43. Hypersensitive to criticism	.289	.135	.655	
44. Feeling less attractive than others	.573	.145	.219	
45. Feel too sensitive to others	.182	.231	.685	
46. Feeling let down by others	.241	.255	.607	.319
47. Unable to love others	.410		.390	.391
48. Aggression towards others			.626	.353
49. Poor memory	.379	.242		.505
50. Unable to plan things	.240	.132	.324	.551
51. Feeling disorganized	.251	.295	.153	.289
52. Unable to care for myself	.296		.473	.331

As shown in table 32, total variance of 48.1 per cent was accounted by a four-factor solution. However, the unclear pattern of factor loadings gave mixed support for dividing the new depression scale into four subscales. Items generally did not load on one factor.

Many of them, such as hopelessness and feeling undeserving of others' care had similar factor loadings on more than two factors. It is also worth pointing out that many interpersonal items heavily loaded on cognitive factors. For example, social withdrawal, feel a burden on others, social avoidance, feeling less attractive than others had 'good' factor loadings (>0.55) on cognitive factor. Another item, unable to make decision, was largely loaded on somatic factor. The relatively unsuccessful factor analysis drew the attention to modifying the content of items in the new depression scale, as well as how they were grouped. The reason behind the mixed result of the factor analysis could be because of the similar scores that most participants got on items, which led to the low spreading of scores on the scale.

10. Discussion

10.1 Summary of results

The American Psychiatric Association, in its *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.) (DSM-IV) described comprehensively the diagnostic criteria for major depressive disorders. Along with years of empirical study on depression, symptoms were identified to come from four domains: cognitive, somatic, emotional and interpersonal. Nevertheless, widely used depression assessment instruments were found to put little attention to assessing interpersonal aspect of depression, which was shown to be a crucial risk and consequence of depression (e.g. Coyne, 1976). In the fifteen most common depression assessments investigated, only three per cent of items came from interpersonal aspect, comparing with the great emphasis put on cognitive symptoms. This could affect the performance of the scale in assessing depression severity. As a result, this project aimed to develop a new multi-dimensional depression assessment scale containing all four dimensions of depressive symptoms to better evaluate the severity and symptom pattern of depression. It was hypothesized to have good scale consistency and correlate highly with BDI-II, the most widely used depression assessment tool. Two studies were conducted. In

the first study, the depression scale was constructed, following which was the study to test its psychometric property.

The First Study

In the first study, an 85-item questionnaire was constructed to reflect depressive symptoms described by DSM-IV, empirical studies and other assessment scales. Items were categorized into the four subscales and they covered almost all the possible symptoms. A group of participants from mental health professions were invited to judge how typical each symptom was. The items were then ranked based on their mean scores. Items with the highest ranks were selected into the new depression scale. If two items were highly correlated (>0.8), the one with the lower rank was eliminated. The difference in ratings psychologists and other professionals gave for each item was also considered. Finally forty-eight items were selected, twelve from each subscale. They became the new multi-dimensional depression assessment scale. Psychiatrists were invited to check the validity of the scale. They suggested four additional items to be added into the scale. Therefore, a 52-item depression scale was formulated. Items were short phrases that described the behavior and feeling of respondents in the previous two weeks. Respondents rated how

frequent each symptom occurred in a five-point scale, where five represented the most frequent symptom and one as the least frequently occurred symptom. The questionnaire contained the same four subscales as the first questionnaire. As confirmed by the factor analysis, dividing the items into four subscales rather than two, five or six subscales generated the most distinctive pattern of factor loadings.

The Second Study

In the second study, the psychometric property of the new depression scale was tested. A group of community samples were recruited from university and normal work settings. They completed the new depression scale as well as BDI-II which is the most widely used depression scale. By comparing the score of the new depression scale and the BDI-II, the reliability and validity of the new scale were examined. The result confirmed that the new scale could assess depressive symptoms and severity almost as well as BDI-II. Firstly, high correlation between the new scale and BDI-II (>0.7) indicated a good relationship between the two scales. The High Cronbach's alpha (>0.8) for the new depression scale, as well as the four subscales, revealed a good scale consistency. The high item-score correlation of each item was an indicator that the items were appropriate representatives of

depressive symptoms. Significant difference between depressed and non-depressed participants for each item showed a good discriminate content validity of each item, indicating that the scale was powerful in distinguishing depressed and non-depressed people. Finally, the content validity was checked by psychiatrists from psychiatric setting. However, a mixed result of four-factor modal in the factor analysis did not fully support the hypothesis of dividing the items into four subscales. As a result, a possibility of five or more subscales or rearranging the items in the four subscales could be explored in further studies.

10.2 The four subscales in the new depression scale

Depression is a highly prevalent mental illness. Not only does it have a high rate of occurrence and relapse, subclinical levels of depressive symptoms could also elicit more severe disorder (Reinherz et al., 2000). The symptoms of depression lie in multiple domains- emotional, cognitive, interpersonal and somatic. In previous chapters, theories of depression symptoms and assessment were reviewed.

Depressed individuals generally experience sad mood, anxiety, guilt, shame, and anger (APA, 1994). Their negative emotion results from the dysfunctional appetitive and defensive system as well as unique affective style. Their mood is less likely to be elevated following rewarding stimuli (Rottenberg & Gotlib, 2004). They are also less sensitive to emotion of other people and make appropriate emotional response.

Regarding cognitive symptoms, depressed individuals filter and interpret their life experience through negative schema, which remains latent until triggered by environmental stressors (Beck et al., 1979). It generates cognitive bias towards the self, the world and the future (Beck, 1967). Depressed individuals therefore perceive themselves as worthless and inadequate. They also regard their future as hopeless and pessimistic.

Systematic errors in thinking, such as arbitrary inferences, help maintain the negative cognition (Beck, 1987; Clark et al., 1999, cited in Greening et al., 2005).

As for the interpersonal symptoms, depressed individuals have more problematic interpersonal relationship. They have fewer social resources and they are less likely to attend social activities (Barnett & Gotlib 1988), probably due to social skill deficits that often induce rejection. Depressed individuals constantly behave inappropriately during social interaction. They seek reassurance excessively, exaggerate their sad mood, and perform poor verbal skills. They also prefer partners that perceive them the same as they perceive themselves (Swann, Hixon, & de La Ronde, 1992). All these characteristics make them unwelcomed in social world. Together with their high sensitivity in interpersonal stress, prolonged depressive symptoms are elicited (Gunthert et al., 2007). Finally, malfunctions in the biological system of depressives induce vegetative and psychomotor symptoms such as change in appetite, insomnia, low sex drive, pain sensitivity, and slow movement (APA, 1994).

In most commonly used depression assessment scales, interpersonal symptoms are less assessed. The fifteen depression scales reviewed showed a total percentage of three per

cent on interpersonal items. In fact, most depression scales, especially BDI-II, aimed to reflect the diagnostic criteria of DSM-IV, which almost leaves out interpersonal aspect of depression. Researchers such as Feighner and colleagues (1972) questioned the rationale for the symptoms selected in DSM-IV and many others called for a more reliable and valid depression scale. Therefore, a new multidimensional depression assessment scale was constructed in this study. It assessed depressed symptoms in all four domains and showed impressive psychometric property.

Items in the new depression scale were categorized into the four subscales based on empirical studies. The emotional scale involved items that were associated with subjective feelings that individuals experience, such as sadness, dysphoric mood, shame, guilt, and anxiety. The cognitive subscale focused on problematic thinking pattern and cognition. The interpersonal subscale emphasized on social withdrawn and problematic interpersonal relationship. Finally, the somatic subscale contained biological mechanisms and response. For example, crying was considered a somatic symptom as it involved biological process. The data, however, did not fully support the categorization of the four subscales. First, item 32 (crying) had a low item-scale correlation (<0.2) in the somatic subscale. When it was put into the emotional subscale, the correlation improved to exceed 0.3. This showed

that crying was more likely to be an emotional symptom, rather than a representative of somatic symptom. Second, factor analysis generated mixed a result under a four-factor solution, though it did not support two, five or six-factor solution either. A further investigation regarding the subscales should still be conducted. In fact, there were flaws in the factor analysis of the two studies, including the violation of the subject-to-item ratio for Exploratory Factor Analysis (Cliff, 1970, as cited in Osborne & Costello, 2004). In the first study, eighty-seven participants were recruited to examine eighty-five items in the questionnaire. In the second study, there were one hundred participants against fifty-two items. Subject-to-item ratios were less than ten to one in both studies. The second flaw is the low scores in depression scales. Nondepressed participants produced low scores for both BDI-II and the new depression scale. When all items had similar and low scores, it reduced the power of factor analysis to discriminate them. As a result, improving the sample size and sample pool could generate a better result from factor analysis.

Factor analysis also raised the question of rearranging and modifying the fifty-two items in current subscales, interpersonal items, in particular. Interpersonal items had the most dispersed factor loadings and most of them were lower than 0.55. According to Comrey and Lee (1992), factor loadings exceeding 0.55 (thirty per cent overlapping variance) are

considered to be good. Interpersonal items were thus not largely correlated with the interpersonal subscale. This could be attributed to two reasons. Firstly, three of the interpersonal items had similar meanings as reducing social activities. These included 'Decrease in activities', 'Social withdrawal', and 'Social avoidance'. They may be considered as one single entity. Secondly, 'Feeling worse than others', 'Feel a burden on others', 'Feeling undeserving of others care', and 'Feeling less attractive than others' could be interpreted as cognitive symptoms as they involved the negative view of the self as worthless, inadequate and inferior. In fact, these items are heavily loaded on cognitive factor, rather than the interpersonal factor in factor analysis. It is hence urged, in future studies, that the interpersonal subscale should be carefully reviewed.

Emotional items selected for the new multi-dimensional depression assessment scale involved three facets- sadness, guilt and shame, as well as anxiety. They are consistent with the findings in studies. However, many studies, such as Koh et al. (2002) identified the importance of anger in depression. Feeling angry internally but inhibiting its exhibition is associated with depression. Internal anger drives people to attack their self and leads to guilt and low self-worth (Blatt, 2004; Freud, 1917; Gross, 1999; Izard, 1972, as cited in Chaplin, 2006). The suppressed anger could also induce low assertiveness and autonomy,

which plays an important role in the onset of depression (Allen et al., 1994; Youngren & Lewinsohn, 1980, as cited in Chaplin, 2006). In many studies, a high level of internal anger is found to be associated with depressive symptoms in children (e.g. Carey et al., 1991) and in college students (e.g. Seidlitz *et al.*, 2000). In the study with adolescent girls, a connection between depressive symptoms and anger and aggressive behavior suppression is found (Davis *et al.*, 2000). On the other hand, anger expression is found to be associated with low depressed participants (Sanders *et al.*, 1992). As a result, anger should be considered as one of the emotional symptoms.

