THE RELATIONSHIP BETWEEN PERSONALITY, COPING STYLES AND STRESS, ANXIETY AND DEPRESSION

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Abstract

Our personality and the way we cope with stress are two factors that are important in the development of psychological distress. The current study explored the relationship between personality, coping styles and psychological distress in 201 students from the University of Canterbury. Participants completed the Temperament Character Inventory - Revised (TCI-R; Cloninger et al., 1994), the Depression Anxiety Stress Scale (DASS; S.H. Lovibond & P.F. Lovibond, 1995) and the Coping Orientation of Problem Experience (COPE; Carver, Scheier, Weintraub, 1989). The study showed that participants with high harm avoidance and low self-directedness reported increased stress, anxiety and depression, while low harm avoidance and high self-directedness appeared to be a protective factor against the development of distress. Avoidant coping was shown to be the most maladaptive coping style as it was associated with increased stress, anxiety and depression, while problem-focused coping appeared to reduce depressive symptoms. Strong associations were also found between personality and coping styles, as individuals with high reward dependence were more inclined to engage in emotion-focused coping, while high self-directed individuals engaged in more problem-focused coping. High harm avoidance was associated with avoidant coping, resulting in greater distress than either predictor alone. The current study suggests that our personality and the coping styles we employ may influence whether we experience stress, anxiety and depressive symptoms. Furthermore, the association between personality and coping styles suggests that individuals with maladaptive personalities (e.g. high harm avoidance) are at a greater risk for experiencing psychological distress as they are more likely to use a maladaptive coping style such as avoidant coping.

1. Introduction

The primary aim in this thesis is to examine the association between certain personality traits, coping styles and psychological distress. Psychological distress can be conceptualised in a variety of ways. For the purpose of this study it will be defined as symptoms of stress, anxiety and depression. In this section the previous research regarding the contribution of certain personality styles and coping to psychological distress will be discussed. In addition, this research will outline previous research that has shown there is also an association between certain personalities and coping styles. It is argued that a maladaptive personality and a maladaptive coping style predict increased psychological distress, relative to each predictor alone. The goal of this study is to provide greater understanding of the etiology and maintenance of stress, anxiety and depression. Consequently individuals may be identified that are 'at risk' for experiencing psychological distress.

1.1 Coping

Coping is a process that we as individuals employ every day. We engage in coping when we feel under stress or want to manage a taxing situation. The process of coping involves two components, appraisal and coping (Lazarus, 1966). Appraisal is the act of perceiving a stressor and analysing one's own ability to deal with the stressor. Appraisal can be made in three different conditions: when we have experienced a stressor, when we anticipate a stressor and when we experience a chance for mastery or gain (Lazarus, 1966). Once we appraise a stressful situation we must decide how we will respond or ‘cope’ with the stressor, either choosing to master it, reduce it or tolerate it. The coping style we engage in is ultimately determined by whether we believe we have the resources to resolve the stressor (Lazarus, 1966).

1.1.1 Coping Styles

There appear to be three main coping styles that people employ when attempting to resolve or remove a stressor: problem-focused coping, emotion-focused coping and avoidant coping. Problem-focused coping involves altering or managing the problem that is causing the stress and is highly action focused. Individuals engaging in problem-focused coping focus their attention on gathering the required resources (i.e. skills, tools and knowledge) necessary to deal with the stressor. This involves a number of strategies such as gathering information, resolving conflict, planning and making decisions (Lazarus & Folkman, 1984). Emotion-focused coping can take a range of forms such as seeking social support, acceptance and venting of emotions etc (Carver et al., 1989). Although emotion-focused coping styles are quite varied they all seek to lessen the negative emotions associated with the stressor, thus emotion-focused coping is action-orientated (Admiraal, Korthagen, & Wubbels, 2000; Folkman & Lazarus, 1980). The third main coping style is avoidant coping. Avoidant coping can be described as cognitive and behavioural efforts directed towards minimising, denying or ignoring dealing with a stressful situation (Holahan, Holahan, Moos, Brennan, & Schutte, 2005). Although some researchers group avoidant coping with emotion-focused coping the styles are conceptually distinct. Avoidant coping is focused on ignoring a stressor and is therefore passive, whereas emotion-focused coping is active (Admiraal et al., 2000, Holahan et al., 2005).

1.2 Coping Style and Psychological Distress

1.2.1 Overview

Although many factors are involved in the development of psychological distress, coping styles have been shown to be a significant contributor. Problem-focused coping appears to

be the most adaptive coping style as it is associated with reduced psychological distress. Alternatively, avoidant coping appears the most maladaptive as it is associated with increased distress. (Ben-Zur, 1999; Bouteyre, Maurel, & Bernaud, 2007; Carver, Scheier, & Weintraub, 1989; Crockett et al., 2007; Folkman, 1997; Knibb & Horton, 2008; Penland, Masten, Zelhart, Fournet, & Callahan, 2000; Sherbourne, Hays, & Wells, 1995; Wijndaele et al., 2007).The results regarding emotion-focused coping are more complex as this coping style has been associated with both increased and decreased levels of psychological distress (Network of Relationships Inventory; Ben-Zur, 1999; Billings & Moos, 1984; Bouteyre, Maurel, & Bernaud, 2007; Brown & Harris, 1978b; Brown, Svrakic, Przybeck, & Cloninger, 1992; Carver, Scheier, & Weintraub, 1989; Crockett et al., 2007; Knibb & Horton, 2008; Penland, Masten, Zelhart, Fournet, & Callahan, 2000; Wijndaele et al., 2007). This section will analyse previous research to demonstrate the relationship between coping styles and psychological distress. Particular focus will be placed on university students as this is the area of interest for the present research.

1.2.2 Avoidant Coping and Psychological Distress

Avoidant coping has been shown to be associated with greater distress than other coping styles. In general, clinically depressed participants experience less improvement and greater dysfunction when they engage in avoidant coping (Billings & Moos, 1984). Holahan et al. (2005) showed that avoidant coping is positively associated with depressive symptoms in a ten year longitudinal study. Their study examined the coping styles, life stressors and depressive symptoms of 1,211 participants over a ten year period. Participants were measured for baseline depression levels at the initial testing period, four years later and ten years later. Holahan et al. found that individuals that engaged in avoidant coping at baseline were more likely to experience chronic and acute stressors when measured four years later and to exhibit depressive symptoms ten years later.

Although Holahan et al's research is only correlational it does suggest that avoidant coping may fail to remove stressors and as a consequence depressive symptoms may increase. An important element of Holahan et al's study is that depressive symptoms were controlled for at the beginning of the study, thus suggesting that the increases in life stressors and depression may have been influenced by avoidant coping.

Avoidant coping has also been associated with increased psychological distress in non clinical populations such as the general population (Wijndaele et al., 2007) and university samples. Penland et al. (2000) found in their university study that participants experienced greater depressive symptoms when they engaged in an avoidant coping style such as wishful thinking. Crockett et al's (2007) study also revealed strong positive associations between avoidant coping and psychological distress. Participants were shown to have increased symptoms of anxiety and depression when they engaged in avoidant coping, as opposed to participants that engaged in problem-focused coping.

The positive association shown between avoidant coping and stress, anxiety and depression may occur because avoidant coping fails to remove minor stressors (Holahan et al., 2005). As stressors are allowed to fester and grow they can become more stressful, resulting in an individual experiencing increased anxiety and depression. A negative cycle can then develop where depressed individuals may be more likely to appraise their ability to deal with stressors as low and be more pessimistic about future outcomes (Abramson, Seligman, & Teasdale, 1978). This negative thinking may lead them to engage in more passive coping styles such as avoidant coping and thus the negative cycle is continued.

1.2.3 Problem-Focused Coping and Psychological Distress

Problem-focused coping is the most adaptive coping style as it appears to reduce symptoms of stress, anxiety and depression. A number of different populations have demonstrated that problem-focused coping is associated with reduced distress. Wijndaele et al. (2007) recently showed that problem-focused coping is the most effective at reducing psychological distress in the general population. Their study analysed the coping styles and psychological distress levels of 2,616 Belgian adults. Wijndaele et al. found that participants that engaged in problem-focused coping had reduced symptoms of stress, anxiety and depression, compared to participants that engaged in other coping styles. Although a significant association was shown between problem-focused coping and psychological distress it is important to note that Wijndaele et al's study had a low response rate (28%), which may have affected the generality of the study.

Problem-focused coping is also associated with reduced distress in the gay population. Problem-focused coping is an adaptive coping style to use in uncontrollable situations, such as terminal illness, as it provides individuals with a sense of control. Folkman (1997) found in a study of 314 men caring for a dying partner that participants experienced an increase in mood once they engaged in problem-focused coping. In addition, Folkman showed that participants were more inclined to engage in problem-focused coping closer to their partner's death as they needed to feel an increased sense of control. Folkman's study suggests that problem-focused coping is negatively associated with psychological distress as it empowers individuals and allows them to set and achieve small goals in situations where they have little control. Although Folkman's findings provide support for the negative associations between problem-focused coping and psychological distress one cannot generalise her findings to the whole population. Furthermore, it is estimated that only 30%-40% of gay men become the primary caregiver for their ill partner (Harry &

Devall, 1978) thus her sample may have personality qualities or other factors that distinguish them from the gay population.

Problem-focused coping is associated with reduced distress in clinical patients (Billings & Moos, 1984; Cronkite, Moos, Twohey, Cohen, & Swindle, 1998) with the strongest reduction in symptoms shown by severely depressed individuals (Sherbourne, Hays, & Wells, 1995). Sherbourne et al. (1995) found that depressed participants showed greater improvement when they engaged in problem-focused coping compared to avoidant coping. Their study measured the coping styles and depressive symptoms of 604 depressed individuals at two points in times: 12 months post baseline and 24 months post baseline. Interestingly, the greatest improvement was displayed in severely depressed participants, suggesting that problem-focused coping may be the most effective coping style for severely depressed individuals. It is important to note a few limitations in Sherbourne et al's study. Sherbourne et al. had a relatively low response rate to their study which could have led it to become biased in some way. Furthermore, only one baseline self-report questionnaire was used to measure a number of different factors, such as support, stress, coping style and lifestyle factors. The study could be improved by using a specialised measure of coping, such as the Ways of Coping Questionnaire (Folkman & Lazarus, 1988) or the COPE (Carver et al., 1989).

Students have lower levels of stress, anxiety and depression when they engage in problem-focused coping compared to other coping styles. Penland et al. (2000) found that participants who engaged in problem-focused coping experienced a greater decrease in depressive symptoms compared to participants who engaged in other coping styles. Crockett et al. (2007) also found problem-focused coping to be the most adaptive coping style employed by university students. Crockett and colleagues examined the associations

between problem-focused coping and stress, anxiety and depression in 148 Mexican American college students. Their study measured participants' level of social support (Network of Relationships Inventory; Furman & Buhrmester, 1992) coping styles, (COPE; Carver et al., 1989), stress (The Social, Attitudinal, Familial and Environmental Acculturative Stress Scale; Mena, Padilla, & Maldonado, 1987), anxiety (Beck Anxiety Inventory; Beck & Steer, 1993) and depressive symptoms (The Center for Epidemiological Studies Depression Scale; Radloff, 1977). Their findings showed that problem-focused coping was associated with reduced depressive symptoms. An additional study by Bouteyre et al. (2007) further demonstrates the negative association between problem-focused coping and psychological distress in university students. Bouteyre et al. were interested to examine both the prevalence of depressive symptoms in French students and the role of coping styles in relation to depressive symptoms. Their study showed that 41% of the 233 students they measured exhibited depressive symptoms, however, participants that engaged in problem-focused coping were less likely to exhibit depressive symptoms.

Problem-focused coping appears to be effective simply because it removes daily stressors. Although daily stressors are only small they have been associated with lowered mood in university students (Wolf, Elston, & Kissling, 1989). Perhaps more significantly, daily stressors can develop into major stresses, thus increasing the potential for increased stress, anxiety and depression (Holahan et al., 2005). The removal of these stressors therefore decreases the likelihood of experiencing distress. In addition, problem-focused coping may be negatively associated with psychological distress as it requires individuals to set and accomplish goals. As a consequence individuals are provided with a sense of mastery and control, thus reducing their anxiety and stress (Folkman, 1997).

1.2.4 Emotion-Focused Coping and Psychological Distress

Emotion-focused coping incorporates a number of diverse coping styles that have been shown to be both adaptive and maladaptive (Billings & Moos, 1984; Penland, 2000; Wijndaele et al., 2007; Crockett, 2007; Bouteyre, 2007). In general, the coping strategies that focus on negative emotions and thoughts appear to increase psychological distress (e.g. venting of emotions and rumination), whereas coping strategies that regulate emotion (e.g. seeking social support, affect regulation and acceptance) appear to reduce distress. The mixed findings regarding emotion-focused coping has been clearly demonstrated in Billings and Moos's (1984) clinical study. Their study analysed the relationship between coping styles and depressive symptoms in 424 men and women entering treatment for depression. Depressed patients experienced less severe symptoms when they engaged in affect-regulation. However, participants that used the coping style venting of emotions experienced greater dysfunction.

The mixed findings in regards to emotion-focused coping are also demonstrated in university samples. Bouteyre et al. (2007) showed a positive association between venting of emotions and depressive symptoms in 233 first year psychology students. In contrast however, Penland et al. (2000) found venting of emotions was an adaptive coping strategy as participants' experienced decreased depressive symptoms when they expressed their distressing emotions. The inconsistency of these results demonstrates that it is difficult to ascertain the relationship between venting of emotions and psychological distress.

An emotion-focused coping strategy that has consistently been shown to be negatively associated with psychological distress is seeking social support. Wijndaele et al. (2007) explored the relationship between emotion-focused coping and psychological distress in their general population study and found that individuals had lower anxiety and depressive

symptoms when they regularly received social support. Seeking social support is also negatively associated with stress, anxiety and depression in university students. Crockett et al. (2007) found that seeking social support was an effective coping strategy for students experiencing high levels of stress, as students reported fewer anxiety and depressive symptoms when they received social support, as opposed to students who did not receive social support. The negative association between seeking social support and psychological distress has further been supported by Penland et al. (2000) and Bouteyre et al. (2007).

Emotion-focused coping appears to vary in its effectiveness as it incorporates a number of diverse coping styles. Coping styles that regulate emotion are effective as they prevent people from dwelling on their negative emotions and ensure they take proactive steps to resolve their negative emotions (Carver et al., 1989). For example, seeking social support is effective as it encourages students to seek advice from others regarding suitable coping strategies in which to engage (Bouteyre et al., 2007). Another adaptive coping style, acceptance, appears to be effective as it requires individuals to take proactive steps to accept a distressing situation, rather than continue to experience negative emotions (Carver et al., 1989). Conversely, emotion-focused strategies that focus on negative emotions are maladaptive as they require individuals to focus on their negative emotions rather than remove them (Billings & Moos, 1984). Coping styles such as venting of emotions and rumination are generally shown to be maladaptive as they do not remove the negative emotions but in fact exacerbate them and prolong existing feelings of distress (Windle & Windle, 1996).

1.2.5 Summary

In summary, research has shown coping styles are associated with psychological distress in a number of different populations. Problem-focused coping is negatively associated with

stress, anxiety and depressive symptoms while avoidant coping is positively associated with stress, anxiety and depression. The research surrounding emotion-focused coping has produced mixed findings, with some studies showing it to be associated with increased distress and others decreased distress. This appears to occur because emotion-focused coping encompasses a broad range of coping strategies, each with varying effectiveness.

1.3 Personality

Personality traits appear to play an influential role in the development of psychological distress. Personalities that are more negative are traditionally associated with greater distress, while more outgoing and positive personalities generally experience positive psychological health (Duggan, Sham, Lee, Minne, & Murray, 1995; Magnus, Diener, Fujita, & Payot, 1993; Suls, Green, & Hillis, 1998; Vollrath & Torgersen, 2000). The majority of research that has examined the relationship between personality and distress has focused on the "Big Five" personality traits. This research has shown there are significant associations between psychological distress and the personality traits neuroticism, extraversion and conscientiousness. More recently, greater attention has focused on the genetic make-up of personality which led to the development of Cloninger's psychobiological model (Cloninger, Svrakic, & Przybeck, 1993). Cloninger's model postulates that personality development is influenced by both biological and psychological processes. Strong associations have been found between Cloninger's personality traits and psychological distress which suggests that certain personalities may be genetically predisposed to experience distress. This section will briefly analyse the general findings regarding personality and psychological distress and will then examine the associations shown between Cloninger's personality model and psychological distress.

1.3.1 Personality Traits and their Associations with Stress, Anxiety and Depression

The personality traits neuroticism, extraversion and conscientiousness have been linked with high and low psychological distress in a number of different populations. Individuals high in neuroticism (characterised by negative emotional states and predisposition) are the most vulnerable to experiencing increased distress. Duggan et al. (1995) found that participants with a family history of depression were more vulnerable to developing depressive symptoms when they had high levels of neuroticism. Individuals with high neuroticism may be more vulnerable to experiencing distress as they respond more negatively to daily stressors and report experiencing more stressful events. Suls et al., (1998) demonstrated this finding in their study of community participants. Participants completed the NEO Personality Inventory (NEO-PI; Costa & McCrae, 1985) at an initial appointment and then completed diary entries over an eight-day period. Suls et al. found that all participants experienced a lowering of mood when they encountered a stressor. However, individuals with high neuroticism reacted more negatively to the stressors and were more susceptible to the recurrence of the same problems. In addition, neurotic persons reported experiencing more stressful events.

The personality traits neuroticism, extraversion and conscientiousness are also associated with psychological distress in university students. As individuals with high extraversion and conscientiousness are more sociable, positive and goal-orientated they are less likely to become as distressed as highly neurotic individuals. Vollrath (2000) showed that students with more adaptive personalities such as high extraversion and conscientiousness were less affected by daily stress. He measured the personality and stress levels of 119 university students three months after they began university and then three years later. The study findings showed that extraversion and conscientiousness were negatively correlated with daily stress while neuroticism was positively correlated with stress.

1.3.2 Cloninger's Psychobiological Model of Personality

Although previous research has shown associations between certain personality traits and psychological distress, few personality models have focused on the genetic components of personality. Cloninger's psychological model of personality is a more useful model to use when studying the relationship between personality and psychological distress as it has shown that certain personalities appear to contain a genetic vulnerability to distress (Cloninger et al., 1993). Cloninger proposed that personality contains two components; temperament and character. Temperament is regarded as the biological aspect of personality as it is genetically inherited and develops early in life. Processes such as memory, habit formation, emotional response and information processing are all influenced by temperament (Cloninger et al., 1993). Character development on the other hand is a continuous process that is influenced by our life experience. In essence the character aspect of personality is related to different aspects of the self, i.e. who we are, why we are here (Cloninger et al., 1993). The inclusion of both temperament and character is useful as it ensures Cloninger's model is measuring both stable and changing aspects of personality.

Cloninger theorised that temperament and character interact to produce our overall personality. He believed there to be four main personality temperaments; novelty seeking, harm avoidance, reward dependence and persistence and three character dimensions; self-directedness, cooperativeness and self-transcendence. This study will focus on harm avoidance, reward dependence and self-directedness as they have been shown to be associated with psychological distress. Harm avoidance describes the inhibition or cessation of behaviour. Individuals high in harm avoidance are described as apprehensive, shy, pessimistic and prone to fatigue while those low in harm avoidance tend to be carefree, relaxed, courageous, composed and optimistic even in situations that worry other

people. Reward dependence on the other hand describes the maintenance and continuation of behaviour that is rewarded, especially socially. Individuals high in reward dependence are described as loving and warm, dependent and sociable while those low in reward dependence are more detached, non-conforming, cynical and exhibit low persistence. Self-directedness refers to an individual's ability to direct and guide their behaviour towards a specified goal. Individuals high in self-directedness are described as self-determined, able to meet desired goals, and accept responsibility for their actions while individuals low in self-directedness struggle to set and achieve goals, fail to take responsibility for their actions and often have dysfunctional attitudes and a lower self-esteem (Cloninger et al., 1993).

