

EVALUATION OF SYMPTOM CHANGE FOR PARTICIPANTS OF A
MINDFULNESS BASED STRESS MANAGEMENT PROGRAMME:
PRELIMINARY RESEARCH UTILISING COMPARISON FROM ACTUAL
CLINICAL PRACTICE SETTINGS.

Dissertation submitted in part fulfilment of the requirements for PSY 500,
Master of Psychology (clinical) degree at Charles Sturt University, Bathurst,
NSW. November 2001

Submitted by: Malcolm Huxter B.A., Hons. (Psych). Psychologist.

Evaluation of symptom change for participants of a mindfulness based stress management programme: Preliminary research utilising comparison from actual clinical practice settings.

Student: Mr Malcolm Huxter, CSU Student No 94066499

Supervisor: Ms Elizabeth Murrell, Senior Clinical Psychologist.

I declare that this dissertation is all my own work and that it has not been submitted to any other university or institute of learning for the purpose of obtaining any other qualification or degree.

Signed..... Date.....

Malcolm Huxter

This dissertation has been formatted so that it is suitable for submission as a research paper in The Journal of Consulting and Clinical Psychology .

Running head: Evaluation of a mindfulness based stress management programme

Address correspondence to: Mr Malcolm Huxter, Lismore Mental Health Service, 72 Hunter St, Lismore, NSW. 2480.

Acknowledgments

Numerous people and organisations have advised and assisted with this study. The order of the following list does not represent the order of significance as all assistance is gratefully appreciated. Firstly, Ms Elizabeth Murrell is acknowledged for her committed, generous, sincere, reliable and skilful supervision and support. Dr Renate Wagner and her clinical and administrative staff at Bankstown Clinic for Anxiety and Traumatic Stress are gratefully acknowledged for their willingness to participate as well as their effort in collecting and collating data from the Bankstown arm of the study. Dr Renate Wagner also provided expert consultation at the initial stages of the project. Dr Lyndon Brooks from Southern Cross University provided statistical software and expertise. This generosity is gratefully acknowledged.

Acknowledgments related to the implementation of the mindfulness based programme have been listed in its related workbook. Not listed, however, were Mr Guy Dayhew and Ms Vika Shvachkina who kindly assisted as skilled co-therapists. Participants from both the Bankstown and Lismore arms of the study are acknowledged and thanked for their willingness to be part of the study and share sensitive information. Finally, but not least, my partner Mary and sons Ben, Punya and Liam require special acknowledgment for their sacrifices and loving support.

Abstract

The principal aim of this study was to evaluate the effectiveness of a mindfulness based stress management course in reducing the severity of stress, anxiety and depressive symptoms with a heterogenous clinical population in a community mental health setting. The method of evaluation involved an open clinical trial with a comparison to another stress management programme that used cognitive restructuring strategies and not specific mindfulness based strategies. Repeated measures analysis of variance was the main statistical approach used. The results showed that measures of stress, depression and anxiety symptoms from participants of both programmes reduced over the period of participation. Changes noted with those who participated in the mindfulness-based programme were maintained for two months after the programme finished. The results suggested that mindfulness based programmes were comparable to programmes that utilise commonly accepted and empirically supported cognitive restructuring approaches. The conclusion was that mindfulness based stress management programmes may be viable in community based settings. This conclusion, however, was expressed in tentative manner because this study had methodology limitations. These limitations as well as the implications of the results were clarified.

Stress is a concept that most people feel they understand. However, it can refer to a range of phenomena and there appears to be no universally agreed upon definition for this term (Rice, 1987; Steptoe, 1997). Stress may refer to stimuli, responses, or a process of interactions between stimuli and responses.

For the present discussion, stress is considered an interactive cyclic process where perceived or actual demands are appraised as outweighing perceived or actual coping capacity and, as a result, distressing cognitive, emotional, physical and/ or behavioural responses occur (Cox, 1978).

Stress, as defined above, could be considered a precipitating and perpetuating factor in many major psychological disorders. Generalised Anxiety Disorder (GAD), for example, is a disorder commonly associated with stress. Programmes developed for the treatment and management of GAD have often been called “stress management programmes” (e.g., Manicavasagar & Blaszczynski, 1995).

GAD has been considered as the “basic” or core anxiety disorder yet GAD rarely presents as a “pure” disorder and the diagnostic criteria around GAD are not well defined (Brown, Barlow, & Liebowitz, 1994; Nathan & Gorman, 1998; Rapee & Barlow, 1993). The most common co-morbid disorders with GAD are dysthymia, and panic disorder followed by major depression and agoraphobia (Andrews, Crino, Hunt, Lampe & Page, 1995). GAD is also the most commonly assigned additional diagnosis for those who meet criteria for mood or other anxiety disorders. There seems to be a considerable overlap between symptoms of depression/ dysthymia and GAD.