Though it is obvious that low level of happiness is related to depression (e.g. Clark & Watson, 1991), depressed individuals, especially girls, could have high level of happiness expression. This is more likely to occur during interpersonal interaction, especially for girls when they exaggerate their happiness to please others (Hay and Pawlby, 2003; Zahn-Waxler et al., 1991, as cited in Chaplin, 2006). As a result, both level of happiness experience and expression should be considered in depression assessment. Sadness is comprehensively described in the new depression assessment scale. Indeed, feeling sad and appearing sad are both described in DSM-IV as diagnostic criteria (APA, 1994). Many studies, though not all of them, demonstrated the relationship between sadness expression

and depression (e.g. Blumberg & Izard, 1985; Izard, 1972; Seidlitz et al., 2000, as cited in Chaplin, 2006). In line with the theory, the data from the second study also suggested that crying, a kind of sadness expression should be included in the emotional subscale.

Cognitive subscales had item numbers that outweighed the other three subscales. In fact, cognitive symptoms of depression were widely researched and assessed than other symptoms. The sixteen items in the new depression scale covered the most important representatives in cognitive theory, as well as the major diagnostic criteria in DSM-IV.

They include the cognitive triad, which is a negative perception of the self, the future, and the world, dysfunctional attitude (Beck, 1967, 1976), negative inferential style (e.g. Abela et al., 2006) and ruminative response styles (Nolen-Hoeksema, 2000).

Somatic symptoms are not equally assessed in depression assessment scales as cognitive symptoms (Fava, 2002, 2003). Generally, depression scales put too much emphasis on vegetative symptoms, such as insomnia, loss of appetite, loss of bodyweight, and decreased libido. For example, in Hamilton Depression Rating Scale, six out of eight items were assessing vegetative symptoms while the remaining two items evaluated fatigue, chest tightness, palpitations, headache, muscle soreness, and pain. Psychomotor

performance of depressed individuals and other symptoms like fatigue and pain sensitivity were overlooked.

10.3 Limitations and Future Study

Problem with sampling

Inexperienced participants for the first study

Participants in the first study were professions and Clinical Psychology doctoral students under training. Since the majority of them were not experienced practitioners, their understanding on depressive symptoms mainly came from books and lectures rather than from experience. Therefore, the reliability of the first study could be improved if the participants were replaced by a group of experienced practitioners who rated the depressive symptoms based on both experience and knowledge.

Non-depressed samples in the second study

Due to the difficulty in obtaining clinically depressed participants in the short time frame of the study, community samples were recruited. Most participants scored less than 2.5 out of 5 scale point for each item on the new scale. As mentioned before, this lowered the power of factors to discriminate items from different scales and therefore had great negative impact on factor analysis. It is therefore anticipated that higher score for each

item on the new scale and BDI-II would be generated to produce a clearer pattern of factor loadings, if clinically depressed participants took part in the study. Consequently, a better indication from the factor analysis of whether it is appropriate to divide the new scale into four subscales could be found out.

Most participants recruited in the second study were adults in their twenties. However, older people population is a special population. The problem with assessing depression in elderly people is that the items on depression scale could be inaccurate measurement of depression (Adams, 2001). For example, in the study by Lewinsohn and colleagues (1991), cognitive dysfunction, worsened health, decreasing independent living skills, and less engaged in enjoyable activities were found to correlate with both aging and depression. Moreover, symptoms such as poor appetite and sleeping problems are also commonly found in elder generation (Dorfman et al., 1995). Disengagement theory (Cumming & Henry, 1961) specified that social withdrawal and greater attribution to oneself could be found in mentally healthy elderly (Lewinsohn et al., 1991). In coherence with this theory, socio-emotional selectivity and gerotranscendence reflect the reluctance of older people to take part in social activities and their willingness to stay alone and live in a slower pace. Instead of establishing new relationships (Carstensen, 1992), they are more willing to put

their effort on keeping relationship that they find most comfortable and reliable (Carstensen, 1992). In addition, due to their lacking in strength and concerns about material life, they rather spend time alone than with others (Tornstam, 2000). In a study conducted by Gallo and colleagues (1994), older people are less likely than younger people to experience depressed mood but were more likely to have trouble in sleeping, feel hopeless and the urge to commit suicide. Many clinicians overestimated depression in elderly people as they regard many aging symptoms as depression markers. Therefore, in future studies, the new scale should be tested on different populations.

Sample size

To achieve better result from exploratory factor analysis, the subject-to-item ratio should at least be five to one (Nunnally, 1978, p. 421, as cited in *Osborne & Costello, 2004*). The relatively low ratio in the two studies (approximately one to one) is probably the reason for the unstable (Cliff, 1970, as cited in *Osborne & Costello, 2004*) and random factor loadings. Therefore a large sample size (>250) is needed in future studies. It could maximize the accuracy of population estimation, minimize the error, and enhance the generalization of the study.

Cultural background of the sample

In both studies participants were recruited across countries. In the first study, half of them came from U.K. while the other half was from Norway. In the second study, most of the participants came from Hong Kong where English is their second language. Although it is assumed that depressive symptomology was consistent across cultures and nations and therefore could be measured with the same instrument (Furukawa et al, 2005), further empirical studies should be carried out to investigate the factor structure and validity across cultures.

Problem with the semantics of items

The way that participants interpreted the items could influence the result of the study. In emotional subscale, participants had difficulties in discriminating the negative emotions in different degree, such as sad mood and sadness; low mood and unhappiness. Therefore, they tend to treat them as the same entity and gave the same answer to each of them. This was reflected in similar mean score of most items (excluding guilt, shame, and anxiety) in the emotional subscale. It could result in greater Cronbach's alphas of the emotional

subscale, as well as the total scale, which led to an over optimism about the items. This could also affect the factor analysis, resulting in an unclear pattern of factor loadings, when most items in the emotional subscale received low and similar scores. Further studies could tackle this problem by providing explanations to distinguish different emotional items in different degree.

The diagnostic power of the new scale

The diagnostic power of the new scale could be revealed from the discriminate content validity of each item. The high value indicated that all the items in the new scale were significant in distinguishing depressed and non-depressed people defined by BDI-II. With proper cut point set, the new scale would be also capable of screening depressed individuals. It could therefore be used in mental health surveys.

Further shortening of the scale

The 52-item new depression scale could be time consuming especially if it is used for the preliminary diagnosis of depression in large-scale health survey. When it is used on depressed individuals for assessment purpose, it may be too long for participants who already experience concentration difficulties (APA, 1994), especially when they have to distinguish certain items with similar meaning. Therefore, a further study on shortening the scale while maintaining its validity and reliability could be conducted in future.

11. Conclusion

In this study we constructed a new multi-dimensional depression assessment scale which contained fifty-two items and focused on depressive symptoms in four domains, emotional, cognitive, somatic and interpersonal. By comparing the new scale with Beck Depressive Inventory (BDI-II), the new depression assessment scale was found to possess good psychometric properties. It was highly correlated with BDI-II. It also had high Cronbach's alphas for all the four subscales. The high item-scale correlation for each item indicated that all the items were appropriate representatives to assess depressive symptoms. All the results concluded that the new depression scale could perform well in evaluating depressive symptoms and severity. The result also implied the diagnostic power of the scale. However, given the mixed result of the four-factor model from factor analysis, further investigation regarding the factor structure of the new scale is anticipated.

12. References

- Abela, J. R. Z., Aydin, C., & Auerbach, R. P. (2006). Operationalizing the “vulnerability” and “stress” components of the hopelessness theory of depression: A multiway longitudinal study. *Behaviour Research and Therapy*, *44*, 1565-1583.
- Abela, J. R. Z., Brozina, K., & Seligman, M. E. P. (2004). A test of the integration of the activation hypothesis and the diathesis stress component of the hopelessness theory of depression. *British Journal of Clinical Psychology*, *43*, 111-128.
- Abela, J., McIntyre-Smith, A., & Dechef, M. L. (2003). Personality predispositions to depression: A test of the specific vulnerability and symptom specificity hypotheses. *Journal of Social and Clinical Psychology*, *22*, 493–514.
- Abramson, L. Y., Alloy, L. B., Hogan, M. E., Whitehouse, W. G., Donovan, P., Rose, D. T., Panzarella, C., & Ranieri, D. (1999). Cognitive vulnerability to depression: Theory and evidence. *Journal of Cognitive Psychotherapy: An International Quarterly*, *13*, 5-20.
- Abramson, L. Y., Metalsky, G. I., & Alloy, L. B. (1989). Hopelessness depression: A theory-based subtype of depression. *Psychological Review*, *96*, 358-372.
- Adams, K, B. (2001). Depressive symptoms, depletion, or developmental change? Withdrawal, apathy, and lack of vigor in the geriatric depression scale. *The Gerontologist*, *41*, 768-777.
- Alexander, B., Brewin, C. R., Vearnals, S., Wolff, G., & Leff, J. (1999). An investigation of shame and guilt in a depressed sample. *British Journal of Medical Psychology*, *72*, 323-338.
- Allan, S., & Gilbert, P. (2002). Anger and anger expression in relation to perceptions of social rank, entrapment and depressive symptoms. *Personality and Individual Differences*, *32*, 551-565.

- Alloy, L. B., Abramson, L. Y., Murray, L. A., Whitehouse, W. G., & Hogan, M. E. (1997). Self-referent information processing in individuals at high and low cognitive risk for depression. *Cognition and Emotion, 11*, 539-568.
- Alloy, L. B., Abramson, L. Y., Tashman, N. A., Berrebbi, D. S., Hogan, M. E., Whitehouse, W. G., Crossfield, A. G., & Morocco, A. (2001). Developmental origins of cognitive vulnerability to depression: Parenting, cognitive, and inferential feedback styles of the parents of individuals at high and low cognitive risk for depression. *Cognitive Therapy and Research, 25*, 397-423.
- Alloy, L. B., Abramson, L. Y., Walshaw, P. D., Whitehouse, W. G., & Hogan, M. E. (2006). *Cognitive styles as prospective predictors of bipolar depressive and hypomanic/manic episodes*. Manuscript in preparation, Temple University.
- Alloy, L. B., Abramson, L. Y., Whitehouse, W. G., Hogan, M. E., Panzarella, C., & Rose, D. T. (2006). Prospective incidence of first onsets and recurrences of depression in individuals at high and low cognitive risk for depression. *Journal of Abnormal Psychology, 115*, 145-156.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Andrews, B., Qian, M., & Valentine, J. D. (2002). Predicting depressive symptoms with a new measure of shame: The experience of shame scale. *British Journal of Clinical Psychology, 41*, 29-42.
- Apasojevic, J., Alloy, L. B., Abramson, L. Y., MacCoon, D. G., & Robinson, M. S. (2003). Reactive rumination: Outcomes, mechanisms, and developmental antecedents. In C. Papageourgiou & A. Wells (Eds.), *Depressive rumination: Nature, theory, and treatment* (pp. 43-58). New York: Wiley.
- Bair, M. J., Robinson, R. L., Eckert, G. J., Stang, P. E., Croghan, T. W., & Kroenke, K. (2004). Impact of pain on depression treatment response in primary care. *Psychosomatic Medicine, 66*, 17-22.