1.4 Personality and Psychological Distress

1.4.1 Harm Avoidance, Self-Directedness and Psychological Distress

High harm avoidance and low self-directedness appear to be the most maladaptive of Cloninger's personality traits as they are associated with increased psychological distress. These associations are found regardless of age, gender and education (Jylhä & Isometsä, 2006). Furthermore, individuals with high harm avoidance and low self-directedness are more likely to seek the advice of a mental health professional and to have a lifetime mental illness (Jylhä & Isometsä, 2006). Jylhä and Isometsä (2006) showed there were significant associations between personality and psychological distress in their Finnish general population study. Participants were randomly drawn and mailed self-report questionnaires that measured personality (The Temperament Character Inventory – Revised; Cloninger et al. 1994), depressive symptoms (Beck Depression Inventory; Beck et al., 1979) and anxiety (Beck Anxiety Inventory; Beck, Epstein, Brown, & Steer, 1988). Their results

showed there was a strong relationship between personality, anxiety and depressive symptoms, with high harm avoidance and low self-directedness associated with increased anxiety and depressive symptoms. The finding that harm avoidance and self-directedness were associated with anxiety is also significant as few studies have used the TCI-R to examine the relationship between personality and anxiety in the general population.

Strong associations between high harm avoidance, low self-directedness and psychological distress have also been found in clinical populations. Richter, Polak and Eisemann (2003) found that depressed individuals had higher harm avoidance and lower self-directedness levels than participants from the German population. Their results led them to conclude that high self-directedness and low harm avoidance are probably factors of resilience against the development of depressive symptoms. One methodological flaw in this study however was that little socio-demographic information was provided about the two participant groups with the exception of the control group having a significant lower mean age to that of the depressed group. This difference in mean age brings into question the validity of the control group. In order to evaluate whether the control group was a valid control group, more information regarding education, marital status etc should have been provided.

Harm avoidance levels appear to be related to the severity of psychological distress and often decrease following treatment. Hansenne et al. (1998) showed that depressed individuals had higher levels of harm avoidance than a control group and that higher harm avoidance levels were associated with more severe depressive symptom. Brown (1992) showed that harm avoidance levels decreased following treatment. Their study examined the harm avoidance levels of 50 patients receiving treatment for anxiety and depression. Brown et al. found that patients that received treatment for their anxiety symptoms

experienced a reduction in harm avoidance levels. As harm avoidance levels are relatively stable amongst the general population this suggests harm avoidance plays a role in the development of anxiety. It is important to note, however, that this sample was non-random and there was no control group used in the study, therefore, the results should be interpreted with caution.

University students with high harm avoidance and low self-directedness are also more vulnerable to psychological distress. Laidlaw et al. (2005) found that university students experienced greater psychological distress when they had high levels of harm avoidance or low levels of self-directedness. Their study measured the personality (TCI; Cloninger, et al., 1993), stress (PSS; Cohen, 1988) anxiety (STAI; Spielberger, Gorsuch, & Lushene, 1970) and depressive symptoms (POMS; McNair, Lorr, & Droppleman, 1971) of 80 third year medical students. These measures showed that students with low self-directedness (more than one standard deviation below the mean) had higher levels of harm avoidance and reported higher levels of stress, anxiety and depression compared to students whose personality fell in the normal range (Laidlaw et al., 2005). Students with low levels of self-directedness were also found to have lower levels of reward dependence, although this effect was not significant. Svrakic, Przybeck and Cloninger (1992) also found high harm avoidance to be associated with increased depressive symptoms in university students. Svrakic et al's study contained 86 university students who were required to fill out the Tridimensional Personality Questionnaire (TPQ; Cloninger, 1987a) and to describe their mood (assessed by the Profile of Mood States – bipolar form; Lorr & McNair, 1988) over the past week. Svrakic et al's findings revealed that high harm avoidance was strongly associated with depressive mood symptoms. Although the sample size for the study is relatively small, the mean scores found for the TPQ and POMS-bi are consistent with previous college and general population studies, thus suggesting the results are reliable.

The majority of research surrounding high harm avoidance and low self-directedness has been conducted in European and American populations. However, high harm avoidance and low self-directedness have also been shown to be maladaptive personality traits in Asian populations. A recent study by Matsudaira and Kitamura (2006) showed that personality is associated with psychological distress in Japanese students. Five hundred and forty-one students were required to fill out the Japanese version of the 125-short Temperament Character Inventory (TCI; Cloninger et al., 1993) and the Japanese version of the Hospital Anxiety and Depression Scale (HAD; Zigmond & Snaith, 1983). Matsudaira and Kitamura's findings showed that high harm avoidance predicted increased anxiety while low self-directness was shown to independently predict both anxiety and depression. This result replicates an earlier finding by Naito, Kijima and Kitamura (2000) that showed high harm avoidance was associated with depressive symptoms over a three month period. Naito et al. (2000) measured the personality and depression levels of 167 undergraduate Japanese students at time one and then re-measured participants' depressive symptoms three months later. Naito et al's results found that personality predicted depressive symptoms over time, with high harm avoidance and low self-directedness associated with increased depressive symptoms.

High harm avoidance has also been shown to increase one's vulnerability to developing post traumatic stress disorder (PTSD). Gil (2005b) found that personality played a role in the development of PTSD in Israeli students. She measured the personality of 185 students two weeks before they witnessed a bomb explosion on a university bus and six months later assessed the proportion of students that had developed PTSTD. Gil's findings showed that participants that developed PTSD had higher levels of harm avoidance compared to participants that did not develop PTSD. One limitation of the study is that no information was gathered on students' previous exposure to stressful events (which have been shown to

be a risk factor for developing PTSD). It is possible, therefore, that previous exposure may have influenced the development of PTSD rather than high harm avoidance. Richman and Frueh (1997) also demonstrated that harm avoidance plays a role in the development of PTSD. They examined the personality of 53 war veterans with PTSD and found that participants with PTSD had higher levels of harm avoidance than participants without PTSD.

Individuals with high harm avoidance may be more vulnerable to psychological distress as they are characterised by anticipatory worry, fear of uncertainty, shyness and fatigability (Ball et al., 2002). Research suggests that high harm avoidant individuals are characterised by these negative qualities as they often have lower levels of the neurochemical serotonin and are more likely to experience a bias in their Behavioural Inhibition System (BIS). Low serotonin has generally been shown to be associated with low mood (Peirson, et al., 1999) while a bias in the BIS can lead high harm avoidant individuals to perceive stimuli as being more negative and threatening than other personality traits (Peirson et al., 1999). This increased propensity to worry and fear the unknown may be one explanation why high harm avoidant individuals experience increased stress, anxiety and depression.

Individuals with low self-directedness may be more vulnerable to psychological distress as they struggle to set and achieve goals and experience deficiencies in personal, social, cognitive and spiritual development (Matsudaira & Kitamura, 2006). Poor cognitive development in particular, has been shown to be a vulnerability factor for the development of psychological distress. For example, some researchers claim low self-esteem is a more important component of depression than other cognitive variables (Pyszczynski & Greenberg, 1987). In addition, poor problem-solving skills could be associated with

increased distress as it may lead low self-directed individuals to obtain less success in life and increase their propensity to engage in more maladaptive coping styles.

1.4.2 Reward Dependence and Psychological Distress

While research indicates high harm avoidance and low self-directedness are maladaptive personality traits, the relationship between reward dependence and psychological distress has yielded more inconsistent results. Many studies fail to find any relationship between low reward dependence and psychological distress. It does appear however, there may be a subtle relationship between low reward dependence and stress, anxiety and depression. Starcevic et al. (1996) found that patients with generalised anxiety disorder (GAD) had lower levels of reward dependence than the general population, suggesting that reward dependence may be associated with anxiety in some form. Both Naito et al. (2000) and Matsudaira and Kitamura (2006) also found that students with low reward dependence were more likely to have increased depressive symptoms. Reward dependence has also been shown to be negatively associated with posttraumatic stress disorder. Richman and Freuh (1997) found in their study of war veterans that participants with PTSD had lower levels of reward dependence than participants without PTSD.

Individuals with low reward dependence may be more vulnerable to experiencing psychological distress as they are characterised by low levels of attachment, sentimentality and dependence and are less inclined to persevere and obtain success (Ball, Smolin, & Shekhar, 2002; Brown et al., 1992). Cloninger et al. (1993) hypothesised that individuals with low reward dependence exhibit behavior that is less influenced by social reward as they are more inclined to have low levels of the neurotransmitter norepinephrine (a chemical that influences behaviour maintenance through reward or non-punishment). The failure to engage in socially accepted behaviours, e.g. seek out friendships or persevere and

achieve success may lead individuals with low reward dependence to experience increased distress.

Although this study has focused on how personality is associated with psychological distress, it is important to note that personality can also work as a protective factor against the development of distress. Individuals with low harm avoidance are less likely to become stressed or anxious as they have a tendency to be optimistic and unconcerned in situations that typically worry people. Additionally, individuals with high self-directedness are less likely to experience psychological distress as they are characterised by high self-esteem and a strong purpose in life (Cloninger et al., 1993). Some researchers even claim that high reward dependence is one of the strongest protective factors against psychological distress (Farmer et al., 2003; Jylhä & Isometsä, 2006). As individuals with high reward dependence are more warm and sociable, they are more likely to have good social support and consequently less psychological distress.

1.4.3 Summary

In summary, research has shown that personality may genetically predispose individuals to experience greater psychological distress. It suggests that individuals with high harm avoidance and low self-directedness are more vulnerable to experiencing increased stress, anxiety and depression. Research also suggests there may be an association between low reward dependence and increased psychological distress. However, these associations are more subtle than those found for high harm avoidance and low self-directedness.

1.5 Personality and Coping Style

1.5.1 Overview

Although a large amount of literature has analysed the associations between personality and psychological distress and coping styles and psychological distress, less attention has been focused on the associations between personality and coping styles themselves. This section will review the few studies that have examined the relationship between personality and coping styles. Due to a lack of research, the majority of studies reviewed do not measure personality using Cloninger's psychobiological model.

1.5.2 Review of Personality and Coping Styles

Lazarus' cognitive-phenomenological theory of psychological distress suggests that our personality may influence the type of coping style we engage in (Lazarus, 1966). As seen earlier, coping contains two processes: the appraisal of the situation, and the subsequent employment of an appropriate coping style (Lazarus & Folkman, 1984; Vollrath & Torgersen, 2000). Lazarus suggests that our personality influences the appraisal process and consequently the coping style we choose. Individuals with optimistic and positive personalities are more likely to appraise a stressful situation more positively and consequently engage in a pro-active coping style (Ball et al., 2002). In contrast, more pessimistic or fearful individuals are more likely to appraise a stressful situation as negative and underestimate their ability to deal with the stressor. This leads them to choose a more passive coping style (Ball et al., 2002). Therefore, stress is not caused solely by the situation or by personality characteristics, but by the interaction between the two (Montgomery & Rupp, 2005).

Mosher et al. (2006) showed that participants with optimistic personalities were more likely to engage in an adaptive coping style and consequently experience reduced distress. They measured the personality (Life Orientation Test; Scheier & Carver, 1985) and coping styles (COPE; Carver et al., 1989) of 136 African American university students. Mosher et al's results showed that students with high levels of optimism were more likely to engage in problem-focused coping and experience decreased depressive symptoms. Mosher et al's findings replicated an earlier study by Aspinwall and Taylor (1992) which found greater optimism in university students was associated with problem-focused coping and better adjustment to college at the three-month follow-up. Carver et al., (1989) also explored the relationship between personality and coping styles in 978 undergraduate students. Carver et al. found that students with high levels of negativity and low levels of optimism were more likely to engage in avoidant coping, while students with high levels of optimism were more likely to engage in problem-focused and emotion-focused coping.

1.5.3 Review of Cloninger's Psychobiological Model and Coping Styles

As well as being more vulnerable to increased psychological distress, individuals with high harm avoidance and low self-directedness are also more inclined to engaged in maladaptive coping styles such as avoidant coping or rumination. Ball et al. (2002) recently compared the personalities of clinically depressed and anxious participants with a set of controls to assess whether personality was associated with maladaptive coping styles. Their findings showed that clinically anxious and depressed participants had higher levels of harm avoidance and lower self-directedness than the control group and were more likely to use avoidant coping rather than problem-focused coping. University students with high harm avoidance are also more likely to engage in maladaptive coping styles. Krebs, Weyers and Janke (1998) found strong associations between personality and coping styles in a German university study. They measured the personality and coping styles of 200

German students and found that students with high harm avoidance engaged in more maladaptive coping styles such as avoidant coping (e.g. escape) and emotion-focused coping (e.g. rumination). High harm avoidance was also shown to be negatively associated with more adaptive coping styles such as problem-focused coping.

Lazarus' cognitive-phenomenological theory of psychological distress suggests that individuals with maladaptive personality traits may be more inclined to engage in avoidant coping as they are characterised by higher levels of pessimism and low self-esteem (Cloninger et al., 1993). This high pessimism and low self-esteem may lead them to appraise stressful situations and their ability to successfully resolve stressors more negatively, thus causing them to choose a passive coping strategy. In addition, it is possible that low self-directed individuals may engage in a passive coping style such as avoidant coping as they struggle with motivation and goal-setting. This relationship between high harm avoidance, low self-directedness and avoidant coping could possibly develop into a negative cycle. For example, individuals with more maladaptive personalities may be less likely to successfully resolve stressors due to their increased propensity to engage in maladaptive coping styles. As a consequence, they may experience greater distress which in turn could encourage them to continue to appraise stressors and their coping resources negatively.

While low harm avoidance and high self-directedness appear to be associated with more maladaptive coping styles, high levels of reward dependence and self-directedness are generally associated with more adaptive coping styles such as emotion-focused coping and problem-focused coping. Kreb, Weyers and Janke (1998) found that university students with high reward dependence were more likely to seek social support and less likely to engage in coping styles that were not socially rewarded. Ball et al. (2002) also found a

strong positive association between reward dependence and emotion-focused coping in their clinical study. In addition, their results showed there was a relationship between high self-directedness and coping, as individuals with high self-directedness engaged in more problem-focused coping styles.

Individuals with high reward dependence and self-directedness may engage in active coping strategies as they are more inclined to appraise stressors and their ability to resolve stressors more positively. As individuals with reward dependence tend to engage in behaviour that is socially rewarded, this may lead them to engage in emotion-focused coping strategies such as seeking social support. Individuals with high self-directedness may also be more inclined to engage in problem-focused coping as they are adept at problem-solving and cognitive appraisal. Consequently, they are also better able to command their own behavior and to accommodate to different situations in order to set and achieve goals

1.5.4 Summary

The finding that personality may be associated with coping styles suggests that individuals with high harm avoidance and low self-directedness may have a greater risk of experiencing distress as they are also more likely to engage in avoidant coping. As the study of personality and coping styles is a relatively new area of research, no studies as yet have examined whether having both a maladaptive personality and maladaptive coping style predicts greater psychological distress compared to either predictor alone. This is an important area to study, especially as past research suggests that personality and coping styles are associated with one another.

1.6 Current Study

This study aims to examine the contribution of personality and coping styles to psychological distress. To date few researchers have analysed the association of personality, coping style and stress, anxiety and depression in one study. An attempt will be made to replicate previous associations between personality, coping styles and psychological distress that have been shown across different studies in a number of different populations. The current research will also undertake to analyse a relatively unexplored area of psychology by examining the relationship between Cloninger's psychobiological model of personality and coping styles. In addition, this study will expand on previous studies by examining whether the associations found between personality and coping styles are associated with increased stress, anxiety and depressive symptoms. On the basis of previous research this study contains four hypotheses:

1. An association will be found between coping styles and stress, anxiety and depression (psychological distress). In particular; (a) Avoidant coping styles will be positively associated with stress, anxiety and depressive symptoms; (b) Problem-focused coping will be negatively associated with symptoms of stress, anxiety and depressive symptoms; and (c) Emotion-focused coping will be negatively associated with symptoms of stress, anxiety and depressive symptoms.

2. An association will be found between some dimensions of personality and stress, anxiety and depression (psychological distress). Specifically; (a) Harm avoidance will be positively associated with stress, anxiety and depression; (b) Self-directedness will be negatively associated with stress, anxiety and depression; and (c) Reward dependence will be negatively associated with stress, anxiety and depression.

3. A relationship will be found between dimensions of personality and coping styles; (a) Harm avoidance will be positively associated with avoidant coping and self-directedness will be negatively associated with avoidant coping; (b) Reward dependence will be positively associated with emotion-focused coping; and (c) Self-directedness will be positively associated with problem-focused coping scores.

4. Personality and coping styles will have an additive effect in explaining psychological distress. More specifically; (a) Increases in harm avoidance and avoidant coping will result in greater increases in stress, anxiety and depression than the degree of distress associated with each predictor alone.

2. Method

2.1 Participants

The participants in this study were 53 (26%) male and 148 (74%) female volunteers from the University of Canterbury, New Zealand. The mean and median ages were 21.5 (SD = 6.39) and 19 years respectively. Seventy percent of the participants were first year psychology students who received partial course credit for participating. The remaining participants replied to a poster advertisement around the university and received a $10 voucher for their time. The participants completed on average a mean of 1.73 (SD = 0.94) years of study. The majority of the participants were New Zealand European (73.6%) and 91% were unmarried.

2.2 Procedure

The study was advertised through the student psychology website and via posters throughout the university. Participants made contact with the researcher through the student participant pool or via phone or email. The researcher then arranged a suitable time for the participants to come and fill out a questionnaire booklet. Upon their arrival, participants were provided with a one-page information sheet that described the study (see Appendix A). Students were assured their information was confidential and anonymous, and they had the right to disengage themselves from the study at any time without penalty. Interested participants then completed a consent form (see Appendix A).

The questionnaire booklet given to students contained the Temperament Character Inventory - Revised (TCI-R; Cloninger, 1994), the Depression Anxiety Stress Scale (DASS; S. H. Lovibond & P. F. Lovibond, 1995) and the Coping Orientation of Problem Experience (COPE; Carver, Scheier, Weintraub, 1989) (See Appendix B).

Completion of the questionnaires took on average 60 minutes. Once participants had completed the questionnaire booklet they were verbally debriefed about the nature of the study and were given a written debriefing sheet (see Appendix A). This sheet stated the main purpose of the study and provided a brief background about personality and coping styles and their association with stress, anxiety and depression. The debriefing sheet also contained the number of a health professional at the University of Canterbury. Furthermore, participants were provided with the researcher's contact details should they have any more questions about the study. First year psychology students completed a short assignment, required by the Department of Psychology, to gain course credit, whereas other participants received a $10 voucher for their time (see Appendix A).

2.3 Ethical Approval

The study was approved by the University of Canterbury Ethics Committee (see Appendix A).

2.4 Measures

2.4.1 The Temperament Character Inventory Revised (TCI-R; Cloninger et al., 1994)

The TCI-R is the revised version of the Temperament Character Inventory (TCI; Cloninger et al., 1994) which was developed based on the Tridimensional Personality Questionnaire (TPQ; Cloninger, 1987a). It is a 240 item self-report questionnaire with a five-point true/false scale (see Appendix B). The TCI-R instructs participants to read over each item statement carefully and circle the number that describes the way they "*usually* or *generally* act or feel", not the way they are feeling at the present time.

The TCI-R was developed to measure personality based on Cloninger's psychobiological model. This model postulates that personality is made up of both temperament and character. Temperament is believed to be genetically determined and linked to neurochemical systems. It

is defined as behavioural systems of automatic emotional responses to experiences (Richter et al., 2003). The temperament traits set out in Cloninger's psychobiological model are novelty seeking, harm avoidance, reward dependence and persistence.

Novelty seeking reflects the behavioural activation system and individual differences in the activation of behavior (Richter et al., 2003). Individuals who are high in novelty seeking are regarded as thrill-seekers and are described as impulsive, exploratory, quick-tempered and disorderly, while those low on this dimension tend to be reflective, stoical, slow-tempered and orderly. The novelty seeking dimension contains four subscales (see Table 1): Exploratory Excitability (10 items), Impulsiveness (9 items), Extravagance (9 items) and Disorderliness (7 items).

Harm avoidance reflects the behavioural inhibition system and individual response differences to punishment and negative stimuli (Richter et al., 2003). Individuals high in harm avoidance are sensitive to signals of adverse stimuli and thus inhibit their behaviour to avoid punishment, novelty (potential disappointment) and non-reward (Brown et al., 1992). Individuals who score highly on the harm avoidance dimension in the TCI-R are described as apprehensive, shy, pessimistic and prone to fatigue, while those low on this dimension tend to be optimistic, carefree, outgoing and energetic. The harm avoidance dimension contains four subscales (see Table 1): Anticipatory Worry (11 items), Fear of Uncertainty (7 items), Shyness (7 items), and Fatigability and Asthenia (8 items).