Some suggest that anxiety (in general) and depression may be different points on a continuum, or variations of the same underlying disorder (Barlow, Chorpita & Turkovsky, 1996 cited in Brown, Chorpita, Korotitsch & Barlow, 1997). Others consider that GAD may be a subtype of major depressive disorder. (e.g., Breslau & Davis, 1985 in Andrews et al., 1995). Barlow (2000) argued that there is much evidence to support a unitary construct of depression and anxiety where negative affect represents a common higher order factor and the specific unique differences of the anxiety and depressive disorders may represent lower order factors. Some of this evidence is related to how different depressive and anxiety disorders are often co-morbid and may share symptoms, psychological processes and even neurological pathways (Keller, Nitchke, Bhargava, Deldin, Gergen, Miller & Heller, 2000). Other evidence includes the success of very similar treatments across the wide range of anxiety and depressive disorders. For example, selective serotonin re-uptake inhibitors (SSRIs) or the use of cognitive behaviour strategies including exposure and prevention of avoidance are often effective in treating both anxiety and depressive disorders (Barlow, 2000).

Despite the symptom overlap and similarities, such as presence of mental distress, there are some distinguishing features between GAD and depression. Physiological hyper-arousal is more specific to anxiety while the absence of positive affect, more conspicuous vegetative signs such as weight loss and psychomotor retardation or agitation are more specific to depression (Clark & Watson, 1991 cited in Brown et al., 1997; Maser, 1995 cited in Yapko, 2001).

A multi-factorial overview of the possible aetiology for anxiety and depressive or mood disorders is too complex for the present discussion. However, some processes or tendencies related to GAD and depression that warrant consideration are worry and rumination

Worry and Rumination

Worry is argued to be the distinguishing feature of GAD (Rapee & Barlow, 1993). Given the co-morbidity and similarity between GAD and depression it is not surprising that worry is also a tendency found with individuals who are depressed (Borkovec, 1994).

Worry has been defined by Borkovec (1994) as:

....a chain of thoughts and images, negatively affect laden and relatively uncontrollable; it represents an attempt to engage in mental problem-solving on an issue whose outcome is uncertain but contains the possibility of one or more negative outcomes; consequently worry relates closely to fear process (p.7).

Rumination on the other hand has been defined by Salovey, Bedell, Detweiler & Mayer (1999) as: "passively and repetitively focusing upon one's symptoms of distress and the circumstances surrounding those symptoms" (p. 147).

Ruminative coping styles have been found to predict the onset of both anxiety and depressive disorders and symptoms (Nolen-Hoeksema, 2000). Rumination has also been found to interfere with successful problems solving, contribute to a sense of hopelessness about the future, increase negative self evaluation, generate a general sense of uncertainty, and increase the

tendency to analyse everything that happens and is said to the ruminator (Nolen-Hoeksema, 2000).

Rumination has been considered synonymous with “self focussed attention” (Lyubomirsky & Nolen-Hoeksema, 1995) and a description of this mental tendency may further describe the process of rumination. Self-focussed attention generally refers to awareness of self referent internally generated information as opposed to awareness of information that may include one’s situation (Ingram, 1990). With self-focussed attention one fails to use contextual information to appraise events. Self-focussed attention has been connected with exacerbated negative affect, negative internal attributions, poor self esteem and panic (Ingram, 1990; Wells, 1990). Self-focused attention has also been identified as a general process that is shared with depressive and anxiety disorders (Ingram, 1990).

Rumination could also be considered as synonymous to what Teasdale, Segal and Williams (1995) described as “depressive interlock” which referred to how individuals may regenerate and maintain their depressed state. With depressive interlock, depressed individuals continue to circulate around a cognitive loop dominated by depressive content.

Worry and rumination differ in that worry is typically self-initiated and an active, though ineffectual, attempt to solve a problem by thinking through possible solutions. Rumination on the other hand is a dysfunctional coping mechanism for intrusive unwanted thoughts that is more passive than worrying (Andrews et al., 1994). Ruminators are likely to think about and focus on their negative moods without doing anything to relieve their symptoms (Nolen-Hoeksema, McBride & Larson, 1997).

At times, worry can be functional (Barlow, 2000). Generally, however, both worry and rumination tend to perpetuate and maintain depressed moods and anxious conditions (Borkovec, 1994 ; Nolen-Hoeksema et al., 1997; Salovey et al., 1999; Teasdale et al., 1995). The ruminator may be unable to disengage from ruminative coping styles and the worrier may be unable to experience and be attentive to the present moment because they are too concerned about future or past events (Borkovec, 1994).

“Self analysis” is another thinking style that has been connected to rumination (Nolen-Hoeksema et al., 1997). Those overcoming the effects of loss and bereavement often use self-analysis or self-reflection as a way of coming to terms with the loss. Research has indicated that, in the short term, self- analysis may be helpful. However, when those who utilise self-analysis do not have a philosophical or religious foundation it can easily degenerate into rumination and consequently prolong grief related distress (Lyubomirsky & Nolen-Hoeksema, 1995).