- Bakish, D. (2001). New standard of depression treatment: remission and full recovery. *Journal of Clinical Psychiatry*, *62*, 5–9.
- Barnett, P. A. & Gotlib, I. H. (1988). Psychosocial functioning and depression: distinguishing among antecedents, concomitants, and consequences. *Psychological Bulletin*, *104*, 97–126.
- Baumeister, R. F., Stillwell, A. M., & Heatherton, T. F. (1994). Guilt: An interpersonal approach. *Psychological Bulletin*, *115*, 243-267.
- Bebbington, P. (2004). The classification and epidemiology of unipolar depression. Power (Ed.) *Mood disorders. A handbook of science and practice* (pp.3-27). England: John Wiley & Sons, Inc.
- Bech, P., Bolwig, T., Kramp, P., & Rafaelsen, O. (1979). The Bech-Rafaelsen Mania Scale and the Hamilton Depression Scale. *Acta Psychiatrica Scandinavica*, *59*, 420-430.
- Beck, A. T. (1964). Thinking and depression: 2. Theory and therapy. *Archives of General Psychiatry*, *10*, 561-571.
- Beck, A. T. (1967). *Depression: Clinical, experimental, and theoretical aspects*. New York: Harper & Row.
- Beck, A. T. (1976). *Cognitive therapy and the emotional disorders*. New York: International Universities Press.
- Beck, A. T. (1983). Cognitive therapy of depression: New perspectives. In P. Clayton, & J. Barnett (Eds.), *Treatment of depression: Old controversies and new approaches* (pp. 265–290). New York: Raven.
- Beck, A. T., & Beamesderfer, A. (1974). Assessment of depression: The depression inventory. In P. Pichot (Ed.), *Modern problems in pharmacopsychiatry: Vol. 7. Psychological measurement in psychopharmacology*. Basel: Karger.

- Beck, A. T., Rush, A. J., Shaw, B., & Emery, G. (1979). *Cognitive therapy of depression*. New York: Guilford Press.
- Beck, A. T., Steer, R. A., & Garbin, M. A. (1988). Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Review, 8*, 77-100.
- Beck, A. T., Weissman, A., Lester, D., & Trexler, L. (1974). The measurement of pessimism: The Hopelessness Scale. *Journal of Consulting and Clinical Psychology, 42*, 861-865.
- Becker, J. (1979). Vulnerable self-esteem as a predisposing factor in depressive disorders. In R. A. Depue (Ed.), *The psychobiology of the depressive disorders: Implications for the effects of stress* (pp. 317-333). New York: Academic Press.
- Beckham, E. E., & Leber, W. R. (1995). *Handbook of depression* (2nd ed.). New York, NY: Guilford Press.
- Belmaker, R. H., & Agam, G. (2008). Mechanisms of disease: Major depressive disorder. *The New England Journal of Medicine, 358*, 55-68.
- Belsher, G., & Costello, C. G. (1991). Do confidants of depressed women provide less social support than confidants of nondepressed women? *Journal of Abnormal Psychology, 100*, 516-525.
- Benazzi, F. (2002). Psychomotor changes in melancholic and atypical depression: unipolar and bipolar-II subtypes. *Psychiatry Research, 112*, 211-220.
- Bendig, A. W. (1954). Reliability and the number of rating scale categories. *Journal of Applied Psychology, 38*, 38-40.
- Berenbaum, H., & Oltmanns, T. F. (1992). Emotional experience and expression in schizophrenia and depression. *Journal of Abnormal Psychology, 101*, 37-44.

- Berenbaum, H., Raghavan, C., Le, H., Vernon, L. L., & Gomez, J. J. (2003). A taxonomy of emotional disturbances. *Clinical Psychology: Science & Practice, 10*, 206–226.
- Bessiere, K., Kiesler, S., Robert, K., & Boneva, B. S. (2008). Effects of internet use and social resources on changes in depression. *Communication & Society, 11*, 47-70.
- Bibring, E. (1953). The mechanism of depression. In P. Greenacre (Ed.), *Affective disorders* (pp. 13-48). New York: International Universities Press.
- Bieling, P. J., & Alden, L. E. (2001). Sociotropy, autonomy, and the interpersonal model of depression: An integration. *Cognitive Therapy and Research, 25*, 167–184.
- Bieling, P. J., & Segal, Z. V. (2004). Cognitive models and issues in depression. In M. Power (Ed.), *Mood disorder: Handbook of science and practice* (pp. 47-60). West Sussex: John Wiley & Sons, Ltd.
- Billings, A. G., Cronkite, R. C., & Moos, R. H. (1983). Social-environmental factors in unipolar depression: Comparisons of depressed patients and nondepressed controls. *Journal of Abnormal Psychology, 92*, 119-133.
- Blatt, S. (2004). *Experiences of Depression: Theoretical, Clinical, and Research Perspectives*. American Psychological Association, Washington, DC.
- Blatt, S. J., Quinlan, D., Chevron, E., McDonald, C., & Zuroff, D. (1982). Dependency and self-criticism: Psychological dimensions of depression. *Journal of Consulting and Clinical Psychology, 50*, 113-124.
- Blatt, S. J., & Zuroff, D. C. (1992). Interpersonal relatedness and self-definition: Two prototypes for depression. *Clinical Psychology Review, 12*, 527–562.
- Boivin, M., Hymel, S. & Burkowski, W.M. (1995). The roles of social withdrawal, peer rejection, and victimization by peers in predicting loneliness and depressed mood in childhood. *Development and Psychopathology, 7*, 765-785.
- Bouchard, T. J. (1994). Genes, environment, and personality. *Science, 264*, 1700-1701.

- Bower, G. H. (1981). Mood and memory. *American Psychologist*, 36, 129-148.
- Bowlby, J. (1973). *Attachment and Loss. Vol. 1. Attachment*. New York: Basic Books.
- Bracken, B. A., & Howell, K. (2004). *Clinical Assessment of Depression: Professional manual*. Odessa, FL: Psychological Assessment Resources.
- Breiter, H. C., & Rosen, B. R. (1999). Functional magnetic resonance imaging of brain reward circuitry in the human. *Ann NY Academy of Science*, 877, 523–547.
- Breslow, R., Kocsis, J., & Belkin, B. (1981). Contribution of the depressive perspective to memory function in depression. *American Journal of Psychiatry*, 138, 227-230.
- Brim, J. A. Witcoff, C. & Wetzel, R. D. (1982). Social network characteristics of hospitalization depressed patients. *Psychological Reports*, 50, 423-433.
- Brody, C. L., Haaga, D. A. F., Kirk, L., & Solomon, A. (1999). Experiences of anger-in people who have recovered from depression and never-depressed people. *The Journal of Nervous and Mental Disease*, 187, 400–405.
- Brown, G. W., & Harris, T. O. (1978). *Social origins of depression*. New York: Free Press.
- Brown, C., Schulberg, H. C., & Madonia, M. J. (1995). Assessing depression in primary care practice with the Beck Depression Inventory and the Hamilton Rating Scale for Depression. *Psychological Assessment*, 7, 59-65.
- Bruce, M. L., & Hoff, R.A. (1994). Social and physical health risk factors for first onset of major depressive disorder in a community sample. *Social Psychiatry & Psychiatric Epidemiology*, 29, 165–171.
- Buchwald, A. M. (1977). Depressive mood and estimates of reinforcement frequency. *Journal of Abnormal Psychology*, 83, 443-446.

- Bukstein, D., McGrath, M., Buchner, D., Landgraf, J., Goss, T. (2000). Evaluation of a short form for meaning health-related quality of life among pediatric asthma patients. *J Allergy Clin Immunol*, *105*, 245-251.
- Calev, A., Nigal, D., & Chazan, S. (1989). Retrieval from semantic memory using meaningful and meaningless constructs by depressed, stable bipolar and manic patients. *British Journal of Clinical Psychology*, *28*, 67-73.
- Campbell-Sills, L., Liverant, G. I., & Brown, T. A. (2004). Psychometric evaluation of the behavioral inhibition/behavioral activation scales in a large sample of outpatients with anxiety and mood disorders. *Psychological Assessment*, *16*, 244-254.
- Carey, T. C., Finch, A. J., & Carey, M. P. (1991). Relation between differential emotions and depression in emotionally disturbed children and adolescents. *J. Consult. Clin. Psychol.* *59*, 594-597.
- Carstensen, L. L. (1992). Social and emotional patterns in adulthood. *Psychology and Aging*, *7*, 331-338.
- Carver, C. S., & Scheier, M. F. (1998). *On the self-regulation of behavior*. New York: Cambridge University Press.
- Chaplin, T. M. (2006). Anger, happiness, and sadness: Associations with depressive symptoms in late adolescence. *Journal of Youth and Adolescence*, *35*, 977-986.
- Cherulnik, P. D., Neely, W. T., Flanagan, M., & Zachau, M. (1978). Social skill and visual interaction. *The Journal of Social Psychology*, *104*, 263-270.
- Cicchetti, D. V., Shoinralter, D., & Tyrer, P. J. (1985). The effect of Number of Rating Scale Categories on levels of interrater reliability : A Monte Carlo investigation. *Applied Psychology Measurement*, *9*, 31-36.
- Clark, L. A., Beck, A. T. with Alford, B. A. (1999). *Scientific foundations of cognitive Theory and therapy of depression*. Chichester: Wiley.

- Clark, L. A., & Watson, D. (1991). Tripartite model of anxiety and depression: Psychometric evidence and taxonomic implications. *Journal of Abnormal Psychology, 100*, 316–336.
- Clark, L. A., & Watson, D. (1988). Mood and the mundane: Relations between daily life events and self-reported mood. *Journal of Personality and Social Psychology, 54*, 296-308.
- Coffey, C. E., Wilkinson, W. E., Weiner, R. D., et al. (1993). Quantitative cerebral anatomy in depression. A controlled magnetic resonance imaging study. *Arch. Gen. Psychiatry, 50*, 7-16.
- Cole, P. M., Martin, S. E., & Dennis, T. A. (2004). Emotion regulation as a scientific construct: Methodological challenges and directions for child development research. *Child Dev, 75*, 317–333.
- Cole, P. M., Michel, M. K., and Teti, L. O. (1994a). The development of emotion regulation and dysregulation: A clinical perspective. In Fox, N. A. (ed.), *The development of emotion regulation: Biological and behavioral considerations. Monographs of the Society for Research in Child Development, 59*, (2–3, Serial No. 240): 73–100.
- Comrey, A. L., & Lee, H. B. (1992). *A first course in factor analysis* (2nd Ed). Hillsdale, N.J: L. Erlbaum Associates.
- Coryell, W., Winokur, G., Shea, T., Maser, J. W., Endicott, J., & Aikiskal, H. S. (1994). The long term stability of depressive subtypes. *American Journal of Psychiatry, 151*, 199-204.
- Coyne, J. C. (1976a). Depression and the response of others. *Journal of Abnormal Psychology, 85*, 186-193.
- Coyne, J. C. (1976b). Toward an interactional description of depression. *Psychiatry, 39*, 14-27.