Reward dependence reflects the behavioural maintenance system and individual responses to the maintenance of previously rewarded behaviour without current reinforcement (Richter et al., 2003). Individuals high in reward dependence are highly sensitive to signals of reward, especially social reward and maintain and resist extinction of behaviour that was previously

associated with rewards or relief from punishment. They are highly sociable, easily conform to peer pressure and have a high need for intimacy (Brown et al, 1992). Individuals who score highly on the reward dependence dimension in the TCI-R are described as tendered-hearted, loving and warm and sensitive to loss and rejection. Those low on this dimension tend to be cold, practical, enjoy time alone and socially insensitive. The reward dependence dimension contains four subscales (see Table 1): Sentimentality (8 items), Openness (10 items), Attachment (6 items), and Dependence (6 items).

Persistence reflects individual differences in persistence of behaviour despite inconsistent reinforcement (Richter et al., 2003). Persistence was not originally measured in the TPQ, Cloninger's first personality measure. However, factor analysis revealed the TPQ was measuring four dimensions rather than three. This led to the development of persistence as a *temperament* dimension (Peirson & Heuchert, 2001). Individuals who score highly on the persistence dimension in the TCI-R are described as industrious, hard working, persistent and stable despite frustration and fatigue. Individuals with low persistence tend to be inactive, unreliable and erratic. The persistence dimension contains four subscales (see Table 1): Eagerness (9 items), Work Hardened (8 items), Ambitious (10 items) and Perfectionist (8 items

Character is regarded as being more environmentally influenced and refers to individuals' self-concepts, goals and values. The character dimensions set out in Cloninger's psychobiological model are self-directedness, cooperativeness and self-transcendence. They reflect how an individual views themselves, others and nature in general. The character dimension self-directedness is the ability of an individual to control, regulate and adapt his/her behaviour to meet set goals and values (Hansenne, Delhez, & Cloninger, 2005). Individuals who score highly on the self-directedness dimension in the TCI-R are described as responsible,

purposeful and resourceful. They are highly self-motivated and able to take responsibility for their actions. Individuals with low self-directedness have difficulty accepting responsibility, setting and meeting meaningful goals, accepting limitations and self-discipline. The self-directedness dimension contains five subscales (see Table 1): Responsibility (8 items), Purposefulness (6 items), Resourcefulness (5 items), Self-acceptance (10 items) and Enlightened second nature (11 items).

Cooperativeness refers to the extent to which an individual considers himself/herself to be a part of society as a whole (Richter et al., 2003) and the extent to which he/she identifies and accepts other people (Hansenne et al., 2005). Individuals who score highly on the cooperativeness dimension are described as socially tolerant, empathetic, helpful and compassionate. Individuals with low cooperativeness are described as socially intolerant, disinterested in other people, unhelpful and revengeful. The cooperativeness dimension contains five subscales (see Table 1): Social Acceptance (8 items), Empathy (5 items), Helpfulness (8 items), Compassion (7 items) and Pure-Hearted Conscience (8 items).

Self-transcendence reflects the spirituality of an individual and their identification with the "oneness" of nature and society (Hansenne et al., 2005). It also includes consciousness and moral maturity (Richter et al., 2003). Individuals who score highly on the self-transcendence dimension in the TCI-R are described as feeling connected to the universe, viewing the universe as one, self-forgetful, with a sense of spiritual unity. Individuals with low self-transcendence are described as individualistic, self-aware and rational. The self-transcendence dimension contains three subscales (see Table 1): Self-forgetful (10 items), Transpersonal Identification (8 items) and Spiritual Acceptance (8 items).

Table 1

*Description of the TCI-R Subscale*s

TCI-R Subscales	**Description of each Subscale**
Novelty Seeking (NS)	Exploratory Excitability vs. Stoic Rigidity (10 items) Impulsiveness vs. Reflection (9 items) Extravagance vs. Reserve (9 items) Disorderliness vs. Regimentation (7 items) NS TOTAL = N1+N2+N3+N4 (35 items)
Harm Avoidance (HA)	Anticipatory Worry vs. Uninhibited Optimism (11 items) Fear of Uncertainty vs. Confidence (7 items) Shyness with Strangers vs. Gregariousness (7 items) Fatigability and Asthenia vs. Vigour (8 items) HATOTAL = HA1+HA2+HA3+HA4 (33 items)
Reward Dependence (RD)	Sentimentality vs. Insensitiveness (8 items) Openness to Warm Communication vs. Aloofness (10 items) Attachment vs. Detachment (6 items) Dependence vs. Independence (6 items) RD TOTAL = RD1+RD2+RD3+RD4 (30 items)
Persistence (P)	Eagerness of Effort vs. Laziness (items) Work Hardened vs. Spoiled (8 items) Ambitious vs. Underachieving (10 items) Perfectionist vs. Pragmatist (8 items) P TOTAL = P1+P2+P3+P4 (35 items)
Self-Directedness (SD)	Responsibility vs. Blaming (8 items) Purposefulness vs. Lack of Goal Direction (6 items) Resourcefulness (5 items) Self-Acceptance vs. Self-Striving (10 items) Enlightened Second Nature (11 items) SD TOTAL = SD1+SD2+SD3+SD4 (40 items)
Cooperativeness (C)	Social Acceptance vs. Social Intolerance (8 items) Empathy vs. Social Disinterest (5 items) Helpfulness vs. Unhelpfulness (8 items) Compassion vs. Revengefulness (7 items) Pure-Hearted Conscience vs. Self-Serving Advantage (8 items) C TOTAL = C1+C2+C3+C4+C5 (36 items)
Self-Transcendence (ST)	Self-Forgetful vs. Self-Conscious Experience (10 items) Transpersonal Identification vs. Self-differentiation (8 items) Spiritual Acceptance vs. Rational Materialism (8 items) ST TOTAL = ST1+ST2+ST3 (26 items)

The TCI-R was chosen as the personality measure in this study as it measures both personality temperament and character, thus providing a holistic measure of personality. It was also chosen as research has shown the TCI-R measures individual differences in vulnerabilities to Axis 1 disorders such as major depressive disorders and anxiety disorders (Hansenne et al., 2005). There is also shown a strong relationship between Cloninger's psychobiological model and psychological distress (Jhlha & Isometsa, 2006; Peirson & Heuchert, 2001). In particular, harm avoidance has been positively associated with distress, while self-directedness and reward dependence is negatively associated with distress. As a number of previous studies have used the TCI-R to measure the association between personality and distress, this suggests it is an appropriate personality measure to use in the current study.

The TCI-R was also chosen as the personality measure because rather than focusing on personality disorders, the focus is on personality dimensions. Thus it is an appropriate personality measure to use on a non-clinical sample as in this study. An area of interest to investigate is whether university students will show similar associations between personality and psychological distress as those shown by clinical and general populations.

The TCI-R has good reliability and validity in clinical or population samples (Fossati et al., 2007). Fewer studies have used the TCI-R in non-clinical samples, however, at least one study has found that the TCI-R has good reliability and validity in an undergraduate sample with acceptable test retest correlations (r = .81 to .94) (Hansenne et al., 2005). The TCI (which has been shown to have similar psychometric properties to the TCI-R) showed good reliability in a university sample, with Cronbach's alphas of 0.60 to 0.85 for the temperament dimensions and 0.82 to 0.87 for the character dimensions (Sung, Kim, Yang, Abrams, & Lyoo, 2002). Test retest correlations were also acceptable ranging from 0.52 to 0.72 for the temperament dimensions and 0.52 to 0.71 for the character dimensions (Sung et al., 2002). The TCI-R also

has a Validity Scale that contains five items (Items 36, 101, 120, 132 and 209). This is to ensure participants are reading the item questions and accurately recording their answer.

2.4.2 The Coping Orientation of Problem Experience Inventory (The COPE; Carver et al., 1989)

The COPE was developed to measure individual styles of coping (Carver et al., 1989). It is a 52-item self-report questionnaire with a four-point Likert scale (1 – I usually don't do this, 2 – I usually do this a little bit, 3 – I usually do this a medium amount, 4 – I usually do this a lot). The COPE measures 13 individual coping styles/subscales that can be grouped into three meta-strategies: problem-focused coping, emotional coping and less useful/avoidant coping. It instructs participants to indicate what they normally do and feel when they experience stressful events.

Problem-focused coping can be described as problem-solving or doing something to alter the source of the stress, while emotion-focused coping can be described as reducing or managing the emotional distress that is associated with the stressor. Less useful/avoidant coping can be described as striving to ignore or not dealing with a stressor.

Although there are a variety of alternative coping styles this thesis uses Carver's original scale and only differs in labeling denial as an avoidant coping style as opposed to part of the emotion-focused coping meta-strategy as Carver originally did. This decision was made as recent research has demonstrated denial is conceptually distinct from emotion-focused coping (Ben-Zur, 1999; Holahan et al., 2005). Consequently, both problem-focused and emotion-focused coping meta-strategies within the COPE contain five subscales while the avoidant coping meta-strategy contains three (see Table 2).

Table 2

The COPE Subscales as used in the Current Study

Meta-Strategy	Coping Style/Subscale	Description
Problem-Focused Coping	Active Coping	The process of taking active steps to remove or circumvent a stressor or reduce its negative effects.
	Planning	Involves coming up with action strategies, thinking about what steps to take and how best to handle the problem.
	Suppression of Competing Activities	Involves putting other projects aside and trying not to become distracted so one can effectively deal with the stressor.
	Restraint Coping	Involves waiting until an appropriate opportunity to act presents itself, holding oneself back and not acting prematurely.
	Seeking Social Support for Instrumental Reasons	Involves seeking advice, assistance or information.
Emotion-Focused Coping	Seeking Social Support for Emotional Reasons	Involves getting moral support, sympathy or understanding.
	Positive Reinterpretation and Growth	Construing a stressful transaction in positive terms.
	Acceptance	Accepting the reality of a stressful situation.
	Focus of and Venting of Emotions	The tendency to focus on whatever distress one is experiencing and to ventilate those feelings.
	Turning to Religion	Using religion to help cope with the stressor.
Avoidant Coping	Denial	Refusal to accept the reality of a stressful situation.
	Behaviour Disengagement	Reducing one's effort to deal with the stressor, or giving up the attempt to attain goals with which the stressor is interfering.
	Mental Disengagement	Attempting to distract one's self from thinking about the behavioural dimension or goal with which the stressor is interfering.

The COPE was chosen as the coping measure for this study as it has a clear focus in the items and was developed through a theoretical approach. It was also desirable as it assess a range of specific coping strategies which can be grouped under the three main coping meta-strategies (problem-focused, emotion-focused and avoidant) that are of interest.

The COPE has good reliability (α = .45 - .60) and test re-test scores (*r* = .45 - .86) over an eight week period in a university sample (Carver et al., 1989). Correlations between questions were satisfactory. The COPE showed good convergent validity with the Cope Strategy Indicator (CSI; Tobin, Holroyd, & Reynolds, 1984) and the Ways of Coping Revised (WOC-R;Folkman & Lazarus, 1988) (*r* = .55 - .89) and a strong divergent validity.

2.4.3 The Depression Anxiety Stress Scale (DASS; S.H. Lovibond & P.F. Lovibond, 1995)

The DASS is a 42-item self-report questionnaire which contains three scales: stress, anxiety and depression (S.H. Lovibond & P.F. Lovibond, 1995). Participants are asked to read over item statements and "indicate how much each statement applied to them *over the past week*" (0 – did not apply to me at all, 1 – applied to me to some degree, or some of the time, 2 – applied to me to a considerable degree, or a good part of the time, 3 – applied to me very much, or most of the time). The depression subscale contains items that measure symptoms generally associated with dsyphoric mood (e.g. sadness or worthlessness) (see Table 3). The anxiety subscale contains items that are related to symptoms of physical arousal, panic attacks and fear (e.g. trembling or faintness). The stress subscale contains items that measure symptoms such as tension irritability and the tendency to over-react (Antony, Bieling, Cox, Enns, & Swinson, 1998).

Table 3

Example of Items in the DASS

Scale	Constructs Assessed	Item Examples
Depression Scale	dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest and involvement, anhedonia, and inertia.	"I can see nothing to be hopeful about."
Anxiety Scale	autonomic arousal, skeletal muscle effects, situational anxiety and subjective experience of anxious affect	"I felt I was close to panic."
Stress Scale	difficulty relaxing, nervous arousal, being easily upset/agitated, irritable/over-reactive and impatient	"I found myself getting upset by quite trivial things."

The DASS is a dimensional measure of symptoms of stress, anxiety and depression and was developed on non-clinical samples. It is often used as a measure of psychological distress for university samples, such as the current sample (Adlaf, Gliksman, Demers, & Newton-Taylor, 2001; P. F. Lovibond & S. H. Lovibond, 1995; Wong, Cheung, Chan, Ma, & Tang, 2006). The DASS was also chosen as it is an efficient and comprehensive measure of not only depression but also anxiety and stress.

The DASS has good internal reliability (depression scale $\alpha = 0.91$, anxiety scale $\alpha = .81$, stress scale $\alpha = .89$) in a university sample (P. F. Lovibond & S. H. Lovibond, 1995). Strong correlations were also found between scales with depression-anxiety $r = .42$, anxiety-stress $r = .46$ and depression-stress $r = .39$. The DASS depression scale is highly correlated with the Beck Depression Inventory ($r = .74$) (BDI; Beck et al., 196) while the DASS anxiety scale and the BAI were correlated $r = 0.81$ (Beck & Steer, 1993).The lower correlation between the DASS depression scale and the BDI may be due to the BDI containing items that are not

exclusively related to depression (e.g. weight loss, irritability, loss of libido) (P. F. Lovibond & S. H. Lovibond, 1995).

Principal components factor analysis of the DASS on a university sample revealed that, in general, most items load moderately to highly on proposed own factor, depression subscale (*r* = .36- .80), anxiety subscale (*r* =.20- .64) stress subscale (*r* = 40- .76). The DASS accurately discriminates between the three negative emotional syndromes although these syndromes are still moderately to highly correlated with one another (P. F. Lovibond & S. H. Lovibond, 1995).

2.5 Statistical Analyses

Data analyses were carried out using the SPSS statistical software program (version 15.0) (SPSS, 2006). The data was examined for accuracy of input and outliers and two questionnaire booklets were excluded from the study due to violations in the TCI-R validity scale. In order to look at associations between the variables, Pearson's and Spearman's correlations were obtained. In order to look at the contribution of personality (TCI-R) and coping (COPE) to predicting stress, anxiety and depression, a series of multiple regressions were undertaken.

2.5.1 Checking the Data for Normality

Normality of the data and conditions for analyses were checked visually with histograms and statistically with Kolmogorov-Smirnov test for normality (see Table 4). Histograms of the COPE showed both problem-focused coping and emotion-focused were normally distributed while avoidant coping was slightly positively skewed. Histograms of the TCI-R showed both harm avoidance and self-directedness appeared normally distributed while

reward dependence was slightly negatively skewed. Histograms of the DASS showed all three scales were positively skewed.

The Kolmogorov-Smirnov test for normality showed that the variables emotion-focused coping, avoidant coping, stress, anxiety and depression deviated significantly from a normal distribution. Traditionally DASS results are often positively-skewed (Antony et al., 1998; Crawford & Henry, 2003; P. F. Lovibond & S. H. Lovibond, 1995). A series of transformations were attempted to 'normalise' the data (including log, square root and inverse). Emotion-focused coping, anxiety and depression scores could not be transformed to follow a normal distribution. Thus the untransformed data was used in all analyses and where possible, verified with non-parametric tests (refer to Appendix C to see a table containing all the transformations undertaken).

Table 4

Kolmogorov-Smirnov Testing of Data Normality

Measured Variables	**Significance Level**
Harm Avoidance	p = 0.20
Reward Dependence	p = 0.076
Self-Directedness	p = 0.20
Problem-focused coping	p = 0.20
Emotion-focused coping	p = 0.02*
Avoidant coping	p = 0.00***
Stress	p = 0.00***
Anxiety	p = 0.00***
Depression	p = 0.00***

*Notes: * p<.05, ** p<.01, *** p<.001*

Hierarchical multiple regression analyses were used to examine whether harm avoidance and avoidant coping were predictive of stress, anxiety and depression. Variables were centred, and an interaction variable created (a product of harm avoidance and avoidant

coping). A correlation matrix was produced to check for multicollinearity between the variables. This showed that harm avoidance and harm avoidance X avoidant coping did not correlate r =.09, but there was a significant association between harm avoidance X avoidant coping and avoidant coping r = 0.23. Although this raised the possibility of multicollinearity, further analyses revealed that all three regressions had tolerance scores higher than 0.10, and Variance Inflation Factor (VIF) scores below 10 showing there was no problem with multicollinearity. Further analyses also showed three cases exceeded the Mahalanobis distances cut-off score (13.82), however this was not of concern for a sample size of 201 (Pallant, 2007). Cases with usual residual values were lastly examined to determine whether they had a significant effect on the data. These analyses showed that although each regression had a few outliers they were not significantly affecting the data, as the Cook's Distance score for each regression was less than one.

3. Results

3.1 Descriptive Information

Descriptive statistics for personality (harm avoidance, reward dependence, self-directedness), coping styles (problem-focused coping, emotion-focused coping, avoidant coping) and psychological distress (stress, anxiety, depression) variables are shown in Table 5 and compared to other samples in Tables 6, 7 and 8. The means for psychological distress were similar to previous university studies (P. F. Lovibond & S. H. Lovibond, 1995) but higher than those found for the general population (Antony et al., 1998; Crawford & Henry, 2003) (see Table 6). The means for personality were unable to be compared with previous university studies as no studies were found that administered the TCI-R to university students. However, the means found were similar to those found for the general population (Hansenne et al., 2005; Jylhä & Isometsä, 2006) (see Table 7). In addition, the means for coping styles were similar to a previous university sample (Carver et al., 1989) and those found for the general population (Ingledew, Hardy, Cooper, & Jemal, 1996) (see Table 8).

Table 5

Means, Standard Deviations and Ranges Found for Personality, Coping Styles and Psychological Distress (N = 201)

		Mean (SD)	***Possible Range***	***Obtained Range***
Coping Styles	Problem – Focused	10.30 (1.83)	4 – 16	4.6 – 14.6
	Emotion – Focused	10.47 (1.75)	4 – 16	6.6 – 15.2
	Avoidant	7.28 (1.78)	4 – 16	4 – 13
Personality	Harm Avoidance	92.41 (18.86)	33 – 165	51 – 150
	Reward Dependence	106.67 (14.72)	30 – 150	66 – 139
	Self- Directedness	135.64 (18.46)	40 – 200	83 – 181
Symptoms of Distress	Stress	11.38 (8.47)	0 – 42	0 – 40
	Anxiety	6.44 (6.67)	0 – 42	0 – 35
	Depression	7.92 (9.02)	0 – 42	0 – 39

Table 6

Comparison of Descriptive Statistics for Stress, Anxiety and Depression Levels with Past Studies (University and General Population)

Study	***Sample***	***Psychological Distress***		
		Stress Mean (SD)	Anxiety Mean (SD)	Depression Mean (SD)
Current Study	University	11.38 (8.47)	6.44 (6.67)	7.92 (9.02)
Lovibond & Lovibond, (1995)	University	10.54 (6.94)	5.23 (4.83)	7.19 (6.54)
Crawford & Henry, (2003)	General Population	9.27 (8.04)	5.55 (7.08)	3.56 (5.39)
Antony et al., (1998)	General Population	4.12 (3.81)	1.43 (1.86)	2.18 (2.83)

Table 7

Comparison of Harm Avoidance, Reward Dependence and Self-Directedness Scores Across Past Studies (General Population)

Study	***Sample***	***Personality***		
		Harm Avoidance Mean (SD)	Reward Dependence Mean (SD)	Self-Directedness Mean (SD)
Current Study	General Population	92.41 (18.86)	106.67 (14.72)	135.64 (18.46)
Hansenne et al., (2005)	General Population	94.00 (18.2)	101.7 (13.4)	140.1 (17.4)
Jylhä & Isometsä, (2006)	General Population	89.2 (19.8)	102.3 (14.9)	146.8 (18.1)

Table 8

Comparison of Coping Style Scores with Past Studies (University and General Population)

Study	***Sample***	***Coping Styles***		
		Problem-Focused Coping Mean (SD)	Emotion-Focused Coping Mean (SD)	Avoidant Coping Mean (SD)
Current Study	University	10.30 (1.83)	10.47 (1.75)	7.28 (1.78)
Carver et al., (1989)	University	11.23 (2.55)	10.85 (3.12)	7.28 (2.3)
Ingledew et al., (1996)	General Population	10.74 (2.6)	9.94 (3.2)	7.57 (2.5)

3.2 Examination of Data

Participants were categorised into five categories based on DASS scores (Normal, Mild, Moderate, Severe and Extremely Severe) using Lovibond and Lovibond's (1995) cut-off scores (see Table 9). The normal category corresponds to the 0-78th percentile, the mild category to the 78.1- 87th percentile, the moderate category to the 87.1 - 95th percentile, the severe category to the 95.1 - 98th percentile and the extremely severe percentile to the 98.1 – 100th percentile. Table 9 shows that 19.4 - 29.4% of participants studied were

experiencing some degree of psychological distress with around 3-4% experiencing severe to extremely severe symptoms of psychological distress (see Table 9).