Generic approaches to anxiety and depressive symptoms: Stress management and CBT

Stress management may be one way to short-circuit the dysfunctional and ineffectual coping styles of worry and rumination. “Stress management” programmes are often used as generic approaches directed at heterogenous clinical populations with similar anxiety and depressive symptoms. Stress management approaches that utilise approaches and strategies from Cognitive Behaviour Therapy (CBT) are common (e.g., Davis, Eshelman & McKay, 1988). CBT consists of a number of strategies involving components of both Behaviour Therapy and Cognitive Therapy. Behaviour Therapy (BT)

targets overt maladaptive behaviours and Cognitive Therapy (CT) targets maladaptive and or irrational thinking patterns that may mediate symptoms of depression and anxiety (Craighead, Craighead, Kazdin & Mahoney, 1994). Cognitive restructuring (CR) is perhaps one of the primary strategies used with CT. With CR individuals are required to identify dysfunctional thought patterns or irrational thoughts, analyse them, challenge them and eventually replace them with more positive, rational or functional alternatives.

Summaries of outcome studies including meta-analysis generally indicate that some form of CBT is recommended for treating the symptoms of depression (Roth & Fonagy, 1996). Cognitive restructuring to address distorted beliefs about the self, the world and the future is particularly relevant for depression.

The literature also supports CBT as the general treatment of choice for GAD (e.g., Andrews et al., 1995; Roth & Fonagy, 1996). Specifically, the treatment components recommended for GAD include: psycho-education about stress and anxiety, relaxation and controlled breathing training, distraction, cognitive restructuring and exposure through graded exposure (Andrews et al., 1995; Nathan & Gorman, 1998; Rapee & Barlow, 1993).

The treatment of stress and its related depressive and anxiety symptoms with variations of CBT seems generally accepted and empirically validated. However, the assumption behind the use of cognitive restructuring is that cognition with negative content mediates emotional distress (Beck, 1976). This assumption has been challenged in the literature. Teasdale (1985), for example, has indicated that emotions and beliefs can be bi-directional. Further to this, physical illness can manifest in depressive

symptoms and anti-depressant medications can improve negative affect with no attention being given to cognition (Simons, Garfield, & Murphy, 1984).

The applicability and appropriateness of some procedural techniques used in CBT have also been questioned. For example, some clients may be unable to access, challenge and replace negative automatic thoughts and in some cases analysing thoughts may be counterproductive (for discussion of these points see Hayes, Strosahl & Wilson, 1999; Nolen-Hoeksema et al., 1997).

It has been argued by some that “mindfulness based” strategies may offer either an adjunct to CR (e.g., Teasdale et al., 1995) and/or an alternative to CR (e.g., Hayes et al., 1999) for the management of anxiety and depressive symptoms. Thus, mindfulness may be an important component of stress management programmes. Mindfulness involves process oriented strategies that may help the individual to disengage from ruminative thinking patterns as well as strategies that may disrupt worry processes and reorient attention to present moment experience (Teasdale et al., 1995).

Mindfulness or satipatthana: Definitions

Mindfulness is a coping skill (Linehan, 1993), a mode of being (Teasdale, Segal, Williams, Ridgeway, Soulsby & Lau, 2000) as well as a meditation practice (Goleman, 1975). This latter aspect of mindfulness will be explained in order to clarify its definition.

In a broad sense, meditation “is the practice of uncritically attempting to focus your attention on one thing at a time” (Davis et al., 1988, p.37). This broad definition of meditation allows this practice to encompass periods of

quiet and still inactivity as well as busy and active engagement with life and the world.

There are many different types of meditation practices and objects to focus attention upon (Delmonte, 1987; West, 1987). Some meditation practices involve paying attention to a single object such as a mantra. This is done in an effort to block and exclude distractions from the object. Along with other effects these types of practices usually develop concentration, calm and physical relaxation. Even though there may be many similarities, mindfulness meditation practices can be very different. With mindfulness, attention is directed towards changing objects or conditions of mind and body. Thus, “distractions” also become the objects of attention. One aim of mindfulness meditation is to produce insight about the conditional nature of one’s life. Concentration, a sense of calm, and relaxation, however, can also result from mindfulness meditation.

Practices akin to mindfulness meditation may be found in a variety of contemplative traditions including some Christian sects (Happold, 1963) and schools of Indian yoga (e.g., Manocha, 2000). Mindfulness meditation practices are particularly dominant in the Zen and Theravadin traditions of Buddhism. In the Theravadin Buddhist traditions mindfulness meditation has been called satipatthana vipassana. Satipatthanna is a compound word derived from an ancient Indian language called Pali that was used by Gotama the Buddha about 2500 years ago. “Sati” means awareness and it can also mean memory. In the context of satipatthanna, sati usually means attention. Patthana means keeping present and foundation. The patthanna of satipatthanna refers to where the attention is directed (Nyanaponidika Thera,

1962; Kearney, 2000). Thus, satipatthanna refers to remembering to deliberately place attention or turn the mind to what is happening right now.