- Crandell, C J, & Chambless, D. L. (1986). The validation of an inventory for measuring depressive thoughts: The Crandell Cognitions Inventory. *Behaviour Research and Therapy*, 24, 403-411.
- Crossfield, A. G., Alloy, L. B., Abramson, L. Y., & Gibb, B. E. (2002). The development of depressogenic cognitive styles: The role of negative childhood life events and parental inferential feedback. *Journal of Cognitive Psychotherapy: An International Quarterly*, 16, 487-502.
- Csukly, G., Czobor, P., Szily, E., Takacs, B., & Simon, L. (2009). Facial expression recognition in depressed subjects: The impact of intensity level and arousal dimension. *Journal of Nervous and Mental Disease*, 197, 98-103.
- Cumming, E., & Henry, W. (1961). *Growing old: The process of disengagement*. New York: Basic Books.
- Darby, J. K., Simmons, N., & Berger, P. A. (1984). Speech and voice parameters of depression: A pilot study. *Journal of Communication Disorders*, 17, 75–85.
- Davidson, R. J. (1998a). Affective style and affective disorders: Perspectives from affective neuroscience. *Cognition and Emotion*, 12, 307–330.
- Davidson, R. J., Pizzagalli, D., & Nitschke, J. B. (2002). The representation and regulation of emotion in depression: Perspectives from affective neuroscience. In I. H. Gotlib & C. L. Hammen (Eds.), *Handbook of depression* (pp. 219–244). New York, NY: Guilford Press.
- Davila, J., Stroud, C. B., & Starr, L. R. (2008). Depression in couples and families. In I. H. Gotlib & C. Hammen (Eds.), *Handbook of depression* (2nd ed.). New York: Guilford Press
- Davis, G. C., Buchsbaum, M. D., & Bunney, W. E. (1979). Analgesia to painful stimuli in affective illness. *American Journal of Psychiatry*, 136, 1148-1151.

- Davis, B., Sheeber, L., Hops, H., & Tildesley, E. (2000). Adolescent responses to depressive parental behaviors in problem-solving interactions: Implications for depressive symptoms. *Journal of Abnormal and Child Psychology*, 28, 451–465.
- Davison, G. C., & Neale, J. M. (1998). *Abnormal Psychology* (7th Edition). New York: John Wiley & Sons Ltd.
- Dennis, T. (2006). Emotional self-regulation in preschoolers: The interplay of child approach reactivity, parenting, and control capacities. *Developmental Psychology*, 42, 84–97.
- Dennis, T. (2007). Interactions between emotion regulation strategies and affective style: Implications for trait anxiety versus depressed mood. *Motivation and Emotion*, 31, 200-207.
- Dent, J., & Teasdale, J. D. (1988). Negative cognition and the persistence of depression. *Journal of Abnormal Psychology*, 97, 29-34.
- Derryberry, D., & Rothbart, M. K. (1997). Reactive and effortful processes in the organization of temperament. *Development and Psychopathology*, 9, 633–652.
- Dolan, R. J., Bench, C. J., Brown, R. G., Scott, L. C., & Frackowiak, R. S. J. (1994). Neuropsychological dysfunction in depression: The relationship to regional cerebral BF. *Psychological Medicine*, 24, 849-857.
- Dolan, R. J., Bench, C. J., Liddle, P. F., et al. (1993). Dorsolateral prefrontal cortex dysfunction in the major psychoses: symptom or disease specificity? *J. Neurol. Neurosurg. Psychiatry*, 56, 1290-1294.
- Dorfman, R. A., Lubben, J. F., Mayer-Oakes, A., Atchison, K., Schweitzer, S. O., DeJong, F. J., & Mattias, R. E. (1995). Screening for depression among a well elderly population. *Social Work*, 40, 295-304.
- Downey, G., & Feldman, S. I. (1996). Implications of rejection sensitivity for intimate relationships. *Journal of Personality and Social Psychology*, 70, 1327–1343.

- Drevets, W. C., Kishore, M. G., Ranga, K., & Krishnan, R. (2005). Neuroimaging studies of mood disorder. In D. S. Charney and E. J. Nestler (Eds.), *Neurobiology of mental illness*. New York: Oxford University Press.
- Drevets, W. C., Viden, T. O., Snyder, A. Z., MacLeod, A. K., & Raichle, M. E. (1994). Regional cerebral blood flow changes during anticipatory anxiety. *Soc. Neurosci. Abstr*, *20*, 368.
- Eberhard-Gran, M., Eskild, A., Samuelsen, S. O., & Tambs, K. (2006). A short matrix-version of the Edinburgh Depression Scale. *Acta Psychiatr Scand*, *116*, 195-200.
- Eisemann, M. (1985). Depressed patients and non-psychiatric controls: Discriminant analysis on social environment variables. *Acta Psychiatrica Scandinavica*, *71*, 495-498.
- Ellgring, H. (1986). Nonverbal expression of psychological states in psychiatric patients. *European Archives of Psychiatric and Neurological Sciences*, *236*, 31-34.
- Ellis, A. (1962). *Reason and Emotion in Psychotherapy*. Lyle Stuart: New York.
- Exline, R. V., Ellyson, S. L., & Long, B. (1975). Visual behavior as an aspect of power role relationships. In P. Pliner, L. Krames, & T. Alloway (Eds.), *Nonverbal communication of aggression* (pp. 21-52). New York: Plenum Press.
- Fava, M. (2002). Somatic symptoms, depression, and antidepressant treatment (commentary). *Journal of Clinical Psychiatry*, *63*, 305-307.
- Fava, M. (2003). Depression with physical symptoms: treating to remission. *Journal of Clinical Psychiatry*, *64*, 24-28.
- Feighner, J. P., Robins, E., Guze, S. B., Woodruff, R. A., Winokur, G., & Munoz, R. (1972). Diagnostic criteria for use in psychiatric research. *Archives of General Psychiatry*, *26*, 57-63.

- Fenichel, O. (1945). *Psychoanalytic theory of neurosis*. New York: Norton.
- Finch, J. F., & Graziano, W. G. (2001). Predicting depression from temperament, personality, and patterns of social relations. *Journal of Personality, 69*, 27–55.
- Fiske, S., & Linville, P. (1980). What does the schema process buy us? *Personality and Social Psychology Bulletin, 6*, 543-557.
- Flint, A. J., Black, S. E., Campbell-Taylor, I., Gailey, G. F., & Levinton, C. (1993). Abnormal speech articulation, psychomotor retardation, and subcortical dysfunction in major depression. *Journal of Psychiatric Research, 27*, 309–319.
- Fontaine, J. R. J., Luyten, P., De Boeck, P., & Corveleyn, J. (2001). The Test of Self-Conscious Affect: Internal structure, differential scales and relationships with long-term affects. *European Journal of Personality, 15*, 449-463.
- Forrest, M. S. & Hokanson, J. E. (1975). Depression and autonomic arousal reduction accompanying self-punitive behavior. *Journal of Abnormal Psychology, 84*, 346-357.
- Fossi, L., Faravelli, C., & Paoli, M. (1984). The ethological approach to the assessment of depressive disorders. *Journal of Nervous and Mental Disease, 172*, 332–341.
- Freyd, M. (1923). The Graphic Rating Scale. *Journal of Educational Psychology, 14*, 83-102.
- Frodl, T., Meisenzahl, E., Zetsche, T., Bottlender, R., Born, C., Groll, C., Jager, M., Leinsinger, G., Hahn, K., & Moller, H. J. (2002). Enlargement of the amygdala in patients with a first episode of major depression. *Biological Psychiatry, 51*, 708-714.
- Gallagher, D., Niles, G., & Thompson, L. W. (1982). Reliability of the Beck Depression Inventory with older adults. *Journal of Consulting and Clinical Psychology, 50*, 152-153.

- Garber, J., & Dodge, K. A. (1991). *The Development of Emotion Regulation and Dysregulation*. Cambridge University Press, New York.
- Garber, J., & Flynn, C. (2001). Predictors of depressive cognitions in young adolescents. *Cognitive Therapy and Research, 25*, 353-376.
- Garlow, S. J., & Nemeroff, C. B. (2005). The neurochemistry of depressive disorders: Clinical studies. In D. S. Charney and E. J. Nestler (Eds.), *Neurobiology of mental illness*. New York: Oxford University Press.
- Ganchrow, J. R., Steiner, J. E., Kleiner, M., & Edelstein, E. L. (1978). A multidisciplinary approach to the expression of pain in psychotic depression. *Perceptual and Motor Skills, 47*, 379-390.
- Ghatavi, K., Nicolson, R., MacDonald, C., Osher, S., & Levitt, A. (2002). Defining guilt in depression: A comparison of subjects with major depression, chronic medical illness and healthy controls. *Journal of Affective Disorders, 68*, 307-315.
- Gibb, B. E. (2002). Childhood maltreatment and negative cognitive-styles: A quantitative and qualitative review. *Clinical Psychology Review, 22*, 223-246.
- Gibb, B. E., Abramson, L. Y., & Alloy, L. B. (2004). Emotional maltreatment from parents, peer victimization and cognitive vulnerability to depression. *Cognitive Therapy and Research, 28*, 1-21.
- Gibb, B. E., Alloy, L. B., Abramson, L. Y., Rose, D. T., Whitehouse, W. G., Donovan, P., Hogan, M. E., Cronholm, J., & Tierney, S. (2001). History of childhood maltreatment, negative cognitive styles, and episodes of depression in adulthood. *Cognitive Therapy and Research, 25*, 425-446.
- Gibb, B. E., Alloy, L. B., Walshaw, P. D., Comer, J. S., Chang, G. H., & Villari, A. G. (2006). Predictors of attributional style change in children. *Journal of Abnormal Child Psychology, 34*, 425-439.

- Gilbert, P. (1992a). Defense, safe(ly) and biosocial goals in relation to the agonistic and hedonic social modes. *World Futures*, 35, 31-70.
- Gilbert, P. (1992b). *Depression: The evolution of powerlessness*. Hillsdale, NJ: Erlbaum.
- Gilbert, P. (2000). Varieties of submissive behavior as forms of social defense: Their evolution and role in depression. In L. Sloman & P. Gilbert (Eds.), *Subordination and defeat: An evolutionary approach to mood disorders and their therapy* (pp. 3-45). Mahwah, NJ: Lawrence Erlbaum Associates.
- Gilbert, P. (2001a). Depression and stress: A biopsychosocial exploration of evolved functions and mechanisms. *Stress*, 4, 121-135.
- Gilbert, P. (2001b). Evolutionary approaches to psychopathology: The role of natural defences. *Australian and New Zealand Journal of Psychiatry*, 35, 17-27.
- Gilbert, P. (2004). Depression: A biopsychosocial, integrative, and evolutionary approach. In M. J. Power (Ed.), *Mood disorders: A handbook of science and practice* (pp. 99-142). West Sussex, England: John Wiley & Sons, Ltd.
- Gilbert, P., Allan, S., & Pehl, J. (1991). *A short measure of shame and guilt*. Unpublished manuscript. Mental Health Research Unit, University of Derby.
- Gilbert, P., & Trower, P. (1990). The evolution and manifestation of social anxiety. In W.R. Crozier (Ed.), *Shyness and Embarrassment* (pp. 144-177). New York: Cambridge University Press.
- Gilbert, P., Allan, S., Brough, S., Melley, S., & Miles, J. N. V. (2002). Relationship of anhedonia and anxiety to social rank, defeat, and entrapment. *Journal of Affective Disorders*, 71, 141-151.
- Goodman, S. H., & Gotlib, I. H. (1999). Risk for psychopathology in the children of depressed mothers: A developmental model for understanding mechanisms of transmission. *Psychological Review*, 106, 458-490.