Table 9

Percentage of Participants Classified as Mild, Moderate, Severe Levels of Stress, Anxiety and Depressive Symptoms (N = 201)

		Percentage in each DASS category				
	Range	**Normal (0-78[1])**	**Mild (78-87)**	**Moderate (87-95)**	**Severe (95-98)**	**Extremely Severe (98-100)**
Total sample (N=Number of participants in each category)						
Stress	0-42	80.6% (162)	8.5% (17)	6.9% (14)	3% (6)	1% (2)
Anxiety	0-42	79.6% (160)	8% (16)	9.4% (19)	2% (4)	1% (2)
Depression	0-42	70.6% (142)	11.5% (23)	14.4% (29)	1.5% (3)	2% (4)

[1] Lovibond and Lovibond's (1995) percentile cut-offs corresponding to each DASS category.

3.3 Relationship between Coping and Stress, Anxiety and Depression Variables

3.3.1 Coping Styles (Problem-Focused, Emotion-Focused, Avoidant) and Psychological Distress

Avoidant coping was found to be positively associated with depressive symptoms $r = .44$, followed by anxiety $r = .40$ and stress $r = .35$ confirming hypothesis 1a (see Table 10). Based on Cohen's (1988) guidelines, the size of the correlation coefficients indicate a moderately strong positive relationship exists between avoidant coping and psychological distress. A significant negative correlation was shown between problem-focused coping and depressive symptoms ($r = -.18$), thus partially supporting hypothesis 1b. Contrary to

hypothesis 1b, no significant associations were found between problem-focused coping and stress and anxiety. In addition, no significant associations were found between emotion-focused coping and stress, anxiety and depression, thus failing to support hypothesis 1c.

Table 10

Association (Pearson's Correlation) between Personality, Coping Styles and Stress, Anxiety and Depression (N=201) [1]

		Psychological Distress		
		Stress	Anxiety	Depression
Coping Style	Problem-Focused Coping	r = -.08	r = -.06	r = -.18*
	Emotion-Focused Coping	r = -.10	r = -.05	r = -.12
	Avoidant Coping	r = .35**	r = .40**	r = .44**
Personality	Harm Avoidance	r = .42**	r = .34**	r = .46**
	Reward Dependence	r = -.09	r = -.13	r = -.16*
	Self-Directedness	r = -.37**	r = -.41**	r = -.50**

Notes: [1] Similar results were obtained when using Spearman's correlations, see Appendix C, Table 2.

** p<.05, ** p<.01*

3.4 Individual Coping Styles and Psychologial Distress

3.4.1 Post Hoc Analysis of Problem-Focused Coping Styles and Depression Scores

Given the significant finding between problem-focused coping and depression, post hoc analyses were conducted to explore in more detail the associations between the five problem-focused subscales (active coping, planning, seeking social support for instrumental means, suppression of competing activities and restraint coping) and depressive scores. Lower depression scores were associated with more frequent planning (r = -.21), more active coping (r = -.28) and more frequent social support seeking

(r = -.16). No relationship was found between suppression of competing activities, restraint coping and stress, anxiety and depression.

3.4.2 Post Hoc Analysis of Avoidant Coping Styles and Stress, Anxiety and Depression Scores

Similarly, post hoc analyses were conducted to analyse the associations between the individual avoidant subscales (denial, behaviour disengagement, mental disengagement) and stress, anxiety and depression. These showed that there were significant positive correlations between denial and stress (r = .32), anxiety (r = .39) and depression scores (r = .29) (see Table 11). More frequent use of behaviour disengagement was associated with increased stress scores (r = .24), increased anxiety scores (r = .25) and increased depression scores (r = .39). More frequent mental disengagement was associated with increased stress scores (r = .22), increased anxiety scores (r = .25) and increased depression scores (r = .29).

Table 11

Association (Pearson's Correlation) between Avoidant Coping subscales and Stress, Anxiety and Depression Scores (N=201) [4]

		Avoidant Coping Subscales		
		Denial	Behaviour Disengagement	Mental Disengagement
Psychological Distress	Stress	r = .32**	r = .24**	r = .22**
	Anxiety	r = .39**	r = .25**	r = .25**
	Depression	r = .29**	r = .39**	r = .29**

Notes: [4] Similar results were obtained using Spearman's correlations, see Appendix C, Table 5.

**p<.05, **p<.01*

3.5 Relationship between Personality and Stress, Anxiety and Depression Variables

3.5.1 Associations between Personality (Harm Avoidance, Reward Dependence, Self-Directedness) and Psychological Distress

Significant positive associations were found between harm avoidance and stress (r = .42), harm avoidance and anxiety (r = .34) and harm avoidance and depressive symptoms (r = .46), confirming hypothesis 2a (see Table 10). Hypothesis 2b, that self-directedness would be negatively associated with psychological distress, was also supported with significant correlations found between self-directedness and stress (r = -.37), self-directedness and anxiety (r = -.41) and self-directedness and depression (r = -.50). Hypothesis 2c, that reward dependence would be negatively associated with stress, anxiety and depression was partially supported. A significant negative correlation was found between reward dependence and depressive symptoms, r = -.16. Contrary to hypothesis 1c there was no association between reward dependence and stress or reward dependence and anxiety.

3.6 Relationship between Personality and Coping Styles

3.6.1 Associations between Personality Traits and Coping Styles

Hypothesis 3a was supported as a significant positive correlation was found between high harm avoidance and avoidant coping (r = .35) and a significant negative association found between self-directedness and avoidant coping (r = - 0.52) (see Table 12). A positive association was found between reward dependence and emotion-focused coping (r = .46),

thus supporting hypothesis 3b. Hypothesis 3c was also confirmed with a positive correlation found between self-directedness and problem-focused coping (r = .24).

Table 12

Associations between Personality Traits (Harm Avoidance, Reward Dependence, Self-Directedness and Coping Styles (Problem-Focused, Emotion-Focused, Avoidant) (N=201)[2]

		Personality		
		Harm Avoidance	Reward Dependence	Self-Directedness
Coping Styles	Problem-Focused Coping	r = -.23**	r = .07	r = .24**
	Emotion-Focused Coping	r = -.15*	r = .46**	r = .21**
	Avoidant Coping	r = .35**	r = -.13	r = -.52**

Notes: [2] Similar results were obtained when calculating Spearman's rho, see Appendix C, Table 3.

** p<.05, ** p<.01*

3.7 The Contribution of Harm Avoidance and Avoidant Coping to Stress, Anxiety and Depression

3.7.1 The Contribution of Harm Avoidance and Avoidant Coping to Stress

In order to examine hypothesis 4a, that both harm avoidance and avoidant coping would predict greater levels of stress compared to either predictor alone, a regression analysis was undertaken. To examine the independent and relative contribution of each variable the regression model contained three steps. At Step 1 harm avoidance was entered into the model; at Step 2 both harm avoidance and avoidant coping were included in the model and at Step 3 harm avoidance, avoidant coping and the interaction of harm avoidance and avoidant coping were included (see Table 13). Harm avoidance was included at step 1 as

opposed to avoidant coping as harm avoidance levels are biologically determined. This suggests harm avoidance may be more stable than coping styles and may influence coping styles. At Step 1, harm avoidance was found to be a significant predictor of stress levels and explained 18% of the variance in stress scores, (R^2 =0.18, F(1,199) = 43.41, p<0.001). At Step 2 avoidant coping was included in the model and also found to be a significant predictor of stress (R^2 =0.22, F(2,198) = 28.43, p<0.001) over and above harm avoidance. The inclusion of avoidant coping increased the variance from 18% to 22%, (F_{change} (2, 198) =11.22, p<0.001) thus supporting hypothesis 4a. Harm avoidance remained a significant predictor of stress levels (see Table 13). Semipartial correlations showed that harm avoidance individually accounted for 10.4% of the variance while avoidant coping accounted for 4.4% of the variance, with the remaining 7.2% of the variance shared. At Step 3 the interaction term of harm avoidance and avoidant coping was included in the model. This interaction was not a significant predictor of stress, F_{change} (3,197) =0.03, *n.s*, however, harm avoidance and avoidant coping continued to remain significant and unique predictors of stress levels (R^2= 0.22, F(3,197) = 18.87, p<0.001).

Table 13

Multiple Regression Examining the Effect of Harm Avoidance and Avoidant Coping on Stress

		β (standardised)	**SE (β)**	**t-value**
Step 1	**Harm Avoidance**	.42	.06	6.59***
		F (1,199) = 43.41***, R^2 = 0.18		
Step 2	**Harm Avoidance**	.35	.07	5.15***
	Avoidant Coping	.22	.07	3.35**
		F (2, 198) = 28.43***, F_{change} = 11.22**, R^2 = 0.22, R^2_{change}= 0.04**		
Step 3	**Harm Avoidance**	.35	.07	5.14***
	Avoidant Coping	.22	.07	3.24**
	Harm Avoidance * Avoidant Coping	.01	.06	0.16
		F (3, 197) = 18.87***, F_{change} = 0.03, R^2 = 0.22, R^2_{change}= 0.00		

Notes:* *p<.05, ** p<.01, *** p<.001*

3.7.2 The Contribution of Harm Avoidance and Avoidant Coping to Anxiety

In order to examine hypothesis 4a, that both harm avoidance and avoidant coping would predict greater levels of anxiety compared to either predictor alone, regression analyses was undertaken (see Table 14). These analyses showed that at Step 1, harm avoidance was a significant predictor of anxiety levels (R^2 =0.12, F(1,199) = 26.46, p<0.001) and explained 12% of the variance in predicting anxiety. At Step 2 avoidant coping was included into the model and found to be a significant predictor of anxiety (R^2 =0.21, F(2,198) = 25.61, p<0.001) over and above harm avoidance. The inclusion of avoidant coping increased variance accounted for from 12% to 21%, (F_{change} (2, 198) =11.22, p<0.001), thus supporting hypothesis 4a. Harm avoidance remained a significant predictor of anxiety levels (see Table 14). Semipartial correlations at Step 2 showed that harm avoidance individually accounted for 4.7% of the variance while avoidant coping accounted for 8.8% of the variance, with the remaining 7.5% of the variance shared. At Step 3 the interaction term of harm avoidance and avoidant coping was included into the model. The results showed that the interaction was not a significant predictor of anxiety (F_{change} (3,197) =0.976, *n.s)*, but harm avoidance and avoidant coping continued to remain significant independent predictors of anxiety (R^2= 0.21, F(3,197) = 17.40, p<0.001).

Table 14

Multiple Regression Examining the Effect of Harm Avoidance and Avoidant Coping on Anxiety

		β (standardised)	SE (β)	t-value
Step 1	**Harm Avoidance**	.34	.07	5.14***
		$F(1,199) = 26.46^{***}$, $R^2 = 0.12$		
Step 2	**Harm Avoidance**	.23	.07	3.42**
	Avoidant Coping	.32	.07	4.69***
		$F(2, 198) = 25.61^{***}$, $F_{change} = 21.97^{***}$, $R^2 = 0.21$, $R^2_{change} = 0.09^{***}$		
Step 3	**Harm Avoidance**	.23	.07	3.41**
	Avoidant Coping	.30	.07	4.38***
	Harm Avoidance* Avoidant Coping	.06	.06	0.99
		$F(3, 197) = 17.40^{***}$, $F_{change} = 0.10$, $R^2 = 0.21$, $R^2_{change} = 0.00$		

Notes:* *p<.05, ** p<.01, *** p<.001*

3.7.3 The Contribution of Harm Avoidance and Avoidant Coping to Depressive Symptoms

Regression analyses were used to examine hypothesis 4a that both harm avoidance and avoidant coping would predict greater levels of depression compared to either predictor alone. At Step 1, harm avoidance was a significant predictor of depressive symptoms (R^2 =0.21, F(1,199) = 52.82, p<0.001) and explained 21% of the variance (see Table 15). At Step 2 avoidant coping was included into the model and also found to be a significant independent predictor of depressive symptoms (R^2 =0.30, F(2,198) = 41.59, p<0.001) increasing variance from 21% to 30%, (F_{change} (2,198) =24.21, p<0.001) thus supporting hypothesis 4a (see Table 15). Semipartial correlations at Step 2 showed that harm avoidance individually accounted for 10.6% of the variance while avoidant coping accounted for 8.6% of the variance, with the remaining 10.8% of the variance shared. At Step 3 the interaction term of harm avoidance and avoidant coping was included into the model. The interaction term resulted in a significant increase in variance accounted for, a change from 30% to 31% (F_{change} (3,197) =4.93, p<0.05). Semiparital correlations showed

that harm avoidance accounted for 10.5% of the variance, avoidant coping 6.8% of the variance and the interaction term of Harm Avoidance X Avoidant coping accounted for 1.7% of the variance. Harm avoidance, avoidant coping and the interaction variable were all significant and unique predictors of depressive symptoms (R^2= 0.31, F(3,197) = 29.92, p<0.001 (see Table 15).

Table 15

Multiple Regression Examining the Effect of Harm Avoidance and Avoidant Coping on Depressive Symptoms

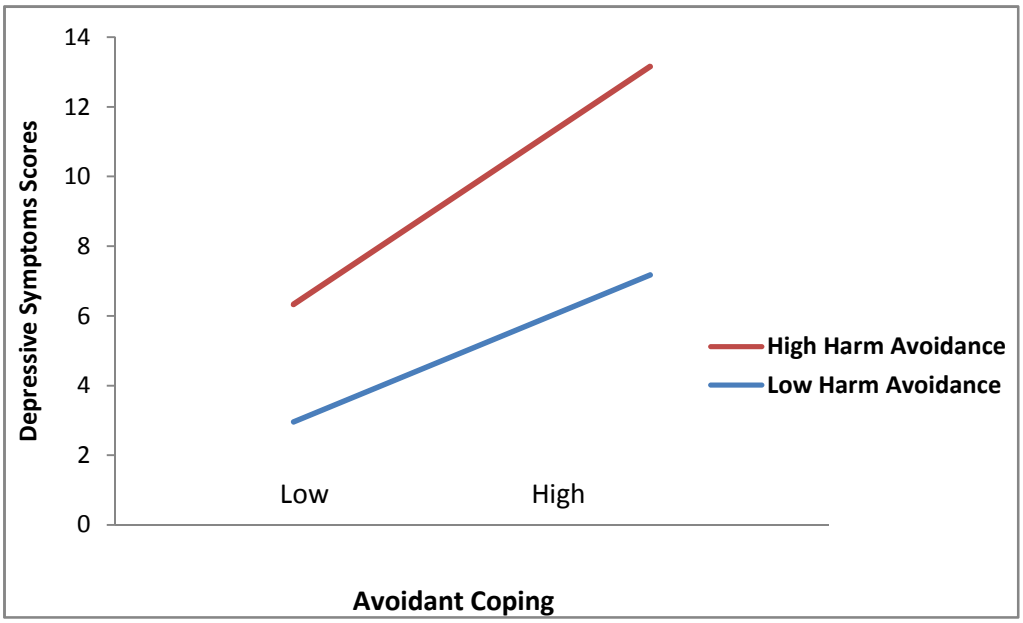
		β (standardised)	SE (β)	t-value
Step 1	**Harm Avoidance**	.46	.06	7.27***
		F (1,199) = 52.81***, R^2 = 0.21		
Step 2	**Harm Avoidance**	.36	.07	5.47**
	Avoidant Coping	.31	.06	4.92***
		F (2, 198) = 41.59***, F_{change} = 24.21***, R^2 = 0.30, R^2_{change}= 0.09***		
Step 3	**Harm Avoidance**	.35	.06	5.49**
	Avoidant Coping	.28	.06	4.40***
	Harm Avoidance* Avoidant Coping	.14	.06	2.22*
		F (3, 197) = 29.92***, F_{change} = 4.93, R^2 = 0.31, R^2_{change}= 0.02*		

Notes:* *p<.05, ** p<.01, *** p<.001*

Median splits were created to analyse the interaction between harm avoidance and avoidant coping. Figure 1 displays this interaction and shows that the positive relationship between avoidant coping and depression is stronger for individuals with high harm avoidance compared to individuals with low harm avoidance.

Figure 1

The Interaction between Harm Avoidance and Avoidant Coping in Predicting Depressive Symptoms



To further explore the relationship between harm avoidance, avoidant coping and psychological distress, harm avoidance and avoidant coping average scores were calculated for the different levels of psychological severity using the cut-offs established by Lovibond and Lovibond (1995). Table 16 provides further demonstration of the finding that high harm avoidance and high avoidant coping are associated with greater stress, anxiety and depression scores.

Table 16

Table showing the Means and Standard Deviations for Harm Avoidance and Avoidant Coping as Psychological Distress Increases

		Normal/Mild[5] *Mean (SD)*	***Moderate*** *Mean (SD)*	***Severe/Extremely Severe*** *Mean (SD)*
Stress	Harm Avoidance	91.17 (18.40)	99.21 (19.57)	108.00 (20.83)
	Avoidant Coping	7.19 (1.79)	8.10 (1.26)	7.88 (1.78)
Anxiety	Harm Avoidance	91.02 (18.23)	95.67 (16.39)	111.90 (23.40)
	Avoidant Coping	7.11 (1.72)	8.27 (1.40)	8.83 (2.12)
Depression	Harm Avoidance	90.02 (18.23)	104.60 (20.71)	116.10 (25.07)
	Avoidant Coping	7.09 (1.68)	8.76 (1.90)	8.40 (2.00)

Notes: [5] As set out by Lovibond and Lovibond (1995). The Normal/Mild category corresponds to the 0-87th percentile, the Moderate category to the 95th percentile and the Severe/Extremely Severe to the 100th percentile.

4. Discussion

4.1 Comparison with Previous Research

4.1.1 Avoidant Coping and Distress

The finding that avoidant coping was positively associated with stress, anxiety and depressive symptoms confirmed hypothesis 1a and is consistent with the majority of previous research (Holahan et al., 2005; Penland et al., 2000; Sherbourne et al., 1995; Wijndaele et al., 2007). Overall, studies in the coping literature have consistently shown positive associations between avoidant coping and psychological distress across a number of diverse populations including community samples (Wijndaele et al., 2007), clinical samples (Holahan et al., 2005; Sherbourne et al., 1995) and samples of university students (Crockett et al., 2007; Penland et al., 2000). The associations found amongst the measured variables are much higher than those found in community samples (e.g . Wijndaele et al. 2007) but similar to those found in university samples (e.g. Crockett et al. 2007). This stronger association may be due to the fact that university samples traditionally show greater levels of psychological distress (Adlaf et al., 2001; Furr, Westefeld, McConnell, & Jenkins, 2001; Wong et al., 2006).

Avoidant coping may be positively associated with stress, anxiety and depression as it fails to remove minor stressors (Holahan et al. 2005; Sherbourne et al. 1995). After a period of time these stressors may become bigger, leading individuals to experience an enduring pattern of stress and consequently greater psychological distress (Holahan et al., 2005). For example, an individual may encounter a stressor such as a difficult assignment or work project and decide to cope with it by ignoring the upcoming deadline. Over a period of

time they experience greater distress as they are unable to complete the task in time. Individuals that engage in avoidant coping may also experience greater distress as they are less likely to engage in adaptive coping strategies such as problem-focused coping (Crockett et al., 2007). As problem-focused coping is associated with reduced distress, this is a further explanation for the positive association shown between avoidant coping and psychological distress. Lastly, it is possible that some people do not believe they have the resources to adequately cope with a stressor, thus they engage in more passive coping styles.