Wisdom and insight are often considered as having the same meaning and refer to “the clear perception of the object as it really is” (Goleman, 1988, p.123). Vipassana translates as insight, where vi denotes separate and passana means seeing clearly. Therefore vipassana means seeing separately and seeing distinctly (Kearney, 1995). Vipassana results from practicing satipatthanna.

Sati or satipatthanna is usually translated as “mindfulness”. However, this translation may not always be adequate. In the English language mindfulness can refer to a number of mental activities including: remembering, being attentive to, reflecting upon, being aware of, looking after, looking upon, being careful, bearing in mind, keeping in mind, monitoring, knowing, and thinking about . Sati or satipatthanna may encompass some of these meanings but it does not mean thinking about or analysing objects of mind. Thus, it should not be confused with self-analysis, self reflection or self focussed attention. In addition, the term mindfulness does not capture the temporal quality of satipatthanna. The practice of satipatthanna is centred in the present moment. To avoid confusion, from here on “mindfulness” refers to sati or satipatthanna and these terms may be used interchangeably.

Mindfulness has been distinguished from spontaneous attention or perception (Fryba, 1987; Goleman, 1988; Narada, 1979). Put simply, sati or satipatthanna refers to present centred awareness, detached observation (Nyanaponika, 1962), or “being here now” (Dass, 1972).

Linehan (1993b), in reference to developing Zen Buddhist mindfulness as a coping skill for those with Borderline Personality Disorder (BPD), described the “what” and “how” of mindfulness. Mindfulness was explained as observing, describing and participating with experience and it should be done in a manner that is non-judgmental, focused (on one thing at a time) and effective or skilful.

The skilful component of Linehan’s (1993b) explanations of mindfulness could refer to a quality of action that in Pali is called sampajanya. This term translates as “clear comprehension” (Fryba, 1989) and is often compounded with sati. When one behaves “mindfully” or with sati-sampajanya one acts skilfully with awareness and comprehension of the possible consequences for one’s actions and in accordance with one’s goals and ethical values.

Like general meditation practices mindfulness involves focussed attention, “letting be” and receptivity (Smith, 1987). In addition, attitudes of non-judgment, acceptance, patience, non-striving, curiosity and letting go are, according to Kabat-Zinn (1990) essential to the practice of satipatthanna.

As a coping skill mindfulness can involve a cluster of strategies to deal with difficult thoughts and emotions. As a mode of being it can develop a functional framework from which to perceive events related to oneself and the world.

Mindfulness in contemporary psychotherapeutic paradigms

Buddhist practices offer specific instructions on how to develop, practice and maintain mindfulness skills (e.g., Nyanaponika, 1962).

However, the practice of sati or satipatthanna is not limited to contemplative

traditions such as Buddhism. If analysed, this activity or elements of satipatthana may also be found in many different contemporary psychological paradigms, often under different names such as:

- self monitoring in BT (Mahoney and Thoresen, 1974; Mikulas, 1981),
- being in the now in Gestalt Therapy (Pearls, 1970),
- present centeredness in Gestalt Therapy (Naranjo, 1970),
- listening to oneself in Client Centred Therapy (Rogers, 1961),
- listening to automatic thoughts in CBT (McKay, Davis and Fanning, 1981),
- self awareness in Emotional Intelligence (Salovey et al., 1999),
- meta-mood and meta-cognition (Goleman, 1995), and
- free association and hovering attention in Psychodynamic therapy (Epstein, 1995; Speeth, 1982).

In some contemporary psychotherapeutic interventions the practices of satipatthana have been directly adapted from Buddhist traditions. Dialectical Behaviour Therapy (DBT), for example, is one of the few empirically supported approaches for the treatment of Borderline Personality Disorder, (BPD) (Linehan, 1993). DBT teaches and uses mindfulness as the key coping skill.

In another example, Parnell (1999) has drawn parallels between mindfulness based (MB) practices and Eye Movement Desensitising and Reprocessing (EMDR; Sharpiro, 1989) and suggests mindfulness as an adjunct to this widely used technique for post traumatic stress disorder.

Psychological processes of Mindfulness

Mindfulness or elements of mindfulness may be used in numerous psychotherapeutic paradigms and there may be many different explanations about how it operates. In Buddhist psychology mindfulness is seen as a healthy mental tendency that is both process and product. With Buddhism, mental distress is thought to arise from an interdependent cyclic relationship between environmental conditions and “unhealthy” or “unwholesome” mental factors or tendencies. Mindfulness is considered as being able to reciprocally inhibit unhealthy mental tendencies such as worry and rumination as well as being able to short circuit unhealthy cyclic patterns (Goleman, 1988; Narada, 1979).

According to Teasdale et al., (2000, p. 618) a core feature of mindfulness based practices involves “facilitation of an aware mode of being, characterised by freedom and choice, in contrast to a mode dominated by habitual, over-learned, automatic patterns of cognitive-affective processing”.