- Gotlib, I. H. (1981). Self-reinforcement and recall: Differential deficits in depressed and nondepressed psychiatric patients. *Journal of Abnormal Psychology, 90*, 521-530.
- Gotlib, I. H. (1982). Self-reinforcement and depression in interpersonal interaction: The role of performance level. *Journal of Abnormal Psychology, 91*, 3-13.
- Gotlib, I. H. (1983). Perception and recall of interpersonal feedback: Negative bias in depression. *Cognitive Therapy and Research, 7*, 399-412.
- Gotlib, I. H., & Abramson, L. Y. (1999). Attributional theories of emotion. In T. Dalgleish & M. J. Power (Eds.), *Handbook of cognition and emotion* (pp. 613-636). Chichester, UK: Wiley.
- Gotlib, I. H., & Lee, C. M. (1989). The social functioning of depressed patients: A longitudinal assessment. *Journal of Social and Clinical Psychology, 8*, 223-237.
- Gotlib, I. H., & McCann, C. D. (1984). Construct accessibility and depression: An examination of cognitive and affective factors. *Journal of Personality and Social Psychology, 47*, 427-439.
- Gotlib, I. H., & Robinson, L. A. (1982). Responses to depressed individuals: Discrepancies between self-report and observer-rated behavior. *Journal of Abnormal Psychology, 91*, 231-240.
- Gray, J. A., & McNaughton, N. (2000). *The neuropsychology of anxiety*. (2nd ed.). New York: Oxford.
- Greden, J. F. (2003). Physical symptoms of depression: unmet needs. *Journal of Clinical Psychiatry, 64*, 5-11.
- Greenberg, P. E., Leong, S. A., Birnbaum, H. G., & Robinson, R. L. (2003). The economic burden of depression with painful symptoms. *Journal of Clinical Psychiatry, 64*, 17-23.

- Greening, L., Stoppelbein, L., Dhossche, D., & Martin, W. (2005). Psychometric evaluation of a measure of Beck's negative cognitive triad for youth: applications for African-American and Caucasian adolescents. *Depression and Anxiety, 21*, 161-169.
- Gross, J. J., & John, O. P. (2002). Wise emotion regulation. In L. F. Barrett & P. Salovey (Eds.), *The wisdom in feeling: Psychological processes in emotional intelligence* (pp. 297-319). New York, NY: Guilford Press.
- Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology, 85*, 348-362.
- Gunthert, K. C., Cohen, L. H., Butler, A. C., & Beck, J. S. (2007). Depression and next-day spillover of negative mood and depressive cognitions following interpersonal stress. *Cognitive Therapy and Research, 31*, 521-532.
- Gurtman, M. B. (1987). Depressive affect and disclosures as factors in interpersonal rejection. *Cognitive Therapy and Research, 11*, 87-100.
- Haaga, D. A. F., Dyck, M. J., & Ernst, D. (1991). Empirical status of cognitive theory of depression. *Psychological Bulletin, 110*, 215-236.
- Haeffel, G. J., Abramson, L. Y., Voelz, Z. R., Metalsky, G. I., Halberstadt, L., Dykman, B. M., Donovan, P., Hogan, M. E., Hankin, B. L., & Alloy, L. B. (2003). Cognitive vulnerability to depression and lifetime history of Axis I psychopathology: A comparison of negative cognitive styles (CSQ) and dysfunctional attitudes (DAS). *Journal of Cognitive Psychotherapy: An International Quarterly, 17*, 3-22.
- Haeffel, G. J., Voelz, Z. R., & Joiner, T. E., Jr. (2007). Vulnerability to depressive symptoms: Clarifying the role of excessive reassurance seeking and perceived social support in an interpersonal model of depression. *Cognition & Emotion, 21*, 681-688.
- Haidt, J. (2003). The moral emotions. In R. J. Davidson, K. R. Scherer, & H. H. Goldsmith (Eds.), *Handbook of affective sciences* (pp. 852-870). Oxford, UK: Oxford University Press.

- Hale, W. W., Jansen, J. H. C., Bouhuys, A. L., Jenner, J. A., & van den Hoofdakker, R. H. (1997). Non-verbal behavioral interactions of depressed patients with partners and strangers: The role of behavioral social support and involvement in depression persistence. *Journal of Affective Disorders*, *44*, 111–122.
- Hall, K. R. & Stride, E. (1954). The varying response to pain in psychiatric disorders. A study of abnormal psychology. *British Journal of Medical Psychology*, *27*, 48-60.
- Hamilton, M. (1960). A rating scale for depression. *Journal of Neurology, Neurosurgery and Psychiatry*, *12*, 56-62.
- Hamilton, M. (1982). Symptoms and assessment of depression. In E. S. Paykel (Ed.), *Handbook of affective disorders* (pp. 3-11). New York: Churchill Livingstone Inc.
- Hammen, C. (1999). The emergence of an interpersonal approach to depression. In T. Joiner, & J. C. Coyne (Eds.), *The interactional nature of depression* (pp. 21–35). Washington: American Psychological Association.
- Handerson, A. S. Byrne, D. G. & Duncan-Jones, P. (1981). *Neurosis and the Social Environment*. Sydney: Academic Press.
- Hankin, B. L., Abramson, L. Y., Miller, N., & Haefffel, G. J. (2004). Cognitive vulnerability-stress theories of depression: Examining affective specificity in the prediction of depression versus anxiety in three prospective studies. *Cognitive Therapy and Research*, *28*, 309-345.
- Harder, D. W., Cutler, L., & Rockart, L. (1992). Assessment of shame and guilt and their relationships to psychopathology. *Journal of Personality Assessment*, *59*, 584-604.
- Hautzinger, M., Linden, M., & Hoffman, N. (1982). Distressed couples with and without a depressed partner: An analysis of their verbal interaction. *Journal of Behavior Therapy and Experimental Psychiatry*, *13*, 307–314.

- Hedlund, J., & Vieweg, B. (1979). The Hamilton Rating Scale for Depression: A comprehensive review. *Journal of Operational Psychiatry, 10*, 149-162.
- Henriques, J. B., & Davidson, R. J. (2000). Decreased responsiveness to reward in depression. *Cognitive and Emotion, 14*, 711-724.
- Higgins, E. T. (1987). Self-discrepancy: A theory relating self and affect. *Psychological Review, 94*, 319-340.
- Higgins, E. T. (2006). Value from hedonic experience and engagement. *Psychological Review, 113*, 439-460.
- Higgins, E. T., Roney, C. J. R., Crowe, E., & Hymes, C. (1994). Ideal versus ought predilections for approach and avoidance: Distinct self-regulatory systems. *Journal of Personality & Social Psychology, 66*, 276-286.
- Hinchliffe, M. K., Lancashire, M., & Roberts, F. J. (1971b). A study of eye-contact changes in depressed and recovered psychiatric patients. *British Journal of Psychiatry, 119*, 213-215.
- Hirschfeld, R. M., Klerman, G. L., Clayton, P. J., & Keller, M. B. (1983). Personality and depression: Empirical findings. *Archives of General Psychiatry, 40*, 993-998.
- Hokanson, J. E., Hollander, G. R., Welker, R. A., Rubert, M. P., & Hedeon, C. (1989). Interpersonal concomitants and antecedents of depression among college students. *Journal of Abnormal Psychology, 98*, 209-217.
- Hollon, S. D., & Kendall, P. (1980). Cognitive self-statement in depression: Development of an Automatic Thoughts Questionnaire. *Cognitive Therapy and Research, 4*, 383-396.
- Hooley, J. M., & Gotlib, I. H. (2000). A diathesis-stress conceptualization of expressed emotion and clinical outcome. *Journal of Applied and Preventive Psychology, 9*, 135-151.

- Hyland, M. E. (1987). Control theory interpretation of psychological mechanisms of depression: Comparison and integration of several theories. *Psychological Bulletin*, *102*, 109-121.
- Ingram, R. E. (1984). Towards the information-processing analysis of depression. *Cognitive Therapy and Research*, *8*, 443-477.
- Ingram, R. E., & Luxton, D. D. (2005). Vulnerability-Stress Models. In B. L. Hankin and J. R. Abela. (Eds.), *Development of psychopathology: A vulnerability-stress perspective* (pp. 32-46). Thousand Oaks, CA, US: Sage Publications, Inc.
- Irons, C. & Gilbert, P. (2005). Evolved mechanisms in adolescent anxiety and depression symptoms: The role of the attachment and social rank systems. *Journal of Adolescence*, *28*, 325-341.
- Izard, C. E. (1972). *Patterns of Emotions: A New Analysis of Anxiety and Depression*. Academic Press, New York.
- Jacobson, E. (1975). The regulation of self-esteem. In E. J. Anthony & T. Benedek (Eds.), *Depression ad human existence* (pp. 169-181). Boston: Little, Brown.
- Joiner, T. E. (2002). Depression in its interpersonal context. In I.H. Gotlib & C.L. Hammen (Eds), *Handbook of Depression* (pp. 295-313). New York: Guilford.
- Joiner, T. E., Jr., & Metalsky, G. I. (2001). Excessive reassurance seeking: Delineating a risk factor involved in the development of depressive symptoms. *Psychological Science*, *12*, 371–378.
- Joiner, T. E., Metalsky, G. I., Gencoz, F., & Gencoz, T. (2001). The relative specificity of excessive reassurance-seeking to depressive symptoms and diagnoses among clinical samples of adults and youth. *Journal of Psychopathology and Behavioral Assessment*, *23*, 35–41.

- Kahn, J., Coyne, J. C., & Margolin, G. (1985). Depression and marital disagreement: The social construction of despair. *Journal of Social and Personal Relationships*, *2*, 447–461.
- Kasch, K. L., Rottenberg, J., Arnow, B. A., & Gotlib, I. H. (2002). Behavioral activation and inhibition systems and the severity and course of depression. *Journal of Abnormal Psychology*, *111*, 589–597.
- Katz, J., & Beach, S. R. H. (1997). Romance in the crossfire: When do women's depressive symptoms predict partner relationship dissatisfaction? *Journal of Social & Clinical Psychology*, *16*, 243–258.
- Katz, R., Shaw, B. F., Vallis, T. M., & Kaiser, A. S. (1995). The assessment of severity and symptom patterns in depression. In E. E. Beckham & W.R. Leber (Eds.), *Handbook of depression* (pp.61-85). New York: The Guilford Press.
- Kendler, K. S., Hettema, J. M., Butera, F., Gardner, C. O., & Prescott, C. A. (2003). Life event dimensions of loss, humiliation, entrapment, and danger in the prediction of onsets of major depression and generalized anxiety. *Arch Gen Psychiatry*, *60*, 789-796.
- Kessler, R. C, Avenevoli, S., & Merikangas K. R. (2001). Mood disorders in children and adolescents: An epidemiologic perspective. *Biol Psychiatry*, *49*,1002–1014.
- Kimbrell, T. A., Ketter, T. A., George, M. S., Little, J. T., Benson, B. E., Willis, M. W., Herscovitch, P., & Post, R. M. (2002). Regional cerebral glucose utilization in patients with a range of severities of unipolar depression. *Biol. Psychiatry*, *51*, 237-252.
- Koh, K. B., Kim, C. H., & Park, J. K. (2002). Predominance of anger in depressive disorders compared with anxiety disorders and somatoform disorders. *Journal of Clinical Psychiatry*, *63*, 486–490
- Kuiper, N. A., & McCabe, S. B. (1985). The appropriateness of social topics: Effects of depression and cognitive vulnerability on self and other judgments. *Cognitive Therapy and Research*, *9*, 371–379.