4.1.2 Problem-Focused Coping and Distress

The finding that problem-focused coping was negatively associated with depressive symptoms confirms hypothesis 1b and is consistent with past research (Billings & Moos, 1984; Knibb & Horton, 2008; Penland et al., 2000; Sherbourne et al., 1995; Wijndaele et al., 2007). Negative associations between problem-focused coping and depressive symptoms have been shown in clinical samples (Billings & Moos, 1984; Sherbourne et al., 1995), community samples (Knibb & Horton, 2008; Wijndaele et al., 2007) and university samples (Ben-zur, 1999; Penland et al., 2000). The correlation between problem-focused coping and depressive symptoms found in the current study is similar to that found in Wijndaele et al's (2007) community study and Ben Zur's (1999) university sample. Consistency in results amongst such varied populations suggests the association between problem-focused coping and depression is robust.

Problem-focused coping appears to be associated with reduced depressive symptoms as this style actively removes or resolves stressors (Carver et al., 1989). As stressors are removed before they develop into functionally inhibiting stressors, this may reduce stress levels and prevent individuals from experiencing more severe psychological distress

(Lazarus, 1966). For example, an individual with a high work load may reduce distress by carefully planning a schedule that will help them meet their work deadline. This should increase the likelihood of accomplishing their task and help remove the stress associated with it. Research has also shown that problem-focused coping is adaptive in uncontrollable situations as it provides individuals with a sense of mastery and gain (Folkman, 1997). For example, an ill individual may feel an increased sense of mastery and reduced stress as a consequence of exploring different treatment options.

The post hoc analysis of the problem-focused subscales (active coping, planning, suppression of competing activities, restraint coping and seeking social support for instrumental means) showed that active coping, planning and seeking social support for instrumental means were negatively correlated with depressive symptoms. This result is consistent with Crockett et al. (2007), who found that specific problem-focused strategies such as planning and problem-solving were negatively associated with depressive symptoms. These findings suggest that active coping styles are the most effective at reducing depressive symptoms.

Contrary to hypothesis 1(b), no associations were found between problem-focused coping, stress scores and anxiety levels. This is surprising as the majority of studies in the literature have shown problem-focused coping is negatively associated with stress and anxiety in university students (Penland et al., 2000; Pyszczynski & Greenberg, 1987; Stewart et al., 1997). Differences in methodology could explain the discrepancy between past results and the current findings. The university students in Penland et al.'s (2000) study were on average older than the current study (aged 28.5 vs. 21.5), therefore they may have been more experienced at engaging in problem-focused coping. Another possible reason for the discrepancy could be the time of year students took part in the study. Data collection for

this study took part around the beginning of the year before any major exams. Therefore students' level of stress and anxiety could have been relatively low, creating a floor-effect on measures of stress and anxiety for the majority of participants. Past studies that have analysed the associations between problem-focused coping and stress and anxiety in university students (Penland et al., 2000; Pyszczynski & Greenberg, 1987) have not reported time of data collection. Therefore, it is difficult to ascertain whether timing relative to university stressors played an influential role. In order to determine whether time did influence results, a follow-up study could be conducted where data was collected at a more traditionally stressful time, such as the end of the year.

4.1.3 Emotion-Focused Coping and Distress

The hypothesis that emotion-focused coping would be negatively associated with symptoms of stress, anxiety and depressive symptoms (1c) was not supported. Overall, coping research has found emotion-focused coping to be both positively and negatively associated with psychological distress (Ben-Zur, 1999; Billings & Moos, 1982c; Brown & Harris, 1978b; Carver et al., 1989; Knibb & Horton, 2008; Penland et al., 2000; Wijndaele et al., 2007). Sample characteristics do not appear to influence these results as studies with similar samples produce varying results (Ben-Zur, 1999; Bouteyre et al., 2007; Carver et al., 1989). Coping methodology also do not appear to influence findings, as studies with different methodology have shown the same incongruity (Bouteyre et al., 2007; Knibb & Horton, 2008). The conflicting literature surrounding emotion-focused coping has arisen as some emotion-focused subscales have been shown to be more adaptive than others (Billings & Moos, 1982c, 1984; Brown & Harris, 1978b; Carver, Scheier, & Weintraub, 1989; Knibb & Horton, 2008). For example, subscales such as venting of emotion and rumination have been shown to be maladaptive as they encourage individuals to focus on their distress rather than attempting to remove the distress (Knibb & Horton, 2008).

Alternatively, coping styles such as seeking social support and acceptance have been found to be adaptive as they help alleviate emotional distress (Knibb & Horton, 2008). As emotion-focused coping styles vary in their adaptive nature, it is difficult to ascertain as a whole the beneficial nature of emotion-focused coping.

The divergence of emotion-focused coping styles is one explanation for the non significant finding shown in the current study. It is possible that significant associations may have been found if specific emotion-focused subscales were analysed as opposed to emotion-focused coping as a meta-strategy. The combining of the emotion-focused subscales into an overall meta-strategy could have led to the insignificant result. Future studies could assess this by analysing specific emotion-focused subscales as well as the emotion-focused meta-strategy as a whole. Previous research suggests that positive associations would be shown between emotion-focused subscales such as venting of emotions and psychological distress, whereas more negative associations would be shown in subscales such as acceptance and psychological distress.

A further explanation for the non significant finding is that the relationship between emotion-focused coping and distress may be subtle, therefore a large sample size may be needed to detect it. Other studies that have shown a significant relationship between emotion-focused coping and psychological distress have yielded large sample sizes. For example, Billings and Moos (1984) had a clinical sample size of 424 whereas Carver et al. (1989) sampled 978 students. Future research could examine whether associations are found between emotion-focused coping and psychological distress in large samples sizes.

4.1.4 Harm Avoidance and Distress

The finding that harm avoidance was positively associated with psychological distress confirms hypothesis 2a and is consistent with past research. Positive associations have been found between harm avoidance and psychological distress in a variety of samples, including university samples (Laidlaw, Dwivedi, Naito, & Gruzelier, 2005; Matsudaira & Kitamura, 2006; Naito et al., 2000; Svrakic et al., 1992). The finding that harm avoidance was also positively associated with stress is significant as few studies have explicitly explored the relationship between harm avoidance and stress. Two studies that have shown positive relationships between harm avoidance and stress in university students were Laidlaw et al. (2005) and Gil (2005). Laidlaw et al. found that university students with high harm avoidance reported greater stress (as measured by the Perceived Stress Scale; Cohen, 1988) while Gil (2005) found that students with high harm avoidance were more vulnerable to developing post traumatic stress disorder.

The positive association between harm avoidance and psychological distress may occur as high harm avoidance has been shown to be associated with a biased Behavioural Inhibition System (BIS) (Mardaga & Hansenne, 2007) and lower levels of serotonin (Peirson et al., 1999). It is possible that this bias and reduction in serotonin levels may partly explain the increase in distress experienced by high harm avoidant individuals, as low serotonin has been linked with depressive symptoms (Peirson et al., 1999). High harm avoidant individuals may also experience more distress as they are characterised by anticipatory worry, fear of uncertainty, shyness and fatigability (Ball et al., 2002). This propensity to worry and fear uncertain situations may result in high harm avoidant individuals experiencing greater stress and anxiety. For example, individuals with high harm avoidance may worry more about fulfilling workplace responsibilities than individuals

with low harm avoidance, which could result in their experiencing greater stress and anxiety.

4.1.5 Self-Directedness and Distress

The finding that self-directedness was negatively associated with psychological distress supports the hypothesis (2b) and is consistent with previous research (Jylhä & Isometsä, 2006; Laidlaw et al., 2005; Matsudaira & Kitamura, 2006; Naito et al., 2000; Richter & Eisemann, 2002; Richter et al., 2003). The associations found between self-directedness, anxiety and depression in the current study replicates those found in previous university studies (Matsudaira & Kitamura, 2006; Naito et al. 2000) and community samples (Jylhä and Isometsä, 2006). As significant associations have been shown in a number of different populations such as general, university and clinical this suggest the results are robust.

Low self-directedness appears to be positively associated with distress as it represents poor character development. In general, poor character development is associated with specific types of psychopathology and negative affect (Cloninger, Bayon, & Svrakic, 1998). Specifically, individuals with low self-directedness may be more vulnerable to psychological distress as they struggle to accept responsibility for decisions and tend to ascribe blame to others (Laidlaw et al., 2005). They are also characterised by low self-esteem which could lead them to view themselves and their world more negatively. As a consequence they may experience symptoms of stress, anxiety and depression. Individuals with low self-directedness have also been shown to have poor problem-solving skills which could result in their feeling more stressed and anxious.

4.1.6 Reward Dependence and Distress

The hypothesis that reward dependence would be negatively associated with psychological distress (2c) was not supported. This may be surprising given the mixed findings from past studies (Jylhä & Isometsä, 2006; Laidlaw et al., 2005; Matsudaira & Kitamura, 2006; Naito et al., 2000; Richter & Eisemann, 2002; Richter et al., 2003). Laidlaw (2005) for example, found no significant associations between reward dependence and symptoms of stress, anxiety and depression in university students. Matsudaira and Kitamura (2006) and Naito et al. (2000) have however, found negative associations between reward dependence and symptoms of depression and anxiety. These discrepancies in results may have arisen due to cultural differences. Laidlaw's research was conducted in England whereas Matsudaira and Kitamura and Naito et al. sampled Japanese students. It is possible that the character traits associated with high reward dependence (such as warm and dependent) are more highly esteemed in Japan. Thus any deviation from these traits may be considered maladaptive, increasing an individual's vulnerability to psychological distress (Matsudaira and Kitamura, 2006). Sample size may also influence whether significant associations are found between reward dependence and psychological distress. Studies that have found associations between reward dependence and distress traditionally have large sample sizes (Jylhä & Isometsä, 2006; Matsudaira & Kitamura, 2006; Naito et al., 2000), suggesting there may be a subtle association between reward dependence and distress. Future research could be conducted to determine whether a large sample size would yield a significant association between reward dependence and distress.

4.1.7 Personality and Coping

The finding that certain personality traits were associated with specific coping styles supports the hypothesis (3a-c) and is consistent with previous research (Ball et al., 2002; Krebs et al., 1998). To the author's knowledge, only a few studies have explored the

relationship between personality and coping styles using Cloninger's psychobiological model. The positive associations shown in the current study between harm avoidance and avoidant coping, self-directedness and problem-focused coping and reward dependence and emotion-focused coping are consistent with Ball et al. (2002). In addition, the findings replicate those found by Krebs et al. (1998). Krebs et al. sampled 200 German university students and found that students with harm avoidance were more likely to engage in avoidant coping and emotion-focused coping (e.g. rumination), while students with high reward dependence were more inclined to engage in emotion-focused coping (e.g. seeking social support).

Although only a few studies have examined the relationship between Cloninger's personality traits and coping styles, a number of studies have shown there are associations between other personality traits (e.g. optimism and pessimism) and coping styles (Aspinwall & Taylor, 1992; Carver et al., 1989; Mosher, Prelow, Chen, & Yackel, 2006). These studies have shown that individuals with high optimism are more inclined to engage in active coping styles while more pessimistic individuals are more likely to use passive coping strategies. As high harm avoidance and reward dependence are associated with pessimism and extraversion respectively (Krebs et al., 1998), this suggests that the general findings surrounding personality and coping can also be applied to harm avoidance and reward dependence. More research should be conducted to further understand the associations between Cloninger's personality traits and coping styles, however research to date suggests that our genetically determined personality may influence to some extent the type of coping style we engage in.

Lazarus' cognitive-phenomenological theory of psychological distress suggests that individuals with high harm avoidance may be more likely to engage in avoidant coping as

they tend to appraise stressful situations more negatively. This negative appraisal could lead high harm avoidant individuals to believe they cannot adequately cope with the stressor and consequently engage in avoidant coping. It is possible that individuals with high reward dependence may employ a more emotion-focused coping strategy as they may be more inclined to view stressors positively and employ a coping style where they are socially rewarded.

The associations between low-self-directedness and avoidant coping may arise because low self-directed individuals often experience deficiencies in cognitive appraisal and problem-solving. Consequently, individuals with low self-directedness may be less likely to engage in active coping styles such as problem-focused and emotion-focused coping as this requires higher cognitive functioning (Matsudaira & Kitamura, 2006). In addition, individuals with low self-directedness often have lower self-esteem and motivation. This may lead them to believe they cannot adequately deal with stressors as well as lower their motivation to take direct action. Alternatively however, individuals with high self-directedness generally have high self-esteem and more advanced cognitive processes, therefore, this may provide one explanation as to why they are more inclined to employ active coping styles, such as problem-focused coping.

4.1.8 The Contribution of Harm Avoidance and Avoidant Coping to Psychological Distress

The finding that harm avoidance and avoidant coping together explain greater distress than either predictor alone confirms the hypothesis (4a). This is a significant finding as research to date has only explored the independent contributions of harm avoidance and avoidant coping to psychological distress (Ben-Zur, 1999; Blalock & Joiner, 2000; Gil, 2005; Jylhä & Isometsä, 2006; Richman & Frueh, 1997; Sherbourne et al., 1995). Although it is difficult to determine the nature of the interaction, the current findings suggest that

individuals who have both high harm avoidance and avoidant coping are even more likely to become depressed. The biological nature of harm avoidance suggests it may have an effect on avoidant coping, however more research needs to be conducted to better assess this.

In addition, the regression findings showed that harm avoidance and avoidant coping significantly accounted for 22% of the variance in predicting stress, 21% of the variance in predicting anxiety and 30% of the variance in predicting depression. As they are only accounting for up to 30% of the variance in psychological distress, this suggests other variables (e.g. family history of psychological distress, negative life events, unemployment etc) are making significant contributions. More research could be conducted to identify other factors that are associated with symptoms of stress, anxiety and depression.

4.2 Strengths and Limitations

Some strengths and limitations of this study need to be noted. One limitation is that the study is correlational, and thus causality cannot be established. The results need to be interpreted with caution as a number of factors could be involved in influencing psychological distress. For example, there may be an underlying dimension that explains personality, coping and psychological distress. The correlational nature of the study also means it is difficult to determine the direction of the relationship. It is possible that the presence of psychological distress can lead to more maladaptive personalities and coping styles rather than the other way around.

The use of self-report measures also has a number of strengths associated with it. The majority of studies in the personality and coping literature gather data using self-report measures, therefore, it is easier to directly compare studies as they have similar methodologies. Self-report questionnaires are also desirable as they require less resources (e.g. they remove the need for a clinician to conduct interviews and analyse data). This may increase the number of studies being conducted, thus extending the literature.

A limitation of self-report measures is that participants may make mistakes filling out questionnaires or start answering the questions at random due to boredom, thereby limiting the reliability of the study. Attempts were made to limit this. For example, the longest questionnaire used in the study – the TCI-R – contained five validity questions that indicated whether participants were randomly answering questions. Two participants were excluded from the entire study as their validity questions indicated their answers were not reliable. This suggests the majority of the questionnaires were valid. An additional limitation is that over half of the participants took part in the study for course credit. It is possible they viewed taking part in the study as purely a means for gaining course credit therefore they may not have endeavoured to be as accurate in their reports as possible. It is difficult to measure this however, and certainly the same limitation could be applied to studies that pay participants for their time.

Another potential problem with self-report measures is that there may be differences between researcher-derived definitions of constructs (e.g. coping) and participants' understanding of the questionnaire. However, participants were given the opportunity to ask the researcher questions if they did not understand or were confused. In addition, participants were selected from a highly educated sample thus ensuring misunderstandings would be minimised. A final limitation to the self-report method is that participants'

coping styles, personality and levels of psychological distress were only measured once. Thus any changes over time were not recorded. In order to assess stability over time all measures could be repeated. Furthermore, interview methods could be used to measure the different variables as well as self-report measures. This would add more reliability to the study and provide information about the relationship between personality, coping styles and psychological distress over time.

Another possible limitation of the study is that participants' social desirability could have influenced their reporting. A social desirability measure was not included in the current study because there were time constraints. Social desirability may be an important construct as over half of the participants (114 out of 201) were first year psychology students. Psychology students may be more aware that certain constructs such as avoidant coping or high harm avoidance and low self-directedness are associated with increased psychological distress. Thus when answering the COPE or TCI-R they could have tried to present themselves in a more socially desirable light. It is unlikely this occurred however, as the majority of psychology students were first year students in their first semester of study. They would have little knowledge of psychological constructs such as coping styles and personality; therefore, it is unlikely their answers were biased. The validity of this study could be improved however, through the inclusion of a social desirability measure such as the Marlowe-Crowne Social Desirability Scale (MCSDS; Crowne & Marlowe, 1960).

A further limitation is that the current study has focused on the associations between coping meta-strategies and distress whilst ignoring any possible interactions between coping meta-strategies. By primarily focusing on the relationship between coping meta-strategies and psychological distress, this study can only explain part of the complex

relationship between coping styles and psychological distress. Further research could be conducted to analyse the interactions between coping strategies, as research to date suggests that coping strategies do not operate in isolation to one another but interact and influence one another. For example, Krebs et al. (1998) found university students were less likely to engage in problem-focused coping when they employed avoidant coping. Future studies are needed to examine whether these interactions between coping styles influence levels of stress, anxiety and depression. Research could also examine whether the interactions between coping styles change over time.

Another limitation is that the small number of men relative to women means gender was not examined in relation to the results. Gender differences could not be examined as the sample was 74% female. This female to male disparity often occurs in studies that sample psychology students, due to the higher number of female psychology students. This limitation could be addressed in the future by increasing the sample size and include in the sample a different subgroup such as engineering students, a traditionally male orientated subject.

4.3 Implications and Future Research

This study has shown that personality and coping styles are associated with psychological distress, with seven out of the ten predicted hypotheses supported. Avoidant coping was shown to be positively associated with psychological distress (Hypothesis 1a), while problem-focused coping was negatively associated with depressive symptoms (Hypothesis 1b). High harm avoidance and low self-directedness were shown to be associated with

greater stress, anxiety and depression (Hypotheses 2a, 2b). The results also showed an association between personality and coping styles with high harm avoidance and low self-directedness associated with increased avoidant coping. In addition high reward dependence was associated with increased emotion-focused coping while high self-directedness was associated with increased problem-focused coping (Hypotheses 3a-c). Lastly, this study showed that the presence of both high harm avoidance and avoidant coping resulted in greater stress, anxiety and depression than the distress associated with each predictor alone (Hypothesis 4a). Furthermore, harm avoidance and avoidant coping were found to interact to produce increased depressive symptoms. This is an important finding as it suggests personality and coping styles should be considered concurrently when investigating depression.

Studying both personality and coping styles may provide a better understanding into the etiology of psychological distress, as the current study suggests they are both significant contributors of stress, anxiety and depression. Furthermore, the current finding that harm avoidance and avoidant coping interact to produce greater depressive symptoms may provides researcher with a better understanding of the processes involved in the development of depression. Consequently, this could lead them to become more strategic and effective in preventing the development of stress, anxiety and depression.

The finding that personality and coping styles are associated with increased stress, anxiety and depression has a number of implications. The current findings suggest that individuals with maladaptive personalities (e.g. high harm avoidance and low self-directedness) are at risk for increased distress not only because they have a maladaptive personality, but because they are also more likely to engage in a maladaptive coping style. As certain personality types appear to be genetically determined (e.g. harm avoidance and reward

dependence) this suggests that some individuals are predisposed to experience increased psychological distress.

An application from this research is to examine the effect of educating individuals about the relationship between personality, coping styles and psychological distress. Although personalities cannot be changed, if individuals are aware their personality predisposes them to engage in a more maladaptive coping style then they can take positive steps towards learning new and more adaptive coping styles. This hopefully will prevent years of psychological distress. The knowledge that personality and coping styles are associated with distress may also help psychologists and counselors become more effective in their treatment of psychological distress.

Although personality and coping styles are significant predictors of psychological distress, they only account for 21% - 31% of the variance in predicting distress. Future research needs to be conducted to determine what other variables are associated with stress, anxiety and depression. Previous studies have shown that significant life change such as transitioning to university and everyday stressors such as financial concerns are often associated with increased psychological distress in university students (Adlaf et al., 2001; Furr et al., 2001). Within the general population variables such as a family history of depression, gender and significant life events such as divorce and illness have all be shown to be associated with psychological distress (Folkman, 1997; Jylhä & Isometsä, 2006; Kessler, McGonagle, Swartz, Blazer, & et al., 1993; Nomura, Wickramaratne, Warner, Mufson, & Weissman, 2002). If these variables and others are studied in conjunction with personality and coping styles, a greater understanding of the processes involved in psychological distress could emerge.