Philosophically driven contemporary psycho-therapeutic approaches such as DBT (Linehan, 1993) or Acceptance and Commitment Therapy (ACT, Hayes et al., 1999), also detail the psychological processes involved with mindfulness and how these strategies may work at a therapeutic level. These explanations have been linked to Behavioural Therapy and CBT.

Linehan (1993) compared mindfulness to “exposure” or “systematic desensitisation” as it is used in CBT. With mindfulness old patterns of condemning unpleasant feelings, being addicted to pleasant feeling and

ignoring neutral feeling may eventually be extinguished because they are no longer reinforced through habitual reactions (Fryba, 1995).

ACT is a contemporary therapeutic approach to a variety of mental health issues. Through paradox, metaphor and experiential exercises, ACT aims towards “de-literalising” language and the promotion of health and vitality (Hayes et al., 1999). One of the main factors considered as aetiological for mental suffering in the ACT model of psychopathology is emotional avoidance (Strosahl, Hayes, Bergan, & Romano, 1998). Willingness to experience, or acceptance, is indicated as a way to overcome emotional avoidance (Hayes et al., 1999). With mindfulness, acceptance is used as a method of dealing with and changing difficult thoughts and emotions (Hayes et al., 1999; Linehan, 1993).

Mindfulness and practices commonly connected to CBT may share many features and in many respects mindfulness could be considered as a CBT strategy. Despite similarities, however, there are also some fundamental differences between CBT and MB practices both in theory and practice. Space limits discussion of all the similarities and differences but one difference will be highlighted below because it impacts upon clinical application. (For more detailed discussion of similarities and differences between MB and CBT practices see Appendix A. Also see De Silva, 1984; Fenner, 1995; Kabat-Zinn, Massion, Krieteller, Peterson, Fletcher, Pbert, Lenderking & Santorelli 1992; Linehan, 1993; Shapiro & Zifferblatt, 1976; and Teasdale et al., 2000)

One emphasis with CBT is distinguishing between the faulty and non-faulty content of thoughts. MB practices, on the other hand, draw attention to

content of thoughts and there may be some rational analysis but the emphasis is upon perceiving the process of thoughts (i.e., their changing and interdependent nature). With mindfulness emphasis is not placed on distinguishing between faulty and non-faulty thoughts but rather merely acknowledging thoughts as thoughts (Kabat-Zinn, 1990). Mindfulness may change the relationship between thought and the thinker and by doing so the content of toxic thoughts may also change (Fenner, 1995). In general, mindfulness practices encourage a willingness to allow thoughts and emotions to be and let change in a natural manner (Teasdale et al., 1995).

Empirical evidence about mindfulness practices

As mindfulness has been connected with meditation practices empirical evidence about “meditation” in general may also partially reflect evidence about MB practices. Meta-analysis of the psychotherapeutic aspects of meditation in the late 1980s generally indicated that “meditation” could help relieve anxiety and depressive symptoms as long as practitioners continued to practice (Delmonte, 1987b; Smith, 1987). These studies also indicated that negative self-concept as well as a high level of symptom severity predicted attrition from meditation practices. In other words, the continued practice of meditation required high levels of motivation and those who needed it most tended to not do it (Delmonte, 1987b; Smith, 1987).

Some early research about “meditation” emphasised caution about using it with “clinical populations”. Lazarus, (1976) for example, in a discussion about Transcendental Meditation or “TM”, a mantra meditation, noted that well-informed practitioners could benefit. However, if TM was tried without proper training it could lead to depression, depersonalisation, anxiety,

tension, restlessness, and or feelings of failure if promised results did not occur. Other authors have echoed these and other concerns, such as the possibility of generating psychotic experiences. In addition, meditation has been generally contraindicated with those who are prone to psychosis because it may exaggerate delusions about the nature of self (e.g., Bogart, 1991; French, Schmid & Ingalls, 1975 in Heide & Borkovec, 1984; Epstein, 1990).

The detrimental effects of meditation may involve developing Relaxation Induced Anxiety (RIA) (Borkovec, Mathews, Chambers, Ebrahimi, Lytle, & Nelson, 1987; Wells, 1990). With RIA individuals become distressed when they begin to relax. RIA may arise because relaxation may enhance self-focused attention and rumination. Reports on the detrimental effects of meditation have mostly been about single cases and been anecdotal in nature. Though valid, more systematic research with larger populations is warranted.

One point about the early studies related to meditation was that there was little emphasis on differentiating the effects of different types of meditation and whether specific types of meditation practices could cater for those individuals who found it difficult to practice such as “clinical populations” (Smith, 1987). More recent research indicates that with skilfully adapted presentation and monitoring, clinical populations may benefit from meditation type activities.

In one study, Leon, (1992) highlighted how focussed attention may help to alleviate depressive symptoms in those who were clinically depressed. In this study, 42 non-medicated participants with unipolar depression were

non-randomly allocated to either a six session CBT group, a six session focussed attention group or a wait list control. The CBT group and the focussed attention group's depression scores reduced significantly by the end of the courses but the WL control group's scores did not. Leon (1992) attributed the positive changes with the focussed attention group to the ability of these participants to "disengage" from ruminative thinking patterns.