- Kuny, St., & Stassen, H. H. (1993). Speaking behavior and voice sound characteristics in depressive patients during recovery. *Journal of Psychiatric Research*, 27, 289–307.
- Lasher, B. J., & Lynn, S. J. (1981). *Depressed versus nondepressed college students' responses to evaluative personal feedback*. Paper presented at the meeting of the American Psychological Association, Los Angeles.
- Lazarus, R. S. (1991). *Emotion and Adaptation*. New York: Oxford University Press.
- Leary, M. (1990). Responses to social exclusion: Social anxiety, jealousy, loneliness, depression, and low self-esteem. *Journal of Social and Clinical Psychology*, 9, 221-229.
- Lesch, K., Bengel, D., Heils, A., & Sabol, S. Z. (1996). Association of anxiety-related traits with a polymorphism in the serotonin transporter gene regulatory region. *Science*, 274, 1527-1531
- Lesch, K. P., Greenberg, B. D., Higley, J. D., Bennett, A., & Murphy, D. L. (2002). Serotonin transporter, personality, and behavior: Toward a dissection of gene-gene and gene-environment interaction. J. Benjamin, R. P. Ebstein, R. H. Belmaker (Eds.), *Molecular genetics and the human personality* (pp. 109-135). Arlington: American Psychiatric Publishing, Inc.
- Levin, S., Hall, J. A., Knight, R. A., & Alpert, M. (1985). Verbal and nonverbal expression of affect in speech of schizophrenic and depressed patients. *Journal of Abnormal Psychology*, 94, 487–497.
- Lewis, H. B. (1971). *Shame and guilt in neurosis*. New York: International Universities Press.
- Lewinsohn, P. M. (1974). *A behavioral approach to depression*. Oxford, England: John Wiley & Sons.

- Lewinsohn, P. M., Joiner, T. E., & Rohde, P. (2001). Evaluation of cognitive diathesis-stress models in predicting major depressive disorder in adolescents. *Journal of Abnormal Psychology, 110*, 203-215.
- Lewinsohn, P. M., Larson, D. W., & Munoz, R. F. (1982). The measurement of expectancies and other cognitions in depressed individuals. *Cognitive Therapy and Research, 6*, 437-446.
- Lewinsohn, P. M., Mischel, W., Chaplin, W., & Barton, R. (1980). Social competence and depression: The role of illusory self-perceptions. *Journal of Abnormal Psychology, 89*, 203-212.
- Lewinsohn, P. M., Rohde, P., Seeley, J. R., & Fischer, S. A. (1991). Age and depression: Unique and shared effects. *Psychology and Aging, 6*, 247-260.
- Lewinsohn, P. M., Weinstein, M. S., & Shaw, D. A. (1969). Depression: A clinical research approach. In R. D. Rubin & C. M. Franks (Eds.), *Advances in behavior therapy* (pp. 231-240). New York: Academic Press.
- Libet, J., & Lewinsohn, P. M. (1973). The concept of social skill with special reference to the behavior of depressed persons. *Journal of Consulting and Clinical Psychology, 40*, 304-312.
- Lipowski, Z. J. (1990). Somatization and depression. *Psychosomatics, 31*, 13-21.
- Lissitz, R. W., & Green, S. B. (1975). Effect of the number of scale points on reliability: A Monte Carlo Approach. *Journal of Applied Psychology, 60*, 10-13.
- Lloyd, G. G., & Lishman, W. A. (1975). Effect of depression on the speed of recall of pleasant and unpleasant experiences. *Psychological Medicine, 5*, 173-180.
- Lyubomirsky, S., & Nolen-Hoeksema, S. (1995). Effects of self-focused rumination on negative thinking and interpersonal problem solving. *Journal of Personality and Social Psychology, 69*, 176-190.

- Marcus, D. K., Hamlin, R. J., & Lyons, P. M., Jr. (2001). Negative affect and interpersonal rejection among prison inmates in a therapeutic community: a social relations analysis. *Journal of Abnormal Psychology, 110*, 544-552.
- McKenna, K. Y. A., & Bargh, J. (1998). Coming out in the age of the Internet: Identity 'demarginalization' through virtual group participation. *Journal of Personality and Social Psychology, 75*, 681-694.
- McKenna, K. Y. A., & Bargh, J. (2000). Plan 9 from cyberspace: the implications of the Internet for personality and social psychology. *Personality and Social Psychology Review, 4*, 57-75.
- McNulty, S. E., & Swann, W. B. Jr. (1994). Identity negotiation in roommate relationships: The self as architect and consequence of social reality. *Journal of Personality and Social Psychology, 67*, 1012-1023.
- Meyer, E. B., & Hokanson, J. E. (1985). Situational influences on social behaviors of depression-prone individuals. *Journal of Clinical Psychology, 41*, 29-35.
- Mitchell, P., Hadzi-Pavlovic, D., Parker, G., Hickie, I., Wilhelm, K., Brodaty, H., & Boyce, P. (1996). Depressive psychomotor disturbance, cortisol, and dexamethasone. *Biological Psychiatry, 40*, 941-950.
- Mneimne, M., McDermut, W., & Powers, A. S. (2008). Affective ratings and startle modulation in people with nonclinical depression. *Emotion, 8*, 552-559
- Montgomery S. A. & Asberg, M. (1979). A new depression scale designed to be sensitive to change. *British Journal of Psychiatry, 134*, 382-389.
- Muller-Spahn, F., & Hock, C. (1994). Clinical presentation of depression in the elderly. *Gerontologist, 40*, 10-14.
- Murray, C. J. L., & Lopez, A. D. (1997). Global mortality, disability, and the contribution of risk factors: Global Burden of Disease Study. *Lancet, 17*, 1436-42.

- Myers, J. E, Lynch, P. B, & Bakal, D. A. (1989). Dysthymic and hypomanic self-referent effects associated with depressive illness and recovery. *Cognitive Therapy and Research, 13*,195-209.
- Nakao, M., Yamanaka, G., & Kuboki, T. (2001). Major depression and somatic symptoms in a mind/body medicine clinic. *Psychopathology, 34*, 230-235.
- Nezlek, J. B., Hampton, C. P., & Shean, G. D. (2000). Clinical depression and day-to-day social interaction in a community sample. *Journal of Abnormal Psychology, 109*, 11-19.
- Nilsonne, A. (1988). Speech characteristics as indicators of depressive illness. *Acta Psychiatrica Scandinavia, 77*, 253–263.
- Nolen-Hoeksema, S. (1991). Responses to depression and their effects on the duration of the depressive episode. *Journal of Abnormal Psychology, 100*, 569-582.
- Nolen-Hoeksema, S. (2000). The role of rumination in depressive disorders and mixed anxiety/depressive symptoms. *Journal of Abnormal Psychology, 109*, 504-511.
- Nolen-Hoeksema, S., & Morrow, J. (1993). Effects of rumination and distraction on naturally occurring depressed mood. *Cognition and Emotion, 7*, 561–570.
- Oatley, K., & Bolton, W. (1985). A social-cognitive theory of depression in reaction to life events. *Psychological Review, 92*, 372-388.
- O'Hara, M., & Rehm, L. (1983). Hamilton Rating Scale for Depression: Reliability and validity of judgements of novices raters. *Journal of Consulting and Clinical Psychology, 51*, 318-319.
- O'Neill, S. C., Cohen, L. H., Tolpin, L. H., & Gunthert, K. C. (2004). Affective reactivity to daily interpersonal stressors as a prospective predictor of depressive symptoms. *Journal of Social and Clinical Psychology, 23*, 172–194.
- Ongur, D., & Price, J. L. (2000). The organization of networks within the orbital and medial prefrontal cortex of rates, monkeys, and humans. *Cereb. Cortex, 10*, 206-219.

- Orth, U., Berking, M., & Burkhardt, S. (2006). Self-conscious emotions and depression: rumination explains why shame but not guilt is maladaptive. *Personality and Social Psychology Bulletin*, 32, 1608-1619.
- Osborne, J. W., & Costello, A. B. (2004). Sample size and subject to item ratio in principal components analysis. *Practical Assessment, Research & Evaluation*, 9. Retrieved August 15, 2009 from <http://PAREonline.net/getvn.asp?v=9&n=11>.
- Parker, G. (1983). Parental “affectionless control” as an antecedent to adult depression. *Archives of General Psychiatry*, 34, 138-147.
- Parker, G., Gladstone, G., Roussos, J. et al. (1998). Qualitative and quantitative analyses of a ‘lock and key’ hypothesis of depression. *Psychological Medicine*, 28, 1263-1273.
- Parker, G., Gladstone, G., Mitchell, P., Wilhelm, K., & Roy, K. (2000). Do early adverse experience establish a cognitive vulnerability to depression on exposure to mirroring life events in adulthood? *Journal of Affective Disorders*, 57, 209-215.
- Parker, G., & Hadzi-Pavlovic, D. (1996). Development and structure of the CORE system. In: Parker, G., Hadzi-Pavlovic, D. (Eds.), *Melancholia: a Disorder of Movement and Mood* (pp. 67–82). Cambridge University Press, Cambridge.
- Paykel, E. S., Ramana, R., Cooper, Z., Hayhurst, H., Kerr, J., & Barocka, A. (1995). Residual symptoms after partial remission: an important outcome in depression. *Psychological Medicine*, 25, 1171–1180.
- Peeters, F., Nicolson, N. A., Berkhof, J., Delespaul, P., & deVries, M. (2003). Effects of daily events on mood states in major depressive disorder. *Journal of Abnormal Psychology*, 112, 203–211.
- Persons, J. B., & Burns, D. D. (1985). Mechanisms of action of cognitive therapy: The relative contributions of technical and interpersonal interventions. *Cognitive Therapy and Research*, 9, 539-551.