A further area of research to examine is whether stress, anxiety and depression increase to clinically significant levels if maladaptive personalities and coping styles are left untreated. Previous research has shown higher harm avoidance levels are associated with severity of depression (Corruble, Duret, Pelissolo, Falissard, & Guelfi, 2002) and suicide attempts (Bulik, Sullivan, & Joyce, 1999; Engstrom, Brandstrom, Sigvardsson, Cloninger, & Nylander, 2004) in clinical samples. This research suggests that if high harm avoidance remains untreated then it could result in severe depression and possibly suicide attempts. A prospective longitudinal study could be undertaken to examine whether high harm avoidance, low self-directedness and avoidant coping predict the development of clinically significant stress, anxiety and depression.

Studies have also shown that high harm avoidance, low self-directedness and avoidant coping are associated with personality disorders in clinical and university samples (Bayon, Hill, Svrakic, & Przybeck, 1996; Svrakic, Whitehead, Przybeck, & Cloninger, 1993; Watson & Sinha, 1999). An idea for future research is to examine whether the presence of both a maladaptive personality and coping style increase the risk of developing a personality disorder.

The current research demonstrates that stress, anxiety and depression are predicted by personality and coping styles. Therefore, future research could examine whether personality and coping styles differ by gender. Previous research has shown that there are personality differences between men and women, as women have higher levels of harm avoidance and reward dependence and lower levels of self-directedness (Hansenne et al., 2005; Hansenne, Le Bon, Gauthier, & Ansseau, 2001). Gender differences have also been demonstrated in coping styles as women employ more emotion-focused coping (Billings & Moos, 1984; Carver et al., 1989) while men employ more problem-focused coping (Ben-

Zur, 1999; Folkman & Lazarus, 1980). Based on the findings from this study, it is hypothesised that women may experience greater psychological distress as they are more likely to have a high harm avoidant or low self-directed personality and engage in emotion-focused coping (e.g. rumination). This hypothesis is consistent with previous findings, which show women experience more extreme distress and are two to three times more likely to report an affective disorder than men (Kessler et al., 1993). Future research could be conducted to examine whether having more maladaptive personalities and coping styles contribute to this effect.

Another suggestion for future research could be to examine whether certain stressors trigger more maladaptive coping styles. As noted earlier, a number of stressors such as divorce or illness have been associated with increased psychological distress. Future research could examine whether these stressors are traditionally associated with more maladaptive coping strategies and whether certain personalities (e.g. high harm avoidance) are more inclined to find them overwhelming. Focus could also be placed on whether our personality leads us to perceive stressors differently, thus influencing which coping styles we employ.

Future studies could also examine whether coping styles and personality change over time. The coping literature has shown that people seek more social support as they grow older (Wijndaele et al., 2007; Cronkite et al., 1998; Sherbourne et al., 1995) however, few studies have conducted longitudinal research to better understand how coping styles change and develop over time. Longitudinal studies would enable researchers to measure whether changes in coping styles are associated with changes in personality and psychological distress or vice versa. Another interesting area of research to investigate is

whether the association between personality, coping styles and psychological distress are different across different ages.

Future research could also analyse whether similar associations are found between personality and coping styles in clinical samples. This is a relatively unexplored area of research, however previous clinical studies have shown similar associations between personality and distress (Hansenne et al., 2001; Richter et al., 2003) and coping styles and distress (Cronkite et al., 1998; Sherbourne et al., 1995) to that of the general population.As clinical samples have elevated levels of psychological distress it may be easier to detect associations between personality, coping styles and psychological distress.

Lastly, future research could also explore whether the presence of external stressors influences the association between personality, coping styles and psychological distress. Research has shown that people experience greater stress at certain points in their life (Adlaf et al., 2001; Wong et al., 2006). For example, university students may have higher stress levels during exam week while a working individual may experience higher stress after beginning a new job. Future studies could examine whether the associations found between personality, coping styles and psychological distress vary depending on the number of stressors individuals are experiencing. It is possible that individuals with more vulnerable personalities, such as high harm avoidance and low self-directedness may show a stronger association between personality and psychological distress at these times. Similarly, stronger associations may also be found between coping styles and psychological distress, as individuals may be more inclined to employ coping strategies in order to reduce their levels of psychological distress.

4.4 Conclusion

In conclusion, the current study indicates that some individuals are more likely to experience symptoms of stress, anxiety and depression due to both their personality and coping style. High harm avoidance, low self-directedness and avoidant coping were all shown to be associated with greater levels of stress, anxiety and depression. Alternatively, low harm avoidance, high self-directedness and problem-focused coping were associated with reduced psychological distress. Associations were also found between personality and coping styles. Reward dependence was found to be positively associated with emotion-focused coping while self-directedness was shown to be positively associated with problem-focused coping and negatively associated with avoidant coping. In addition, this study found that high harm avoidance was associated with avoidant coping, resulting in greater distress than either predictor alone. These findings suggest that personality and coping styles are significant predictors of psychological distress and should be taken into account when treating and preventing symptoms of stress, anxiety and depression.

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Appendix

Appendix A

Recruitment Documentation

- Description of Study for Department of Psychology Website
- Poster Advertisement
- Information sheet
- Participant Contact Details
- Consent Form
- Debrief Form
- Ethics Approval

Appendix B

Materials used in the Current Study

- Demographic Information
- Index of Questionnaires
- Temperament Character Inventory – Revised (TCI-R; Cloninger, et al. 1994)
- The Coping Orientation of Problem Experience (COPE; Carver, Scheier &Weintraub,1989)
- The Depression Anxiety Stress Scale (DASS; S.H. Lovibond & P.F. Lovibond, 1995)

Appendix C

Tables

- Table 1: Data Transformations for Non-Normally Distributed Data
- Table 2: Spearman's Correlations for Personality, Coping and Psychological Distress
- Table 3: Spearman's Correlations for Personality and Coping
- Table 4: Spearman's Correlations between Problem-Focused subscales and Psychological Distress
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Appendix A

Description of Study for Website

Relationship between personality, sex roles, copying styles, rumination and stress

Brief description of study to be posted on the sign-up website (max. 50 words):

Participants in this study will be asked to complete some questionnaires which ask about personality style, sex roles, coping styles and stress. Once the questionnaires have been completed you will be given more information about the study and any questions answered. Participation in this study will take approximately 50 minutes (total) of your time.

If you would like to participate in this study please contact the researcher:

Haley van Berkel
Email: hkb18@student.canterbury.ac.nz

Or

Victoria Holden
Email: vho14@student.canterbury.ac.nz

The Primary investigator for this study is Dr Janet Carter, janet.carter@cantebury.ac.nz

Poster Advertisement

Do you want UCSA vouchers?!!

Take part in psychology research, give one hour of your time and get a $10 voucher!

All you have to do is fill out some questionnaires!

Attention Psych 105 students: This is a participant pool study so you will receive course credits for participation instead of a voucher

For more details contact Haley van Berkel at hkb18@student.canterbury.ac.nz or (027) 74890-461

Information Sheet

College of Science
Department of Psychology
Tel: +64 3 364 2902
Fax: +64 3 364 2181
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UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Relationship between Personality, Sex roles, Rumination, Coping Styles and Stress

University of Canterbury – Department of Psychology

We are interested in understanding more about how different personal characteristics of an individual contribute to his or her levels of stress. In this study we are investigating how personality, sex roles, rumination and coping styles interact to determine stress. This study is being conducted by Dr Janet Carter, Dr Kumari Fernando, Felicity Daly (research assistant) and students Haley van Berkel and Victoria Holden.

You are invited to participate in this study. Your participation will involve completing a pencil and paper questionnaire booklet. This booklet of questionnaires will take approximately 50 minutes to complete. The questions in this booklet ask about your personality style, about the coping strategy you use when you are stressed, and about how you respond when your mood is low or you are faced with unpleasant events. There are also questions to assess your current levels of stress and anxiety.

Participants that are enrolled in Psyc 105 will receive course credits as outlined in the Department of Psychology participant pool guidelines. Other university students who participate in this study will receive a $10 voucher.

You have the right to withdraw your participation and any information you have provided at any time during the course of this study.

Haley van Berkel (thesis student) and Victoria Holden (honours student) will be using information collected in study in their university work. Haley is examining coping styles and stress and Victoria is examining sex roles and stress. We plan to compare the results of this study with self-report questionnaire information in another similar study in the future. The results of the project will be published, but you can be assured of the complete confidentiality of data gathered in this investigation: the identity of participants will not be made public. To ensure anonymity and confidentiality, no information than can identify an individual will be gathered and all information will be stored in a locked cabinet. You are welcome to request a copy of our published results when these are available. Please discuss this with the researcher.

We do not foresee any risks in participation. Please ask the researcher if you have any questions before participating. If you have concerns about your psychological wellbeing (for example, marked stress, or anxiety) after completing the questionnaires in this study you have a number of options. You can make an appointment to see a GP or counsellor at the University Student Health and Counselling Services. You can also contact Dr Janet Carter (clinical psychologist) to discuss other possible options.

This study has received Ethical Approval from the University of Canterbury Human Ethics Committee.

The research assistant in this study will ask you if you consent to your name being placed in a separate database so that you can be contacted in the future about participation in other studies. If you agree to being contacted in the future, the research assistant will ask you to sign a 'consent to contact form'. Consenting to be contacted does not mean that you are consenting to participate in another study. It is your choice whether or not you choose to participate in any future study.

Please contact the researcher if you have queries or concerns about this study.

Researchers
Haley van Berkel hkb18@student.canterbury.ac.nz
Victoria Holden vho14@student.canterbury.ac.nz
Felicity Daly fmd15@student.canterbury.ac.nz
Janet Carter janet.carter@canterbury.ac.nz

By completing the questionnaire it will be understood that you have consented to participate in the project and that you consent to publication of the results of the project with the understanding that anonymity will be preserved.

Participant contact details

Relationship of personality, sex roles, rumination and coping style to stress study

Name

Address

Telephone numbers and email

Home

Mobile

Email

Other contact person

Name

Address

Home telephone

Mobile

Email

Consent for contact about future studies

I consent to my name being placed in a separate database so that I can be contacted in the future should there be other studies for me to participate in. This consent is with the understanding that I can choose whether to participate in such studies or not.

Signed participant

_____

Signed researcher

_____

Consent Form

College of Science

Department of Psychology
Tel: +64 3 364 2902
Fax: +64 3 364 2181
Email: office@psyc.canterbury.ac.nz
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UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Relationship between Personality, Sex roles, Rumination, Coping Styles and Stress Study

Researcher: Dr Janet Carter, Dr Kumari Fernando, Felicity Daly, Haley van Berkel, Victoria Holden

Contact Details: Room 452, Department of Psychology. Extension 3086

Date: May 2008

I have read and understood the description of the above-named project. On this basis I agree to participate as a subject in the project, and I consent to publication of the results of the project with the understanding that anonymity will be preserved.

I understand also that I may at any time withdraw from the project, including withdrawal of any information I have provided.

NAME: (please print)

Signature:

Date:

Debrief Form

Relationship between Personality, Sex roles, Coping Styles and Stress

Thank you for taking part in this study.

The *main purpose of this study* was to look at the association of personality, sex roles and coping styles to individual's stress levels. In particular we are interested in looking at whether certain personality types are more likely to have a certain coping style and whether different coping styles are associated with increased or decreased levels of stress.

In this study we are looking at some of the *personality* dimensions outlined in Cloninger's Psychobiological model of personality. In particular, we are examining the role of Harm Avoidance (HA), Self-Directedness (SD), Reward Dependence (RD) and Persistence (P). Traditionally, research has found that high levels of HA (high levels of pessimism and neuroticism), and low levels of SD (difficulty accepting responsibility, setting and meeting goals and self-discipline) are more likely to be associated with high levels of stress. Alternatively, high levels of RD (social with a warm hearted nature) and P (hardworking and stable) are associated with low levels of stress.

Coping styles have been classified into three different categories: avoidant-orientated coping styles (focusing on ignoring a stressor), problem-orientated coping styles (focusing on reducing or removing the stressor) and emotion-orientated coping style (focusing on removing the negative emotions associated with the stressor). Traditionally, research has found that avoidant-orientated coping styles are associated with high levels of stress, whereas problem-orientated and emotion-orientated styles are associated with lower levels of stress.

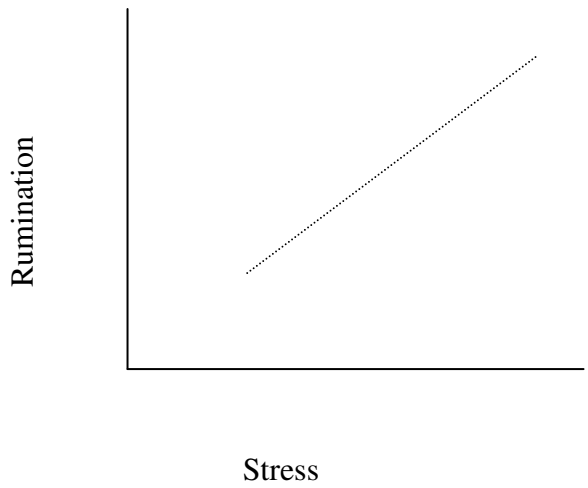
Stereotyped *sex roles* include masculine sex roles, which emphasise instrumentality and agency, and the feminine sex role which is generally associated with a more passive approach and includes traits such as kindness and emotionality. The research in this area suggests that individuals who have an instrumental approach (high on masculinity) are likely to experience less stress.

Rumination occurs when an individual focuses their thoughts and attention on their negative feelings, reasons for these feelings and consequences. Rumination has been shown to be a significant contributor to levels of stress, anxiety and depression.

To examine whether personality type, sex roles and coping styles are related to stress participants in this study have been asked to complete pen and paper questionnaires which assess each of the constructs (personality, sex role, copying, stress).

This is a correlational study (design). In a correlational study, we look at how variables (things that we measure [the constructs]) are related to each other. (For example, are height and weight related?). The hypothesised relationship between rumination and stress is illustrated in the graph.

Graph: Positive correlation between rumination and stress levels.



Here, you can see that the more people ruminate, the more severe their stress levels are

.

The real world implications of this study are that by finding out more about the factors that are associated with stress, we will be able to better understand the etiology and maintenance of these problems and develop better methods to assist people manage their stress.

If you have concerns that you may be experiencing a stress or stress related problem you can contact the Student Health Centre at the University of Canterbury (364 2402). If you have any questions about this study, please ask the research assistant or contact Dr. Janet Carter (ext. 8090) or janet.carter@canterbury.ac.nz.

Thank you for your participation!

Ethics Approval

Ref: HEC 2008/23

5 May 2008

Ms Janet Carter
Department of Psychology
UNIVERSITY OF CANTERBURY

Dear Janet

The Human Ethics Committee advises that your research proposal "The contribution of sex-role, personality, rumination and coping style to stress." has been considered and approved.

Please note that this approval is subject to the incorporation of the amendments you have provided in your email of 22 April 2008.

Best wishes for your project.

Yours sincerely

Dr Michael Grimshaw
Chair, Human Ethics Committe

Appendix B

Demographic Information

Please complete the following demographic information:

Sex: *Please circle* 1. Male 2. Female

Ethnicity:
Which ethnic group do you belong to?
Mark the space or spaces which apply.

	NZ European
	Maori
	Samoan
	Cook Island Maori
	Tongan
	Niuean
	Chinese
	Indian
	Other (such as Dutch, Japanese, Tokelauan). Please state below:

What is your current age?:_____

How many calendar years have you been at this or any university?
Please mark one:

	First year at university
	Second year at university
	Third year at university
	More than three years at university

What is your current marital status (most recent)? *Please circle one*:
1 married (or living together 1+ years)
2 separated
3 divorced
4 widowed
5 never married

If not currently married (or living together 1+ years) what is your present relationship status? *Please circle one:*
1 In a relationship (not living with partner)
please specify length of relationship: years…….. months……..
2 In a relationship (living with partner)
please specify length of relationship: years…….. months……..
3 Single

Index of Questionnaires

TEMPERAMENT AND CHARACTER INVENTORY (TCI-R)

Developed by Robert Cloninger. 240 item questionnaire to describe temperament and character. Codes when entered range from 1 to 5. Seven major scales, each with subscales are derived. Total the item scores to achieve subscale scores; and total the subscales to achieve the major scales.

Table 1:

TCI-R Novelty Seeking Subscale

Field Names:

Booklet Number:	**ID**
Exploratory excitability vs. stoic rigidity:	**NS1**
Impulsiveness vs. reflection:	**NS2**
Extravagance vs. reserve:	**NS3**
Disorderliness vs. regimentation:	**NS4**
Novelty Seeking Total Score:	**NS_TOT**

Subscale contains 35 items, total score can range from 35-175

Table 2:

TCI-R Harm Avoidance Subscale

Field Names:

Booklet Number:	**ID**
Anticipatory worry and pessimism vs. uninhibited optimism:	**HA1**
Fear of uncertainty:	**HA2**
Shyness with strangers:	**HA3**
Fatigability vs. asthenia:	**HA4**
Harm Avoidance Total Score:	**HA_TOT**

Subscale contains 33 items, total score can range from 33-165

Table 3:

TCI-R Reward Dependence Subscale

Field Names:

Booklet Number:	**ID**
Sentimentality:	**RD1**

Openness to warm communication vs. aloofness:	**RD2**
Attachment:	**RD3**
Dependence:	**RD4**
Reward Dependence Total Score:	**RD_TOT**

Subscale contains 30 items, total score can range from 30-150

Table 4:

TCI-R Persistence Subscale

Field Names:

Booklet Number:	**ID**
Eagerness of effort vs. laziness:	**P1**
Work hardened vs. spoilt:	**P2**
Ambitious vs. underachieving:	**P3**
Perfectionist vs. pragmatist:	**P4**
Persistence Total Score:	**P_TOT**

Subscale contains 35 items, total score can range from 35-175

Table 5:

TCI-R Self-Directedness Subscale

Field Names:

Booklet Number:	**ID**
Responsibility vs. blaming	**S1**
Purposefulness vs. lack of goal direction:	**S2**
Resourcefulness:	**S3**
Self-acceptance vs. self-striving:	**S4**
Enlightened second nature:	**S5**
Self-Directedness Total Score:	**S_TOT**

Subscale contains 40 items, total score can range from 40-200

Table 6:

TCI-R Cooperativeness Subscale

Field Names:

Booklet Number:	**ID**
Social acceptance cs. Social intolerance:	**C1**
Empathy vs. social disinterest:	**C2**
Helpfulness vs. unhelpfulness	**C3**
Compassion vs. revengefulness:	**C4**
Pure-hearted conscience vs. self-serving advantage:	**C5**
Cooperativeness Total Score:	**C_TOT**

Subscale contains 36 items, total score can range from 36-180

Table 7:

TCI-R Self-Transcendence Subscale

Field Names:

Booklet Number	**ID**
Self-forgetful vs. self-conscious experience:	**ST1**
Transpersonal identification vs. self-differentiation:	**ST2**
Spiritual acceptance vs. rational materialism:	**ST3**
Self-Transcendence Total Score:	**ST_TOT**

Subscale contains 26 items, total score can range from 26-130

Reference:

Cloninger, C. R., Przybeck, T.R., Svrakic, D.M., Wetzel, R.D. (1994). *The Temperament and Character Inventory (TCI): A guide to its Development and Use*. St Louis, MO: Center for Psychobiology of Personality.

COPE INVENTORY

Developed by Carver, Scheier and Weintraub in 1989. The measure consists of 52 items scored on a 4-point likert scale that measures peoples' general style of coping. The COPE contains 13 subscales with four items each – Active coping, Planning, Suppression of Competing Activities, Restraint Coping, Seeking social support for Instrumental Means, Seeking social support for Emotional means, Positive Reinterpretation and Growth, Acceptance, Turning to Religion, Focusing on and venting of emotions, Denial, Behaviour Disengagement, Mental Disengagement. These subscales are calculated by summing the four items. These subscales are then grouped into three overall scales e.g. Active coping, Planning, Suppression of Competing Activities, Restraint Coping, Seeking social support for Instrumental Means are grouped as problem-focused coping, Seeking social support for Emotional means, Positive Reinterpretation and Growth, Acceptance, Turning to Religion, Focusing on and Venting of emotions are grouped as emotion focused coping and Denial, Behaviour Disengagement, Mental Disengagement are grouped as less useful/avoidant coping. The subscales are calculated by grouping and summing the individual subscales and divided them by the number of subscales. The total score can range from 4-16.