As explained previously mindfulness is not limited to "meditation" and it also entails being a coping skill and a mode of being. Based on experience with depressed clients one internationally prominent psychologist has expressed concerns about the "live now be fully present in this moment" philosophy (Yapko, 1997, p.122). The concern is that, in the wrong context, individuals with a present centred orientation may not plan for the future and possibly act impulsively without regard for the consequences of their actions (Yapko, 2001). Though valid, this concern is based upon considering the temporal aspects of mindfulness and not its awareness and "clear comprehension" components. Mindfulness does not contraindicate goal setting and acting in a manner to achieve one's goals.

As a coping skill, mindfulness has been thought to influence a shift in attitude and symptom presentation with individuals diagnosed with Borderline Personality Disorder (BPD). Linehan's (1993) successful use of the mindfulness practices embedded in DBT has offered hope for many therapists who work with sufferers of BPD (e.g., Hampton, 1997). Details of the initial research into DBT can be found in Linehan, Armstrong, Suarez, Allmon, & Heard, (1991) and Linehan, Armstrong, & Heard (1993). The evidence indicates that DBT is an approach that has the potential to reduce impulsive

suicidal tendencies with individuals suffering with BPD. This research, however, did not focus directly upon mindfulness skills but more on DBT as an integrated therapy. As an integrated psychotherapy DBT utilises many different strategies as needed. At times DBT uses CR and so the differential impact of mindfulness skills training has not clearly been teased out in the research related to DBT.

Mindfulness Based Cognitive Therapy (MBCT) (Teasdale et al., 1995; Teasdale et al., 2000) is another example of an integrated psycho-therapy that utilises mindfulness based practices. One study using random allocation of individuals with a significant history of depression (n=145) to either a MBCT group or “treatment as usual” was claimed to have had significant results (Teasdale et al., 2000). In this study (for patients with 3 or more previous episodes of depression or 77% of the sample) MBCT significantly reduced the risk of relapse/recurrence. For those with only two previous episodes, however, MBCT did not reduce relapse. Teasdale et al., (2000) argued that the results supported the use of mindfulness practices as a prophylactic against relapse but admitted that the research design did not allow for consideration of possible non-specific effects such as therapeutic attention and group participation.

Mindfulness practices have been used in stress management programmes that have been designed to reduce distress including symptoms of anxiety, depression, pain and illness/disease (Kabat-Zinn, 1990). Many of these programmes have been termed Mindfulness-Based Stress Reduction (MBSR) (Muirhead, 1999). A review of the literature revealed numerous studies using variations of MBSR programmes for stress related conditions. In

general, the results favour the use of MBSR approaches for the amelioration of stress related problems. The studies included:

- An eight week MBSR programme that reduced levels of pain, anxiety and depression in chronic pain sufferers. These results were significantly different from a control group with no treatment (Kabat-Zinn, Lipworth, and Burney, 1985).
- MBSR for effects upon psychological symptomatology and sense of control for undergraduate students. Subjects in the MBSR group had significantly greater positive changes than non-intervention controls (Astin, 1997).
- Mindfulness instructions in combination with light therapy for the treatment of psoriasis. Those with instructions had faster and more significant clearing of lesions than those without (Kabat-Zinn, Wheeler, Light, Skillings, Scarf, Cropely, Hosmer and Bernhard, 1998);
- A MBSR programme for female inmates of a state prison was compared to a wait list control and another group attending psycho-educational classes. The treatment groups demonstrated reduction in state anger and anger expression scores between pre and post testing. However, only those in the MBSR programme demonstrated significant increases in coping with stress indicators and significant reductions in global levels of distress (Perkins, 1999).
- Kabat-Zinn et al., (1992) showed how 20 of 22 subjects who fulfilled criteria for GAD or panic disorder with or without agoraphobia before a MBSR programme demonstrated significant reductions in symptoms as measured on objective scales of depression and anxiety

immediately after the programme. Changes were maintained at 3 month follow up evaluations as well as 3 year follow up for those who continued to practice the skills they learnt.

- In a randomised wait list controlled trial (N=90) for cancer patients with a variety of other stress related symptoms, Speca, Carlson, Goodey and Angen (2000) found that after a seven session MBSR course patients in the treatment group had significantly lower scores on measures of depression, anxiety, anger and confusion and higher scores on vigour than controls.

Other studies related to MB practices are those that evaluated the comparative impact of ACT (Hayes et al., 1999). Unlike DBT, ACT does not integrate the use of CR. A number of studies evaluating ACT (cited in Hayes et al., 1999; and Kohlenberg, Hayes & Tsai, 1993) have generally indicated positive outcomes. Of particular interest are two small studies comparing ACT (then called “comprehensive distancing”) with CT practices.