- Pier, M.P., Hulstijn, W., & Sabbe, B.G. (2004a). Differential patterns of psychomotor functioning in unmedicated melancholic and nonmelancholic depressed patients. *Journal of Psychiatry Research*, 38, 425–435.
- Pier, M.P., Hulstijn, W., & Sabbe, B.G. (2004b). No psychomotor slowing in fine motor tasks in dysthymia. *Journal of Affective Disorder*, 83, 109–120.
- Prange, A. J. (1964). The pharmacology and biochemistry of depression. *Dis. Central Nerv. Syst.* 25, 217-221.
- Rado, S. (1928). The problem of melancholia. *International Journal of Psychoanalysis*, 9, 420-438.
- Rado, S. (1951). Psychodynamics of depression from an etiologic point of view. *Psychosomatic Medicine*, 13, 51-55.
- Ressler, K. J., & Mayberg, H. S. (2007). Targeting abnormal neural circuits in mood and anxiety disorders: from the laboratory to the clinic. *Nature Neuroscience*, 10, 1116-1124.
- Rich, A. R., & Bonner, R. L. (1987). Interpersonal moderators of depression among college students. *Journal of College Student Personnel*, 28, 337-342.
- Richter, P., Werner, J., Heerlein, A., Kraus, A., & Sauer, H. (1998). On the validity of the Beck Depression Inventory. *A review. Psychopathology*, 31, 160-168.
- Roberts, J. E., & Monroe, S. M. (1999). Vulnerable self-esteem and social processes in depression: Toward an interpersonal model of self-esteem regulation. In T. Joiner & J. C. Coyne (Eds.), *The interpersonal nature of depression*. Washington D.C.: American Psychological Association, pp.149-188.
- Rose, D. T., & Abramson, L. Y. (1992). Developmental predictors of depressive cognition style: Research and theory. In D. Cicchetti & S. L. Toth (Eds.), *Rochester symposium on developmental psychopathology* (Vol. 4, pp. 323-349). Hillsdale, NJ: Erlbaum.

- Rush, A. J. (1987). Measurement of the cognitive aspects of depression. In A. J. Marsella, R. M. A. Hirschfeld & M. M. Katz (Eds.), *The measurement of depression* (pp. 267-296). New York: John Wiley & Sons, Ltd.
- Rottenberg, J., & Gotlib, I. H. (2004). Socioemotional functioning in depression. In M. Power (Ed.), *Mood disorders: A handbook of science and practice* (pp. 3-27). West Sussex: John Wiley & Sons. Ltd.
- Sacco, W. P., & Beck, A. T. (1985). Cognitive therapy of depression. In E. E. Beckham and W. R. Leber (Eds.), *Handbook of depression: Treatment, assessment, and research* (pp. 3-38). Homewood, IL: Dorsey Press.
- Sanders, M. R., Dadds, M. R., Johnston, B. M., & Cash, R. (1992). Childhood depression and conduct disorder: I. Behavioral, affective, and cognitive aspects of family problem-solving interactions. *Journal of Abnormal Psychology, 101*: 495–504.
- Schmidt, N. B., Schmidt, K. L., & Young, J. E. (1999). Schematic and interpersonal conceptualizations of depression: An integration. In T. Joiner, & J. Coyne (Eds.), *The interactional nature of depression: Advances in interpersonal approaches* (pp. 127–148). Washington: American Psychological Association.
- Schrijvers, D., Hulstijn, W., & Sabbe, B. G.C. (2008). Psychomotor symptoms in depression: A diagnostic, pathophysiological and therapeutic tool. *Journal of Affective Disorders 109*, 1–20.
- Schuele, J. G., & Wiesenfeld, A. R. (1983). Autonomic response to self-critical thought. *Cognitive Therapy and Research, 7*, 189-194.
- Schwartz, G. E., Weinberger, D. A., & Singer, J. A. (1981). Cardiovascular differentiation of happiness, sadness, anger and fear following imagery and excise. *Psychosomatic Medicine, 43*, 343-364.
- Segrin, C. (1998). The impact of assessment procedures on the relationship between paper and pencil and behavioral indicators of social skill. *Journal of Nonverbal Behavior, 22*, 229–251.

- Seidnitz, L., Fujita, F., & Duberstein, P. R. (2000). Emotional experience over time and self-reported depressive symptoms. *Personality and Individual Difference, 28*, 447–460.
- Slife, B. D., Miura, S., Thompson, L. W., Shapiro, J. L., & Gallagher, D. (1984). Differential recall as a function of mood disorder in clinically depressed patients: Between- and within-subject differences. *Journal of Abnormal Psychology, 93*, 391-400.
- Sloan, D. M., Strauss, M. E. & Wisner, K. L. (2001). Diminished response to pleasant stimuli by depressed women. *Journal of Abnormal Psychology, 110*, 488-493.
- Sloman, L. (2000). How the involuntary defeat strategy relates to depression. In L. Sloman & P. Gilbert (Eds.), *Subordination and defeat: An evolutionary approach to mood disorders and their therapy* (pp. 47-67). Mahwah, NJ: Lawrence Erlbaum Associates.
- Sloman, L., Price, J., Gilbert, P., & Gardner, R. (1994). Adaptive function of depression: Psychotherapeutic implications. *American Journal of Psychotherapy, 48*, 401-416.
- Smith, R. L. (1972). The relative proneness to shame or guilt as an indicator of defensive style. *Dissertation Abstracts International, 33*, 2823B.
- Snaith, R. P. (1993). What do depression rating scales measure? *British Journal of Psychiatry, 163*, 293-298.
- Sobin, C., Mayer, L., & Endicott, J. (1998). The motor agitation and retardation scale: a scale for the assessment of motor abnormalities in depressed patients. *Journal of Neuropsychiatry and Clinical Neuroscience, 10*, 85–92.
- Spasojevic, J., & Alloy, L. B. (2001). Rumination as a common mechanism relating depressive risk factors to depression. *Emotion, 1*, 25-37.
- Spasojevic, J., & Alloy, L. B. (2002). Who becomes a depressive ruminator?: Developmental antecedents of ruminative response style. *Journal of Cognitive Psychotherapy: An International Quarterly, 16*, 405-419.

- Starr, L. R. & Davila, J. (2008). Excessive reassurance seeking, depression, and interpersonal rejection: A meta-analytic review. *Journal of Abnormal Psychology*, *117*, 762–775.
- Steer, R. A., Brown, G. K., Beck, A. T., & Sanderson, W. C. (2001). Mean Beck Depression Inventory II scores by severity of major depressive episode. *Psychological Reports*, *88*, 1075-1076.
- Steinberg, J. A., Gibb, B. E., Alloy, L. B., & Abramson, L. Y. (2003). Childhood emotional maltreatment, cognitive vulnerability to depression, and self-referent information processing: Reciprocal relations. *Journal of Cognitive Psychotherapy: An International Quarterly*, *17*, 347-358.
- Steinberg, J. A., Oelrich, C., Alloy, L. B., & Abramson, L. Y. (2006). *First onsets versus recurrences of depression: The interaction of negative cognitive styles and negative self-referent information processing*. Manuscript in preparation, Temple University.
- Strack, S., & Coyne, J. C. (1983). Social confirmation of dysphoria: Shared and private reactions to depression. *Journal of Personality and Social Psychology*, *44*, 798-806.
- Stuewig, J., & McCloskey, L. A. (2005). The relation of child maltreatment to shame and guilt among adolescents: Psychological routes to depression and delinquency. *Child Maltreatment*, *10*, 324-336.
- Sturman, E. D. & Mongrain, M. (2005). Self-criticism and major depression: An evolutionary perspective. *British Journal of Clinical Psychology*, *44*, 502-519.
- Suinn, R. M., Osborne, D., & Page, W. (1962). The self-concept and accuracy of recall of inconsistent self-related information. *Journal of Clinical Psychology*, *18*, 473-474.
- Swann, W.B., Jr. (1990). To be adored or to be known: The interplay of self-enhancement and self-verification. In R. M. Sorrentino & E.T. Higgins (Eds.), *Handbook of motivation and cognition* (Vol. 2, pp. 408-480). New York: Guilford Press.

- Swann, W. B., Jr. (1996). *Self traps: The elusive quest for higher self-esteem*. New York: Freeman.
- Swan, W. B., Jr. (1997). The trouble with raising self-esteem. *Psychological Science*, 8, 177-180.
- Swann, W. B., Jr., & Ely, R. J. (1984). A battle of wills: Self-verification versus behavioral confirmation. *Journal of Personality and Social Psychology*, 46, 1287-1302.
- Swann, W. B., Jr., Hixon, J. G., & de La Ronde, C. (1992). Embracing the bitter “truth”: Negative self-concepts and marital commitment. *Psychological Science*, 3, 118-121.
- Swann, W. B., Jr. & Read, S. J. (1981a). Acquiring self-knowledge: The search for feedback that fits. *Journal of Personality and Social Psychology*, 41, 1119-1128.
- Swann, W. B. Jr., Wenzlaff, R. A., & Tafari, R. W. (1992). Depression and the search for negative evaluations: More evidence of the role of self-verification strivings. *Journal of Abnormal Psychology*, 101, 314-317.
- Talavera, J. A., Saiz-Ruiz, J., & Garcia-Toro, M. (1994). Quantitative measurement of depression through speech analysis. *European Psychiatry*, 9, 185–193.
- Tambs, K., & Moum, T. (1993). How well can a few questionnaire items indicate anxiety and depression? *Acta Psychiatr Scand*, 87, 364-367.
- Tangney, J. P. (1991). Moral affect: The good, the bad, and the ugly. *Journal of Personality and Social Psychology*, 61, 598-607.
- Tangney, J. P. (1999). The self-conscious emotions: Shame, guilt, embarrassment and pride. In T. Dalgleish & M. J. Power (Eds.), *Handbook of cognition and emotion* (pp. 541-568). Chichester, UK: Wiley.
- Tangney, J. P., & Dearing, R. L. (2002). *Shame and guilt*. New York: Guilford.