Final Paradox Table

COPE total scores

Paradox Field Names:

Booklet Number	**ID**
Problem Coping subtotal	**Prob Total/5**
Emotion Coping subtotal	**Em Total/5**
Avoidant Coping subtotal	**Avoid Total/3**

Pardox Field Names for Cope Table

Auto Number	ID
Booklet Number	Booklet No
Active coping	COPE_ActCop
Planning	COPE_Planning
Suppression of Competing Activities	COPE_SusCompAct
Restraint Coping	COPE_RestCop
Seeking social support for Instrumental means	COPE_SSSforInsMe
Seeking social support for Emotional means	COPE_SSSforEmMe
Positive Reinterpretation and Growth	COPE_PosRe& Growth
Acceptance	COPE_Accept
Turning to Religion	COPE_TurntoRel
Focusing on and venting of emotions	COPE_FocofVenEm
Denial	COPE_Denial
Behaviour Disengagement	COPE_BehDiseng
Mental Disengagement	COPE_MenDis

Reference:

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology, 56*(2), 267-283.

DEPRESSION ANXIETY STRESS SCALE (DASS)

Developed by Antony et al in 1998. The measure consists of 42 items of a 4-point likert scale. The scale contains 3 subscales – Depression, Anxiety and Stress. The scale assesses the presence of symptoms of depression, anxiety and stress. The final score for each subscale is obtained by summing the total of the items in each subscale. The scores can range from 0-42.

Final Paradox Table

DASS Subscale Scores

Paradox Field Names:

Booklet Number	**ID**
Stress	**Stress_TOT**
Anxiety	**Anxiety_TOT**
Depression	**Depression_TOT**

References:

Antony, M.M., Bieling, P.J., Cox, B.J., Enns, M.W. & Swinson, R.P. (1998). Psychometric properties of the 42-items and 21-item version of the depression anxiety stress scale in clinical groups and a community sample. *Psychological Assessment, 10(2)*, 176-181.

Brown, T.A., Chorpita, B.F., Korotitsch, W. & Barlow, D.H. Psychometric properties of the depression stress scales (DASS) in clinical samples. *Behavioural Research Therapy, 35(1)*, 79-89.

Lovibond, P.F. & Lovibond, S.H. (1995). The structure of negative states: comparison of the depression anxiety stress scales (DASS) with the Beck depression and anxiety inventories.

TCI-R

In this questionnaire you will find statements that people might use to describe their attitudes, opinions, interests, and other personal feelings.

For each of the following questions, please circle the number that best describes the way you usually or generally act or feel. (Circle only one number for each question).

1 Definitely False	2 Mostly or Probably False	3 Neither True nor False; or about Equally True or False	4 Mostly or Probably True	5 Definitely True

Read each statement carefully, but don't spend too much time deciding on each answer.

Please answer every statement, even if you are not completely sure of the answer.

Try to describe yourself the way you **usually** or **generally** act and feel, not just how you are feeling right now.

Remember there are no right or wrong answers - just describe your <u>own</u> personal opinions and feelings.

1. I often try new things just for fun or thrills, even if most people think it is a waste of time.....	1	2	3	4	5
2. I usually am confident that everything will go well even in situations that worry most people.....	1	2	3	4	5
3. I often feel that I am the victim of circumstances.....	1	2	3	4	5
4. I can usually accept other people as they are, even when they are very different from me.....	1	2	3	4	5
5. I like a challenge better than easy jobs.....	1	2	3	4	5
6. Often I feel that my life has little purpose or meaning.....	1	2	3	4	5
7. I like to help find a solution to problems so that everyone comes out ahead.....	1	2	3	4	5
8. I am usually eager to get going on any job I have to do.....	1	2	3	4	5
9. I often feel tense and worried in unfamiliar situations, even when others feel there is little to worry about.....	1	2	3	4	5
10. I often do things based on how I feel at the moment without thinking about how they were done in the past.....	1	2	3	4	5
11. I usually do things my own way, rather than giving in to the wishes of other people.....	1	2	3	4	5
12. I often feel a strong sense of unity with all the things around me.....	1	2	3	4	5

1 Definitely False	2 Mostly or Probably False	3 Neither True nor False; or about Equally True or False	4 Mostly or Probably True	5 Definitely True

13.I would do almost anything legal in order to become rich and famous, even if I would lose the trust of many old friends.……..……..	1	2	3	4	5
14. I am much more reserved and controlled than most people…….…….....	1	2	3	4	5
15. I like to discuss my experiences and feelings openly with friends instead of keeping them to myself ……..……...…...…	1	2	3	4	5
16. I have less energy and get tired more quickly than most people……..	1	2	3	4	5
17. I seldom feel free to choose what I want to do ……	1	2	3	4	5
18. I don't seem to understand most people very well ……..	1	2	3	4	5
19. I often avoid meeting strangers because I lack confidence with people I do not know ……..……...…..…..	1	2	3	4	5
20. I like to please other people as much as I can …..…….……..	1	2	3	4	5
21. I often wish that I was smarter than everyone else……...……	1	2	3	4	5
22. No job is too hard for me to do my best ……..	1	2	3	4	5
23. I often wait for someone else to provide a solution to my problems ….....	1	2	3	4	5
24. I often spend money until I run out of cash or get into debt from using too much credit ……..……...…….	1	2	3	4	5
25. Often I have unexpected flashes of insight or understanding while relaxing……...	1	2	3	4	5
26. I don't care very much whether other people like me or the way I do things……..	1	2	3	4	5
27. I usually try to get just what I want for myself because it is not possible to satisfy everyone anyway……..	1	2	3	4	5
28. I have no patience with people who don't accept my views……	1	2	3	4	5
29. I sometimes feel so connected to nature that everything seems to be part of one living process……..…..	1	2	3	4	5
30. When I have to meet a group of strangers, I am more shy than most people……..	1	2	3	4	5

1 Definitely False	2 Mostly or Probably False	3 Neither True nor False; or about Equally True or False	4 Mostly or Probably True	5 Definitely True

31. I am more sentimental than most people…….....	1	2	3	4	5
32. I think that most things that are called miracles are just chance …….....	1	2	3	4	5
33. When someone hurts me in any way, I usually try to get even…...…...….….....	1	2	3	4	5
34. My actions are determined largely by influences outside my control…….....	1	2	3	4	5
35. Each day I try to take another step toward my goals……...…….	1	2	3	4	5
36. Please circle the number four, this is a validity item ……..	1	2	3	4	5
37. I am a very ambitious person ……...……	1	2	3	4	5
38. I usually stay calm and secure in situations that most people would find physically dangerous ……..….	1	2	3	4	5
39. I do not think it is smart to help weak people who cannot help themselves……..…….	1	2	3	4	5
40. I cannot have any peace of mind if I treat other people unfairly, even if they are unfair to me ……...……...	1	2	3	4	5
41. People will usually tell me how they feel …….....	1	2	3	4	5
42. Sometimes I have felt like I was part of something with no limits or boundaries in time and space ……...…….……..	1	2	3	4	5
43. I sometimes feel a spiritual connection to other people that I cannot explain in words ……...….....	1	2	3	4	5
44. I like it when people can do whatever they want without strict rules and regulations ……...…….....	1	2	3	4	5
45. When I fail at something, I become even more determined to do a better job…….	1	2	3	4	5
46. Usually I am more worried than most people that something might go wrong in the future ……..……..……..	1	2	3	4	5
47. I usually think about all the facts in detail before I make a decision…….....	1	2	3	4	5
48. I have many bad habits that I wish I could break …….…….……..	1	2	3	4	5

1 Definitely False	2 Mostly or Probably False	3 Neither True nor False; or about Equally True or False	4 Mostly or Probably True	5 Definitely True

49. Other people control me too much.……..…….....	1	2	3	4	5
50. I like to be of service to others …….….....	1	2	3	4	5
51. I am usually able to get other people to believe me, even when I know that what I am saying is exaggerated or untrue …..….....……...	1	2	3	4	5
52. Sometimes I have felt my life was being directed by a spiritual force greater than any human being ……..…….….....…..	1	2	3	4	5
53. I have a reputation as someone who is very practical and does not act on emotions...……..…….	1	2	3	4	5
54. I am strongly moved by sentimental appeals (like when asked to help crippled children) ……..……..……..	1	2	3	4	5
55. I am usually so determined that I continue to work long after other people have given up ……..……...……...……	1	2	3	4	5
56. I have had moments of great joy in which I suddenly had a clear, deep feeling of oneness with all that exists ……..……...	1	2	3	4	5
57. I know what I want to do in my life…...…….	1	2	3	4	5
58. I often cannot deal with problems because I just don't know what to do……	1	2	3	4	5
59. I prefer spending money rather than saving it …….…….….....…..	1	2	3	4	5
60. I have often been called an "eager beaver" because of my enthusiasm for hard work ……..…...…….……..……..	1	2	3	4	5
61. If I am embarrassed or humiliated, I get over it very quickly ……..…...……	1	2	3	4	5
62. I like to strive for bigger and better things …….….....	1	2	3	4	5
63. I usually demand very good practical reasons before I am willing to change my old ways of doing things ….……..……...	1	2	3	4	5
64. I nearly always stay relaxed and carefree, even when nearly everyone else is fearful ……..…..……..……..	1	2	3	4	5
65. I find sad songs and movies pretty boring …….….....	1	2	3	4	5
66. Circumstances often force me to do things against my will …….…..……..	1	2	3	4	5

1 Definitely False	2 Mostly or Probably False	3 Neither True nor False; or about Equally True or False	4 Mostly or Probably True	5 Definitely True

67. I usually enjoy being mean to anyone who has been mean to me…….....	1	2	3	4	5
68. I often become so fascinated with what I'm doing that I get lost in the moment – like I'm detached from time and place ……..….....	1	2	3	4	5
69. I do not think I have a real sense of purpose for my life …...……..……	1	2	3	4	5
70. I often feel tense and worried in unfamiliar situations, even when others feel there is no danger at all…….	1	2	3	4	5
71. I often follow my instincts, hunches, or intuition without thinking through all the details...……...……	1	2	3	4	5
72. I love to excel at everything I do ……..……	1	2	3	4	5
73. I often feel a strong spiritual or emotional connection with all the people around me ……...……..	1	2	3	4	5
74. I usually try to imagine myself "in other people's shoes", so I can really understand them……..……	1	2	3	4	5
75. Principles like fairness and honesty have little role in some aspects of my life..……...…….	1	2	3	4	5
…					
76. I am more hard-working than most people.…..…….	1	2	3	4	5
77. Even when most people feel it is not important, I often insist on things being done in a strict and orderly way ……...……..……...	1	2	3	4	5
78. I feel very confident and sure of myself in almost all social situation..….……..…	1	2	3	4	5
79. My friends find it hard to know my feelings because I seldom tell them about my private thoughts ……..……..……..….....	1	2	3	4	5
80. I am good at communicating my feelings to others……...……....	1	2	3	4	5
81. I am more energetic and tire less quickly than most people…….	1	2	3	4	5
82. I often stop what I am doing because I get worried, even when my friends tell me everything will go well ……...…….	1	2	3	4	5
83. I often wish I was more powerful than everyone else …….....	1	2	3	4	5
84. Members of a team rarely get their fair share ……..……	1	2	3	4	5

1 Definitely False	2 Mostly or Probably False	3 Neither True nor False; or about Equally True or False	4 Mostly or Probably True	5 Definitely True

85. I don't go out of my way to please other people……..	1	2	3	4	5
86. I am not shy with strangers at all …….....	1	2	3	4	5
87. I spend most of my time doing things that seem necessary but not really important to me …..…….……	1	2	3	4	5
88. I don't think that religious or ethical principles about what is right and wrong should have much influence in business decisions ……..…	1	2	3	4	5
89. I often try to put aside my own judgments so that I can better understand what other people are experiencing …….…..……	1	2	3	4	5
90. Many of my habits make it hard for me to accomplish worthwhile goals ……	1	2	3	4	5
91. I have made real personal sacrifices in order to make the world a better place – like trying to prevent war, poverty and injustice …….……	1	2	3	4	5
92. It takes me a long time to warm up to other people …….....	1	2	3	4	5
93. It gives me pleasure to see my enemies suffer…..…….	1	2	3	4	5
94. No matter how hard a job is, I like to get started quickly..……	1	2	3	4	5
95. It often seems to other people like I am in another world because I am so completely unaware of things going on around me …..……	1	2	3	4	5
96. I usually like to stay cool and detached from other people……...	1	2	3	4	5
97. I am more likely to cry at a sad movie than most people……..…….....	1	2	3	4	5
98. I recover more quickly than most people from minor illnesses or stress.....	1	2	3	4	5
99.I often feel like I am a part of the spiritual force on which all life depends ……....	1	2	3	4	5
100. I need much more practice in developing good habits before I will be able to trust myself in many tempting situations ……..…	1	2	3	4	5
101. Please circle the number one; this is a validity item …….....	1	2	3	4	5
102 .I like to make quick decisions so I can get on with what has to be done……	1	2	3	4	5

1 **Definitely False**	2 **Mostly or Probably False**	3 **Neither True nor False; or about Equally True or False**	4 **Mostly or Probably True**	5 **Definitely True**

103. I am usually confident that I can easily do things that most people would consider dangerous (such as driving an automobile fast on a wet or icy road)…….	1	2	3	4	5
104. I like to explore new ways to do things …….	1	2	3	4	5
105. I enjoy saving money more than spending it on entertainment or thrills……...	1	2	3	4	5
106. I have had personal experiences in which I felt in contact with a divine and wonderful spiritual power ……	1	2	3	4	5
107. I have so many faults that I don't like myself very much …….	1	2	3	4	5
108. Most people seem more resourceful than I am …….	1	2	3	4	5
109. I often break rules and regulations when I think I can get away with it …….....	1	2	3	4	5
110. Even when I am with friends, I prefer not to "open up" very much ……..	1	2	3	4	5
111. The harder a job is the more I like it ……..……..……..	1	2	3	4	5
112. Often when I look at an ordinary thing, something wonderful happens – I get the feeling that I am seeing it fresh for the first time ……..	1	2	3	4	5
113. I usually feel tense and worried when I have to do something new and unfamiliar ……..	1	2	3	4	5
114. I am eager to start work on any assigned duty..…….……	1	2	3	4	5
115. My will power is too weak to overcome very strong temptations, even if I know I will suffer as a consequence ……...……...	1	2	3	4	5
116. If I am feeling upset, I usually feel better around friends than when left alone…….	1	2	3	4	5
117. I often accomplish more than people expect of me…….……....	1	2	3	4	5
118. Religious experiences have helped me to understand the real purpose of my life.……..……..……..	1	2	3	4	5
119. I usually push myself harder than most people do because I want to do as well as I possibly can ……..…….	1	2	3	4	5
120. Please circle five, this is a validity item …….……...	1	2	3	4	5

1 Definitely False	2 Mostly or Probably False	3 Neither True nor False; or about Equally True or False	4 Mostly or Probably True	5 Definitely True

121. I usually feel much more confident and energetic than most people, even after minor illnesses or stress ……..…….....	1	2	3	4	5
122. When nothing new is happening, I usually start looking for something that is thrilling or exciting….....	1	2	3	4	5
123. I like to think about things for a long time before I make a decision ….....	1	2	3	4	5
124. People involved with me have to learn how to do things my way …...…….	1	2	3	4	5
125. I make a warm personal connection with most people…….……..	1	2	3	4	5
126. I am often described as an overachiever ……...…….	1	2	3	4	5
127. I would rather read a book than talk about my feelings with another person….....	1	2	3	4	5
128. I enjoy getting revenge on people who hurt..…….	1	2	3	4	5
129. If something doesn't work as I expected, I am more likely to quit than to keep going for a long time ……..…….……	1	2	3	4	5
130. It is easy for other people to get close to me emotionally...……..	1	2	3	4	5
131.I would probably stay relaxed and outgoing when meeting a group of strangers, even if I were told they are unfriendly …….....	1	2	3	4	5
132. Please circle the number two; this is a validity item ……...…….	1	2	3	4	5
133. I generally don't like people who have different ideas from me…….....	1	2	3	4	5
134. I often drag my heels a while before starting any project …….….....	1	2	3	4	5
135. I can usually do a good job of stretching the truth to tell a funnier story or to play a joke on someone ….……..	1	2	3	4	5
136. It is extremely difficult for me to adjust to changes in my usual way of doing things because I get so tense, tired, or worried……..……..	1	2	3	4	5
137. I am more of a perfectionist than most people …..…….….....	1	2	3	4	5
138. Other people often think that I am too independent because I won't do what they want ……..……...…….……	1	2	3	4	5

1 Definitely False	2 Mostly or Probably False	3 Neither True nor False; or about Equally True or False	4 Mostly or Probably True	5 Definitely True

139. I am better at saving money than most people……..……	1	2	3	4	5
140. I often give up a job if it takes much longer than I thought it would ….....	1	2	3	4	5
141. Whether something is right or wrong is just a matter of opinion …….....	1	2	3	4	5
142. I often learn a lot from people ……...……...	1	2	3	4	5
143. I believe that all life depends on some spiritual order or power that cannot be completely explained ……..……..……..……	1	2	3	4	5
144. Things often go wrong for me unless I am very careful ……...…..……	1	2	3	4	5
145. I am slower than most people to get excited about new ideas and activities …....	1	2	3	4	5
146. I could probably accomplish more than I do, but I don't see the point in pushing myself harder than is necessary to get by..……...…..	1	2	3	4	5
147. I usually stay away from social situations where I would have to meet strangers, even if I am assured that they will be friendly ……..……..….	1	2	3	4	5
148. I often feel so connected to the people around me that it is like there is no separation between us.....……..……...	1	2	3	4	5
149. In most situations my natural responses are based on good habits that I have developed …...……...……....	1	2	3	4	5
150. I often have to stop what I am doing because I start worrying about what might go wrong …….....…….	1	2	3	4	5
151. I am often called "absent-minded" because I get so wrapped up in what I am doing that I lose track of everything else …….……..……....	1	2	3	4	5
152. I often consider another person's feelings as much as my own …….....	1	2	3	4	5
153. I am often described as an underachiever …..……	1	2	3	4	5
154. Most of the time I would prefer to do something a little risky (like riding in a fast automobile over steep hills and sharp turns) rather than having to stay quiet and inactive for a few hours …….……..…..…….…….	1	2	3	4	5
155. Some people think I am too stingy or tight with my money …….…….....	1	2	3	4	5
156. I like old "tried and true" ways of doing things much better than trying "new and improved" ways …….…….....…….…….....	1	2	3	4	5

1 Definitely False	2 Mostly or Probably False	3 Neither True nor False; or about Equally True or False	4 Mostly or Probably True	5 Definitely True

157. I often do things to help protect animals and plants from extinction…..... 1 2 3 4 5

158. I often push myself to the point of exhaustion or try to do more than I really can …..... 1 2 3 4 5

159. I am not very good at talking my way out of trouble when I am caught doing something wrong ……..……..... 1 2 3 4 5

160. Repeated practice has given me good habits that are stronger than most momentary impulses or persuasion …….……...…… 1 2 3 4 5

161. I think I will have very good luck in the future …….…….……... 1 2 3 4 5

162. I open up quickly to other people, even if I don't know them well ……..…….... 1 2 3 4 5

163. When I fail to master something at first, it becomes my personal challenge to succeed ……..……...……...……..……. 1 2 3 4 5

164. You don't have to be dishonest to succeed in business……. 1 2 3 4 5

165. In conversations I am much better as a listener than as a talker.……..…….. 1 2 3 4 5

166. I would not be happy in a job where I did not communicate with other people...……. 1 2 3 4 5

167. My attitudes are determined largely by influences outside my control……..... 1 2 3 4 5

168. I often wish I was stronger than everyone else …….....…….……... 1 2 3 4 5

169. I often need naps or extra rest periods because I get tired so easily ……..... 1 2 3 4 5

170. I have trouble telling a lie, even when it is meant to spare someone else's feelings …….…….…….…..... 1 2 3 4 5

171. Regardless of any temporary problem that I have to overcome, I always think it will turn out well ….…….…… 1 2 3 4 5

172. It is hard for me to enjoy spending money on myself, even when I have saved plenty of money ……...…… 1 2 3 4 5

173. I often do my best work under difficult circumstances ……..…….…….....…. 1 2 3 4 5

174. I like to keep my problems to myself……..…...…….……... 1 2 3 4 5

1 Definitely False	2 Mostly or Probably False	3 Neither True nor False; or about Equally True or False	4 Mostly or Probably True	5 Definitely True