In the first study (Zettle & Hayes 1986 in Hayes et al., 1999), 18 depressed women were assigned either a 12 week individually oriented course with CT or ACT. The results indicated that ACT produced significantly greater reductions in objective depressive scores. In the second study (Zettle & Rains, 1989), 31 depressed females were randomly assigned to one of three group programmes: a programme based on CT, a partial CT programme or an ACT programme. In this study all treatment approaches showed significant pre post reductions for measures of depression and the programmes were not significantly different. However, the ACT programme participants did not show significant reductions in the Dysfunctional Attitudes

Scale (DAS) (the DAS measures changes in attitudinal content). These outcomes suggested that ACT and CT both initiate therapeutic changes with depressed individuals but the underlying mechanisms of change (i.e., content of thought vs. relationship to thought) could be different.

In summary, the evidence supports the use of MB strategies as an intervention with anxiety and depressive symptoms. However, it also indicates that there should be caution using this approach especially with clinical populations. The caution pertains to its use being misunderstood in a manner that may develop self-focussed attention. Mindfulness could also be misinterpreted as a way to avoid goal setting and awareness of consequences.

Rationale for evaluation

Mindfulness appears to be a valuable therapeutic approach that is already being utilised by many clinical practitioners and has some empirical support. This growth in interest and popularity, however, needs to be supported by more empirical evidence so that there can be clarity about the contexts in which MB practices should or should not be used. Further empirical evidence about using MB practices may inform clinician about the parameters within which mindfulness based practices may be taught and utilised.

This clarification may be particularly relevant for the treatment for excessive worry or rumination. With these cyclic tendencies the use of content changing strategies such as challenging and replacing negative thoughts may be less effective than strategies that directly address the process rather than the content of dysfunctional thoughts and emotions. Mindfulness is a process-

oriented approach that may be able to short circuit unhelpful cyclic habits that perpetuate mental distress.

Mindfulness may be a specific approach to address stress related depressive and anxiety symptom patterns within heterogenous clinical populations. Evaluating a MB approach may justify the establishment of such practices in settings where there may be a need for interventions but where there are limited clinical resources. Such settings could include community health centres in rural areas.

Studies that focus upon assessing the utility of mindfulness practices in actual clinical practice settings can add to scientific knowledge, clinical expertise and further direct empirically based best practice approaches.

The general aim of the current study was to evaluate the feasibility and validity of running a MB stress management course at a community health service in a rural north coast NSW community setting. One approach to the evaluation was comparison of quantifiable outcomes to an existing CBT based intervention. The CBT programme utilised CR and represented currently accepted and empirically supported approaches to stress management and the treatment of GAD or stress related depressive and anxiety symptoms.

The project compared existing clinical practice by targeting the therapeutic interventions of psychological services provided by the NSW Department of Health at two different sites. One site being at Bankstown, NSW, which is part of the South Western Sydney Area Health Service (SWSAHS) and the other site being at Lismore, NSW, which is part of the Northern Rivers Area Health Service (NRAHS).

The research questions were:

1/ does participating in a programme that utilises training and practice in mindfulness skills help to reduce the severity of stress, anxiety and depressive symptoms in those people who experience or have experienced these symptoms within a mild to severe range?

2/ does participating in a MB stress management programme compare favourably to participating in a programme that includes training and practice in purposely confronting, challenging, and replacing negative automatic thoughts (i.e., cognitive restructuring) on measures related to stress, anxiety and depressive symptomatology?

Method

Design

The decision to evaluate actual and existing clinical practice in two separate settings meant that a number of principles of experimental design were necessarily compromised. The research followed a quasi-experimental design, and the method used was that of an open trial. In clinical research this method is considered intermediate to the single–case design and randomised controlled trials (Roth & Fonagy, 1996). In essence, the outcomes of two treatment programmes for similar symptom patterns, conducted in different sites in New South Wales, were compared. The content of the two programmes was identical, except that one of the programmes included five sessions that focused on training in mindfulness-based skills, while the other programme included five sessions that involved training in cognitive restructuring skills. Both programmes utilised skills training often associated with CBT. However, for ease of identification the mindfulness programme or course will be called the MB programme and the other programme or course will be called the Cognitive Restructuring (CR) programme

The independent variable was the type of programme in which clients participated (MB or CR). The dependent variables were scores on a number of standard self-report instruments that assess clinical symptoms of stress, anxiety, and depression. The instruments were completed prior to commencement in the programmes, at the conclusion of the third session, at the conclusion of the eighth and final session, and two months after the programmes had been completed. The instruments were completed after the

3rd session and before the fourth session to aid in assessing the differential impact of either the CR or MB aspects of the programmes.

In addition to quantitative or statistical analyses, the MB programme was evaluated by using subjective, descriptive, and qualitative assessments. These approaches are considered valid means to evaluate programme utility (Kazdin, 1986).