- Tangney, J. P., Wagner, P. E., Fletcher, C., & Gramzow, R. (1992). Shamed into anger? The relation of shame and guilt to anger and self-reported aggression. *Journal of Personality and Social Psychology*, 62, 669-675.
- Tangney, J. P., Wagner, P., & Gramzow, R. (1992). Proneness to shame, proneness to guilt, and psychopathology. *Journal of Abnormal Psychology*, 101, 469-478.
- Teasdale, J. D., & Fennell, M. J. V. (1982). Immediate effects on depression of cognitive therapy interventions. *Cognitive Therapy and Research*, 6, 343-352.
- Teasdale, J. D., & Fogarty, S. J. (1979). Differential effects of induced mood on retrieval of pleasant and unpleasant events from episodic memory. *Journal of Abnormal Psychology*, 88, 248-257.
- Timbremont, B., & Braet, C. (2006). A longitudinal investigation of the relation between a negative cognitive triad and depressive symptoms in youth, *Journal of Adolescence*, 29, 453-458
- Tolkmitt, F., Helfrich, H., Standke, R., & Scherer, K. R. (1982). Vocal indicators of psychiatric treatment effects in depressives and schizophrenics. *Journal of Communicative Disorders*, 15, 209-222.
- Tornstam, I. (2000). Transcendence in later life. *Generations*, 33, 10-14.
- Tse, W. S., & Bond, A. J. (2004). The impact of depression on social skills: A review. *Journal of Nervous and Mental Disease*, 192, 260-268.
- Vanger, P., Summerfield, A. B., Rosen, B. K., & Watson, J. P. (1992). Effects of communication content on speech behavior of depressives. *Comprehensive Psychiatry*, 33, 39-41.
- Viguera, A. C., & Rothschild, A. J. (1996). Depression: Clinical Features and Pathogenesis. Shulman, Tohen, and Kutcher (1996) *Mood Disorders Across the life span*. John Wiley & Sons, Inc. Canada

- Waxer, P. (1974). Nonverbal cues for depression. *Journal of Abnormal Psychology, 83*, 319–322.
- Webb, M., Heisler, D., Call, S., Chickering, S. A., & Colburn, T. A. (2007). Shame, guilt, symptoms of depression, and reported history of psychological maltreatment. *Child Abuse & Neglect, 31*, 1143-1153.
- Weintraub, W., & Aronson, H. (1967). The application of verbal behavior analysis to the study of psychopathological defense mechanisms. IV: Speech pattern associated with depressive behavior. *The Journal of Nervous and Mental Disease, 144*, 22–28.
- Weissman, A. N. (1979). The Dysfunctional Attitude Scale: A validation study (Doctoral dissertation, University of Pennsylvania, 1979). *Dissertation Abstracts International, 40*, 1389B-13890B.
- Weissman, M. M., & Klerman, G. L. (1973). Psychotherapy with depressed women: An empirical study of content themes and reflection. *British Journal of Psychiatry, 123*, 55–61.
- Weissman, M. M., & Paykel, E. S. (1974). *The depressed women: A study of social relationships*. Oxford, England: U Chicago Press
- Wenzlaff, R. M., Rude, S. S., West, L. M. (2002). Cognitive vulnerability to depression: The role of thought suppression and attitude certainty. *Cognition & Emotion, 16*, 533-548
- Widlöcher, D., & Ghozlan, A. (1989). The measurement of retardation in depression. In: Hindmarch, I., Stonier, P.D. (Eds.), *Human Psychopharmacology: Measures and Methods*, vol. 2. John Wiley & Sons, New York.
- Williams, J. G., Barlow, D. H., & Agras, W. S. (1972). Behavioral measurement of severe depression. *Archives of General Psychiatry, 27*, 330–333.
- Youngren, M. A., & Lewinsohn, P. M. (1980). The functional relation between depression and problematic interpersonal behavior. *Journal of Abnormal Psychology, 89*, 333-341.

Zung, W. W. K. (1965). A self-rating depression scale. *Archives of General Psychiatry*, *12*, 63-70.

Zuroff, D. C., Rournier, M. A., & Moskowitz, D. S. (2007). Depression, perceived inferiority, and interpersonal behaviour: Evidence for the involuntary defeat strategy. *Journal of Social and Clinical Psychology*, *26*, 751-778.

Appendix 1:

Depression Scale- Draft Item 2

Please find below a list of potential items for inclusion in a new scale for depression that we are currently developing.

Next to each item, please put an **X** through the number that, in your judgment, captures the extent to which you think that item is or is not typical of depression.

There are no right or wrong answers-we are simply interested in your judgment.

We would also be grateful if you could give us some minimal sociodemographic information about yourself as follows:

Male/Female..... **Age.....** **Profession.....**

Number of Years in Profession.....

Item	Highly Typical Of Depression		Somewhat Typical	Not at all Typical	
1) Miserable mood	5	4	3	2	1
2) Low mood	5	4	3	2	1
3) Sad mood	5	4	3	2	1
4) Bad mood	5	4	3	2	1
5) Unpleasant mood	5	4	3	2	1
6) Irritable mood	5	4	3	2	1
7) Dysphoric mood	5	4	3	2	1
8) Gloominess	5	4	3	2	1
9) Low spirits	5	4	3	2	1
10) Mournfulness	5	4	3	2	1
11) shame	5	4	3	2	1
12) Guilt	5	4	3	2	1
13) Anxiety	5	4	3	2	1
14) Anger	5	4	3	2	1
15) Disgust	5	4	3	2	1
16) Unhappiness	5	4	3	2	1
17) Sadness	5	4	3	2	1
18) No pleasure	5	4	3	2	1
19) Crying	5	4	3	2	1

20) Trembling	5	4	3	2	1
21) Coldness	5	4	3	2	1
22) Tingling	5	4	3	2	1
23) Agitation	5	4	3	2	1

Item	Highly Typical Of Depression		Somewhat Typical		Not at all Typical
24) Dizziness	5	4	3	2	1
25) Hatred	5	4	3	2	1
26) Rage	5	4	3	2	1
27) No Laughter	5	4	3	2	1
28) Worry	5	4	3	2	1
29) Not cheerful	5	4	3	2	1
30) Not relaxed	5	4	3	2	1
31) Feeling punished	5	4	3	2	1
32) Feeling out of control	5	4	3	2	1
33) Social withdrawal	5	4	3	2	1
34) Social avoidance	5	4	3	2	1
35) Aggression towards others	5	4	3	2	1
36) Fear of others	5	4	3	2	1
37) Suspicion of others	5	4	3	2	1
38) Decrease in activities	5	4	3	2	1
39) Feeling worse than others	5	4	3	2	1
40) Feeling better than others	5	4	3	2	1
41) Feeling let down by others	5	4	3	2	1
42) Too caring for others	5	4	3	2	1
43) Unable to love others	5	4	3	2	1
44) Feeling less attractive than others	5	4	3	2	1
45) Feel a burden on others	5	4	3	2	1
46) Feel too sensitive to others	5	4	3	2	1
47) Change in appetite	5	4	3	2	1
48) Lower sex drive	5	4	3	2	1
49) Problems with sleeping	5	4	3	2	1
50) Change in weight	5	4	3	2	1
51) More pain sensitivity	5	4	3	2	1
52) Intestinal problems	5	4	3	2	1
53) Skin problems	5	4	3	2	1
54) Fatigue	5	4	3	2	1
55) Feel slowed down	5	4	3	2	1
56) Low energy	5	4	3	2	1
57) Slowed speech	5	4	3	2	1
58) Slowed movement	5	4	3	2	1
59) The future feels bleak	5	4	3	2	1

60) Feelings of hopelessness	5	4	3	2	1
61) Thoughts of suicide	5	4	3	2	1
62) Poor concentration	5	4	3	2	1
63) Poor attention	5	4	3	2	1
64) Feeling distant	5	4	3	2	1
65) Ruminations	5	4	3	2	1
66) Feeling overwhelmed	5	4	3	2	1
67) Wanting to give things up	5	4	3	2	1
68) Failing to complete things	5	4	3	2	1
69) Feeling a failure	5	4	3	2	1

Item	Highly Typical Of Depression		Somewhat Typical		Not at all Typical
70) Dislike of oneself	5	4	3	2	1
71) Self-blame	5	4	3	2	1
72) Self-criticism	5	4	3	2	1
73) Loss of interest	5	4	3	2	1
74) Feeling worthless	5	4	3	2	1
75) Feeling contaminated	5	4	3	2	1
76) Feeling diseased	5	4	3	2	1
77) Feeling bad	5	4	3	2	1
78) Feeling loathsome	5	4	3	2	1
79) Hypersensitive to criticism	5	4	3	2	1
80) Inability to work	5	4	3	2	1
81) Slowed thinking	5	4	3	2	1
82) Unable to make decisions	5	4	3	2	1
83) Life feels empty	5	4	3	2	1
84) Life feels meaningless	5	4	3	2	1
85) Feeling undeserving of others care	5	4	3	2	1

Appendix 2:

The New Multi-dimensional Depression Scale

Age: _____ Sex: _____

Instructions: This questionnaire contains 52 items about how you have been feeling. Please read each item carefully and circle the number on the scale which best describes your feelings **during the past two weeks, including today** from 1 = not at all to 5 = all of the time.

Items					
How much have you felt:	Not at all	Seldom	Quite often	Very often	All of the time
1. Low mood	1	2	3	4	5
2. Sadness	1	2	3	4	5
3. Low spirits	1	2	3	4	5
4. Gloominess	1	2	3	4	5
5. Sad mood	1	2	3	4	5
6. Guilt	1	2	3	4	5
7. Unhappiness	1	2	3	4	5
8. Not cheerful	1	2	3	4	5
9. Irritable mood	1	2	3	4	5
10. Dysphoric mood	1	2	3	4	5
11. Shame	1	2	3	4	5
12. Anxiety	1	2	3	4	5
13. Feelings of hopelessness	1	2	3	4	5
14. Loss of interest	1	2	3	4	5
15. No pleasure	1	2	3	4	5
16. The future feels bleak	1	2	3	4	5
17. Feeling worthless	1	2	3	4	5
18. Poor concentration	1	2	3	4	5
19. Self-blame	1	2	3	4	5

20. Life feels meaningless	1	2	3	4	5
21. Feeling a failure	1	2	3	4	5
22. Ruminations	1	2	3	4	5
23. Thoughts of suicide	1	2	3	4	5
	Not at all	Seldom	Quite often	Very often	All of the time
24. Unable to make decision	1	2	3	4	5
25. Low energy	1	2	3	4	5
26. Problems with sleeping	1	2	3	4	5
27. Change in appetite	1	2	3	4	5
28. Lower sex drive	1	2	3	4	5
29. Feel slowed down	1	2	3	4	5
30. Fatigue	1	2	3	4	5
31. Change in weight	1	2	3	4	5
32. Crying	1	2	3	4	5
33. Agitation	1	2	3	4	5
34. Slowed movement	1	2	3	4	5
35. More pain sensitivity	1	2	3	4	5
36. Intestinal problems	1	2	3	4	5
37. Decrease in activities	1	2	3	4	5
38. Social withdrawal	1	2	3	4	5
39. Feeling worse than others	1	2	3	4	5
40. Feel a burden on others	1	2	3	4	5
41. Social avoidance	1	2	3	4	5
42. Feeling undeserving of others care	1	2	3	4	5
43. Hypersensitive to criticism	1	2	3	4	5
44. Feeling less attractive than others	1	2	3	4	5
45. Feel too sensitive to others	1	2	3	4	5
46. Feeling let down by others	1	2	3	4	5
47. Unable to love others	1	2	3	4	5
48. Aggression towards others	1	2	3	4	5
49. Poor Memory	1	2	3	4	5
50. Unable to plan things	1	2	3	4	5
51. Feeling disorganized	1	2	3	4	5

52. Unable to care for myself	1	2	3	4	5
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THANK YOU FOR COMPLETING THIS SCALE

Appendix 3

Beck Depression Inventory BDI-II

Beck, A. T., Steer, R.A., Brown, G. K. Manual for the BDI-II. 1996. San Antonio, TX, The Psychological Corporation

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

Instruction: This questionnaire consists of 21 groups of statements. Please read each group of statement 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 feel 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.

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.
-

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 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-Criticalness

- 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.

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.

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.

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.

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.

14. Worthlessness

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

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.

- 2. It's hard to keep my mind on anything for very long.
- 3. I find I can't concentrate on anything.

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.