175. I have a vivid imagination …….……..…….....	1	2	3	4	5
176. I like to stay at home better than to travel or explore new places ….....	1	2	3	4	5
. 177. Warm friendships with other people are very important to me ……....	1	2	3	4	5
178. I often wish I could stay young forever ……...…….	1	2	3	4	5
179. I like to read everything when I am asked to sign any papers ……...……	1	2	3	4	5
180. I think I would stay confident and relaxed when meeting strangers, even if I were told they are angry at me ……..……..……..……..	1	2	3	4	5
181. I feel it is more important to be sympathetic and understanding of other people than to be practical and tough-minded ……..……..……..……..	1	2	3	4	5
182. I often wish I had special powers like Superman..…….	1	2	3	4	5
183. I like to share what I have learned with other people……..……..……..	1	2	3	4	5
184. I usually look at a difficult situation as a challenge or opportunity..…….	1	2	3	4	5
185. Most people I know look out only for themselves, no matter who else gets hurt…….…….....	1	2	3	4	5
186. I need much extra rest, support, or reassurance to recover from minor illnesses or stress ……...……	1	2	3	4	5
187. I know there are principles for living that no one can violate without suffering in the long run …….…….....	1	2	3	4	5
188. I don't want to be richer than everyone else ……..…….….....	1	2	3	4	5
189. I like to go slow in starting work, even if it is easy to do ……..……	1	2	3	4	5
190. I would gladly risk my own life to make the world a better place..……	1	2	3	4	5
191. When my work goes unnoticed, I become even more determined to succeed……	1	2	3	4	5

1 Definitely False	2 Mostly or Probably False	3 Neither True nor False; or about Equally True or False	4 Mostly or Probably True	5 Definitely True

192. I often wish I could stop the passage of time ……..…….....	1	2	3	4	5
193. I hate to make decisions based only on my first impressions ….....	1	2	3	4	5
194. I would rather be alone than deal with other people's problems …….....	1	2	3	4	5
195. I don't want to be more admired than everyone else ……..…..……	1	2	3	4	5
196. I need a lot of help from other people to train me to have good habits …….	1	2	3	4	5
197. I like to do a job quickly and then volunteer for more…….……..	1	2	3	4	5
198. It is hard for me to tolerate people who are different from me ……....……	1	2	3	4	5
199. I would rather be kind than get revenge when someone hurts me…..……	1	2	3	4	5
200. I really enjoy keeping busy …….……..……..	1	2	3	4	5
201. I try to cooperate with others as much as possible...…….……	1	2	3	4	5
202. I am often successful because of my ambition and hard work …….....	1	2	3	4	5
203. It is usually easy for me to like those people who have different values from me …….....……...	1	2	3	4	5
204. Good habits have become "second nature" to me – they are automatic and spontaneous actions nearly all the time ……...……..……....	1	2	3	4	5
205. I hate to change the way I do things, even if many people tell me there is a new and better way to do it ……..…….....	1	2	3	4	5
206. I think it is unwise to believe in things that cannot be explained scientifically …..…….……..…….	1	2	3	4	5
207. I am willing to make many sacrifices to be a success ……..……	1	2	3	4	5
208. I like to imagine my enemies suffering …….….....	1	2	3	4	5
209. Circle three, this is a validity item…..……...…….……	1	2	3	4	5

1 Definitely False	2 Mostly or Probably False	3 Neither True nor False; or about Equally True or False	4 Mostly or Probably True	5 Definitely True

210. I like to pay close attention to details in everything I do ...……	1	2	3	4	5
211. I usually am free to choose what I will do……..	1	2	3	4	5
212. Often I become so involved in what I am doing that I forget where I am for a while ……...……..	1	2	3	4	5
213. I like other people to know that I really care about them ……..……	1	2	3	4	5
214. Most of the time I would prefer to do something risky (like hang-gliding or parachute jumping), rather than having to stay quiet and inactive for a few hours……...….	1	2	3	4	5
215. Because I so often spend too much money on impulse, it is hard for me to save money, even for special plans like a vacation ……..……	1	2	3	4	5
216. I often give in to the wishes of friends …….....……	1	2	3	4	5
217. I never worry about terrible things that might happen in the future ……..	1	2	3	4	5
218. People find it easy to come to me for help, sympathy, and warm understanding……..…….…….….	1	2	3	4	5
219. Most of the time I quickly forgive anyone who does me wrong……	1	2	3	4	5
220. I think my natural responses now are usually consistent with my principles and long-term goals ……	1	2	3	4	5
221. I prefer to wait for someone else to take the lead in getting things done ….……	1	2	3	4	5
222. It is fun for me to buy things for myself …….....	1	2	3	4	5
223. I have had experiences that made my role in life so clear to me that I felt very excited and happy ……..……...	1	2	3	4	5
224. I usually respect the opinions of others ….……	1	2	3	4	5
225. My behaviour is strongly guided by certain goals that I have set for my life ……...……..……..	1	2	3	4	5
226. It is usually foolish to promote the success of other people…...…….….....	1	2	3	4	5
227. I often wish I could live forever ……..……...……..…….……	1	2	3	4	5

1 Definitely False	2 Mostly or Probably False	3 Neither True nor False; or about Equally True or False	4 Mostly or Probably True	5 Definitely True

228. When someone points out my mistakes, I work extra hard to correct them …….	1	2	3	4	5
229. I won't give up what I am doing just because of a long run of unexpected failures ….....	1	2	3	4	5
230. I usually have good luck in whatever I try to do ……...……....	1	2	3	4	5
231. I wish I were better looking than everyone else ……..…….	1	2	3	4	5
232. Reports of mystical experiences are probably just wishful thinking……..……	1	2	3	4	5
233. Individual rights are more important than the needs of any group……	1	2	3	4	5
234. Dishonesty only causes problems if you get caught ……..…....…….	1	2	3	4	5
235. Good habits make it easier for me to do things the way I want …….……	1	2	3	4	5
236. Other people and conditions are often to blame for my problems…….……	1	2	3	4	5
237. I usually can stay "on the go" all day without having to push myself...……	1	2	3	4	5
238. I want to be the best at everything I do……...	1	2	3	4	5
239. I <u>nearly always</u> think about all the facts in detail before I make a decision, even when other people demand a quick decision …….…….	1	2	3	4	5
240. I am quick to volunteer when there is something to be do…...……..…….….....	1	2	3	4	5

T.C.I.-R – Scoring Protocol *(Reverse Codes in italics)*

Novelty-seeking

NS1	Exploratory excitability v. stoic rigidity (10 items)	1, 104, 122 *53, 63, 145, 156, 165, 176, 205*
NS2	Impulsiveness v. reflection (9 items)	10, 71, 102 *47, 123, 179, 193, 210, 239*
NS3	Extravagance v. reserve (9 items)	24, 59, 215, 222 *14, 105, 139, 155, 172*
NS4	Disorderliness v. regimentation (7 items)	44, 51, 109, 135 *77, 159, 170*

NS TOTAL: NS1 + NS2 + NS3 + NS4 (35 items)

Harm Avoidance

HA1	Anticipatory worry & pessimism v. uninhibited optimism (11 items)	46, 82, 144, 150 *2, 61, 64, 161, 171, 217, 230*
HA2	Fear of uncertainty (7 items)	9, 70, 113 *38, 103, 154, 214*
HA3	Shyness with strangers (7 items)	19, 30, 147 *78, 86, 131, 180*
HA4	Fatigability v. asthenia (8 items)	16, 136, 169, 186 *81, 98, 121, 237*

HA TOTAL: HA1 + HA2 + HA3 + HA4 (33 items)

Reward Dependence

RD1	Sentimentality (8 items)	20, 31, 54, 97, 181, 216, 218 *65*
RD2	Openness to warm communication vs aloofness (10 items)	80, 125, 130, 162, 166, 177, 213 *92, 127, 194*
RD3	Attachment (6 items)	15, 116 *79, 96, 110, 174*
RD4	Dependence (6 items)	*11, 26, 39, 85, 138, 233*

RD TOTAL: RD1 + RD2 +RD3 + RD4 (30 items)

Persistence

P1	Eagerness of effort vs laziness (9 items)	8, 60, 94, 114, 197, 200, 240 *134, 189*
P2	Work hardened vs spoiled (8 items)	5, 22, 45, 111, 163, 173, 228 *140*
P3	Ambitious vs underachieving (10 items)	37, 62, 72, 117, 126, 191, 202, 207, 238 *153*
P4	Perfectionist vs pragmatist (8 items)	55, 76, 119, 137, 158, 229 *129, 146*

P TOTAL: P1 + P2 + P3 + P4 (35 items)

Self-Directedness

S1	Responsibility vs. blaming (8 items)	211 *3, 17, 34, 49, 66, 167, 236*
S2	Purposefulness vs. lack of goal direction (6 items)	35, 57, 225 *6, 69, 87*
S3	Resourcefulness (5 items)	184 *23, 58, 108, 221*
S4	Self-acceptance vs. self-striving (10 items)	195 *21, 83, 168, 178, 182, 188, 192, 227, 231*
S5	Enlightened second nature (11 items)	149, 160, 204, 220, 235 *48, 90, 100, 107, 115, 196*

S Total: S1 + S2 + S3 + S4 + S5 (40 items)

Cooperativeness

C1	Social acceptance vs. social intolerance (8 items)	4, 142, 203, 224 *28, 124, 133, 198*
C2	Empathy vs. social disinterest (5 items)	41, 74, 89, 152 *18*
C3	Helpfulness vs. unhelpfulness (8 items)	7, 50, 183, 201 *27, 84, 185, 226*
C4	Compassion vs. revengefulness (7 items)	199, 219 *33, 67, 93, 128, 208*
C5	Pure-hearted conscience vs. self-serving advantage (8 items)	40, 164, 187 *13, 75, 88, 141, 234*

C Total: C1 + C2 + C3 + C4 + C5 (36 items)

Self-Tanscendence

ST1	Self-forgetful vs. self-conscious experience (10 items)	25, 42, 56, 68, 95, 112, 151, 175, 212, 223
ST2	Transpersonal identification vs. self-differentiation (8 items)	12, 29, 73, 91, 99, 148, 157, 190
ST3	Spiritual acceptance vs. rational materialism (8 items)	43, 52, 106, 118, 143 *32, 206, 232*

ST Total: ST1 + ST2 + ST3 (26 items)

Validity Scale (5 items)	36=4; 101=1; 120=5; 132=2; 209=3

The COPE

Instructions:

We are interested in learning how you respond to a stressful and/or challenging event and what you did to cope with the situation. You should treat each item separately from every other item. There are no right or wrong answers, please indicate how often the statements apply to you by circling the relevant scale number:

I Usually Don't Do This	**I Usually Do This a Little Bit**	**I Usually Do This A Medium Amount**	**I Usually Do This A Lot**
1	**2**	**3**	**4**

1.	I tried to grow as a person as a result of this experience.....	1	2	3	4
2.	I turned to school or substitute activities to take my mind off things.	1	2	3	4
3.	I got upset and let my emotions out	1	2	3	4
4.	I tried to get advice from someone about what to do.	1	2	3	4
5.	I concentrated my efforts on doing something about it.	1	2	3	4
6.	I said to myself "this isn't real".	1	2	3	4
7.	I put my trust in God.....	1	2	3	4
8.	I admitted to myself that I couldn't deal with it and quit trying.	1	2	3	4
9.	I restrained myself from doing anything too quickly.	1	2	3	4
10.	I discussed my feelings with someone.	1	2	3	4
11.	I got used to the idea that it happened	1	2	3	4
12.	I talked to someone to find out more about the situation	1	2	3	4
13.	I kept myself from getting distracted by other thoughts or activities	1	2	3	4
14.	I daydreamed about things other than it	1	2	3	4
15.	I got upset and was really aware of it	1	2	3	4
16.	I sought God's help	1	2	3	4

17. I made a plan of action..... 1 2 3 4
18. I accepted that it happened and that it couldn't be changed.. 1 2 3 4
19. I held off doing anything about it until the situation permitted..... 1 2 3 4
20. I tried to get emotional support from friends or relative..... 1 2 3 4
21. I just gave up trying to reach my goal..... 1 2 3 4
22. I took additional action to try to get rid of the problem 1 2 3 4
23. I refused to believe that it had happened 1 2 3 4
24. I let my feelings out..... 1 2 3 4
25. I tried to see it in a different light to make it seem more positive 1 2 3 4
26. I talked to someone who could do something concrete about it..... 1 2 3 4
27. I slept more than usual..... 1 2 3 4
28. I tried to come up with a strategy about what I could do..... 1 2 3 4
29. I focused on dealing with the problem, and if necessary, let other things slide a little..... 1 2 3 4
30. I got sympathy and understanding from someone..... 1 2 3 4
31. I gave up the attempt to get what I want..... 1 2 3 4
32. I looked for something good in what had happened 1 2 3 4
33. I thought about how I might best handle the problem 1 2 3 4
34. I pretended that it hadn't happened..... 1 2 3 4
35. I made sure not to make matters worse by acting too soon... 1 2 3 4
36. I tried to prevent other things from interfering with my efforts at dealing with it 1 2 3 4
37. I went to the movies or watched TV to think about it less 1 2 3 4
38. I accepted the reality of the fact it happened..... 1 2 3 4
39. I asked people who had similar experiences what they did ... 1 2 3 4
40. I felt a lot of emotional distress, and I found myself expressing what they did..... 1 2 3 4

41. I took direct action to get around the problem 1 2 3 4

42. I tried to find comfort in my religion 1 2 3 4

43. I forced myself to wait for the right time to do something..... 1 2 3 4

44. I reduced the amount of effort I put into solving the problem..... 1 2 3 4

45. I talked to someone about how I felt..... 1 2 3 4

46. I learned to live with it 1 2 3 4

47. I put aside other activities in order to concentrate of it..... 1 2 3 4

48. I thought hard about what steps to take 1 2 3 4

49. I acted as though it hadn't even happened..... 1 2 3 4

50. I did what had to be done, one step at a time..... 1 2 3 4

51. I learned something from the experience 1 2 3 4

52. I prayed more than usual 1 2 3 4

The DASS

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:
0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me a considerable degree, or a good part of the time
3 Applied to me very much, or most of the time

1.	I found myself getting upset by quite trivial things	0	1	2	3
2.	I was aware of dryness of my mouth	0	1	2	3
3.	I couldn't seem to experience any positive feeling at all	0	1	2	3
4.	I experienced breathing difficulty (e.g excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5.	I just couldn't seem to get going	0	1	2	3
6.	I tended to over-react to situations	0	1	2	3
7.	I had a feeling of shakiness (e.g legs going to give way)	0	1	2	3
8.	I found it difficult to relax	0	1	2	3
9.	I found myself in situations that made me so anxious I was most relieved when they ended	0	1	2	3
10.	I felt that I had nothing to look forward to	0	1	2	3
11.	I found my self getting upset rather easily	0	1	2	3
12.	I felt that I was using a lot of nervous energy	0	1	2	3
13.	I felt sad and depressed	0	1	2	3
14.	I found myself getting inpatient when I was delayed in any way (e.g lifts, traffic lights, being kept waiting)	0	1	2	3
15.	I had feelings of faintness	0	1	2	3
16.	I felt that I had lost interest in just about everything	0	1	2	3
17.	I felt I wasn't worth much as a person	0	1	2	3
18.	I felt that I was rather touchy	0	1	2	3
19.	I perspired noticeably (e.g hands sweaty) in the absence of high temperatures or physical exertion	0	1	2	3
20.	I felt scared with out any good reason	0	1	2	3
21.	I felt that life wasn't worth while	0	1	2	3
22.	I found it hard to wind down	0	1	2	3
23.	I had difficulty in swallowing	0	1	2	3
24.	I couldn't seem to get any enjoyment out of the things I did	0	1	2	3
25.	I was aware of the action of my heart in the absence of physical exertion (e.g sense of heart rate increase, heart missing a beat)	0	1	2	3
26.	I felt down-hearted and blue	0	1	2	3
27.	I found that I was very irritable	0	1	2	3
28.	I felt I was close to panic	0	1	2	3
29.	I found it hard to calm down after something upset me	0	1	2	3
30.	I feared that I would be "thrown" by some trivial but unfamiliar task	0	1	2	3
31.	I was unable to become enthusiastic about anything	0	1	2	3
32.	I found it difficult to tolerate interruptions to what I was doing	0	1	2	3

33.	I was in a state of nervous tension	0	1	2	3
34.	I felt I was pretty worthless	0	1	2	3
35.	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
36.	I felt terrified	0	1	2	3
37.	I could see nothing in the future to be hopeful about	0	1	2	3
38.	I felt that life was meaningless	0	1	2	3
39.	I found myself getting agitated	0	1	2	3
40.	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
41.	I experienced trembling (e.g in the hands)	0	1	2	3
42.	I found it difficult to work up the initiative to do things	0	1	2	3

Appendix C

Table 1: Data Transformations for Non-Normally Distributed Data

	Original 'p'	Log Transformation	Square Root Transformation	Inverse Transformation
DASS Stress	p=0.00	p=0.00	p=0.05	p=0.00
DASS Anxiety	p=0.00	p=0.00	p=0.01	p=0.00
DASS Depression	p=0.00	p=0.00	p=0.00	p=0.00
COPE Emotion-focused	p=0.02	p=0.00	p=0.00	p=0.00
COPE Avoidant	p=0.00	p=0.08	p=0.03	p=0.00

Table 2: Spearman's Correlations for Personality, Coping and Psychological Distress (N=201)

	Stress	Anxiety	Depression
TCI-R Harm Avoidance	r = 0.43**	r = 0.30**	r = 0.39**
TCI-R Reward Dependence	r = -0.09	r = -0.11	r = -0.16*
TCI-R Self-Directedness	r = -0.35**	r = -0.44**	r = -0.48**
COPE Problem-Focused	r = -0.06	r = -0.11	r = -0.18*
COPE Emotion-Focused	r = -0.08	r = -0.05	r = -0.11
COPE Avoidant	r = 0.39**	r = 0.44**	r = 0.46**

**p<.05, ** p<.01*

Table 3: Spearman's Correlations for Personality and Coping (N=201)

	TCI-R Harm Avoidance	**TCI-R Reward Dependence**	**TCI-R Self-Directedness**
COPE Problem-Focused	r = -0.22**	r = 0.07	R = 0.22**
COPE Emotion-Focused	r = -0.16*	r = 0.46**	r = 0.23**
COPE Avoidant	r = 0.33**	r = -0.13	r = -0.44**

**p<.05, ** p<.01*

Table 4: Spearman's Correlations between Problem-Focused subscales and Psychological Distress (N=201)

	COPE Active Coping	**COPE Planning**	**COPE Suppression of Competing Activities**	**COPE Restraint Coping**	**COPE Seeking Social Support for Instrumental Means**
Stress	r = -.11	r = -.09	r = .12	r = -.04	r = -.04
Anxiety	r = -.18*	r = -.12	r = .07	r = .01	r = -.09
Depression	r = -.27**	r = -.20**	r = .05	r = .06	r = -.15*

**p<.05, ** p<.01*

Table 5: Spearman's Correlations between Avoidant Coping subscales and Psychological Distress (N=201)

	COPE Denial	**COPE Behaviour Disengagement**	**COPE Mental Disengagement**
Stress	r = .33**	r = .27**	r = .23**
Anxiety	r = .37**	r = .26**	r = .29**
Depression	r = .30**	r = .43**	r = .28**

**p<.05, ** p<.01*

Table 6: Pearson's Correlations between Emotion-Focused subscales and Psychological Distress (N=201)

	COPE Seeking Social Support for Emotional Means	COPE Positive Reinterpretation and Growth	COPE Acceptance	COPE Turning to Religion	COPE Focusing and Venting of Emotions
Stress	r = -.06	r = -.25**	r = .14*	r = -.13	r = -.29**
Anxiety	r = -.08	r = -.21**	r = .00	r = .03	r = -.14*
Depression	r = -.12	r = -.28**	r = .11	r = .06	r = -.19**

**p<.05, ** p<.01*

Table 7: Spearman's Correlations between Emotion-Focused subscales and Psychological Distress (N=201)

	COPE Seeking Social Support for Emotional Means	COPE Positive Reinterpretation and Growth	COPE Acceptance	COPE Turning to Religion	COPE Focusing and Venting of Emotions
Stress	r = -.03	r = -.25**	r = .14*	r = -.10	r = -.29**
Anxiety	r = -.07	r = -.21**	r = .01	r = .01	r = -.16*
Depression	r = -.12	r = -.23**	r = .08	r = .05	r = -.13

**p<.05, ** p<.01*