In order to meet obligations to expedite service provision, a “no treatment” wait-list control group was only to be included if the number of applicants for the programmes exceeded the resource capacity of the local health service. The resource capacity was groups with not more than twelve participants per group. In Lismore this consisted of no more than two groups at one time.

Participants

The participants were adults seeking group treatment for symptoms of anxiety, depression, and stress from either the SWSAHS, Bankstown Clinic for Anxiety and Traumatic Stress in Sydney, NSW or the NRAHS Lismore Mental Health Service on the north coast of NSW.

Thirty participants were accepted into three CR programme groups. Twenty were female and 10 were male. The age range was 21 to 64 years. One CR group was held in evening time slot and the other two CR groups were held in daytime time slots. As the CR groups were semi-sequential participants were allocated to different groups depending upon convenience. All but six CR programme completers were stable users of psychotropic medications.

Twenty four participants were accepted to the MB programme which had one daytime and one evening group. Two males and 10 females were allocated to each MB group dependent upon participant preference and convenience. Both MB groups were run in the same time period. The age range was from 22 to 58 years. All but four MB programme completers were stable users of psychotropic medications.

Selection & Exclusion Criteria for Participants

The same selection and exclusion criteria for programme participation were used for both types of programme. The target populations were:

- Adults who may have been experiencing “stress” as indicated by experiencing general anxiety and depressive symptoms such as those found with GAD.
- Individuals who, at the time of assessment, may not have been experiencing severe symptomatology but had in the recent past.
- Adults who may have had a primary diagnosis of social phobia, agoraphobia or panic disorder if specific local programmes could not better cater for them.

Individuals who were excluded from both programmes were:

- Those whose presenting problems may have been better served by accessing individual psychotherapy or specific specialised programmes such as those with primary diagnoses of Post Traumatic Stress Disorder, Obsessive Compulsive Disorder, or those experiencing an acute crisis.
 - Those who were actively psychotic (e.g., with hallucinations, thought disorder, gross delusions and bizarre behaviour).
 - Those who were manic.

- Individuals who were acutely suicidal.
- Those who may have been disruptive to group processes due to some severe personality traits. Though some individuals suffered from severe personality styles (e.g., BPD traits) these individuals were not excluded from the programme unless their personality style would be clearly disruptive to the group processes.
 - Those who lacked motivation or commitment.
 - Those who could not understand instruction (e.g., developmental disability or unable to understand English).

Those who were using psychotropic medication (e.g., an anxiolytic or an anti-depressant) and were stable with their use were not excluded from either programme because this would have unrealistically limited participant numbers.

Procedure

Referrals to both the Lismore and Bankstown services came from local General Practitioners and Psychiatrists, Community Health Services, and non-government organisations. There were also some self-initiated referrals. While the Bankstown programme has an established referral base, the existence of the Lismore programme was drawn to the attention of potential referrers by distributing written information on the nature of the programme and the criteria for making a referral (see Appendix B). In accordance with ethical standards, both programmes required that participants read information sheets about the project and the content of the programmes, and sign consent forms prior to participation (see Appendix C).

In both sites, a clinician who collected a thorough mental health history assessed all potential participants. This included the type of any current psycho-pharmacological treatment for their symptoms. Participants also completed two structured clinical diagnostic interviews. The structured interviews used were the Structured Clinical Interview for DSM-IV Axis I disorders (SCID-I), Clinician Version, (First, Spitzer, Gibbon & Williams, 1997) and the Structured Clinical Interview for DSM-IV Axis II Personality Disorders or SCID-II, (First, Gibbon, Spitzer, Williams & Benjamin, 1997).

The SCID-I is a commonly used structured interview that systematically enquires about the presence or absence of criteria for the Diagnostic and Statistical Manual of Mental Disorders- fourth edition (DSM-IV; American Psychiatric Association, 1994) Axis-I mental disorders and helps to assign a diagnosis dependent upon these criteria. The SCID-II is a structured interview that focused upon DSM-IV Axis II disorders or personality styles. The SCID-II firstly involves a 120-item questionnaire. If a notable number of items in the questionnaire have positive response then further inquiry with structured questions is followed. The assignment of various personality styles is dependent upon the interviewee's responses.

While the two programmes were conducted by different therapists and in different locations, they each consisted of eight 1.5 to 2 hour sessions using manuals that were virtually identical for the first three chapters. From the fourth chapter on the manuals varied and included instruction about either mindfulness-based skills or cognitive restructuring skills. Two experienced clinicians who were thoroughly trained in the material covered conducted each group, regardless of type. The three different CR groups involved four

different female therapists: two clinical psychologists, one psychologist and one clinical psychologist intern. The two different MB groups involved three different therapists: one male psychologist, one male occupational therapist and one female mental health nurse.

The first three sessions of both programmes included: 1/a relevant psycho-educational component, 2/training in progressive relaxation and controlled and abdominal breathing, and 3/training in goal setting, time management and problem solving.

Sessions 4 to 6 inclusive of the CR programme focused entirely on presenting information and training about cognitive restructuring. Sessions 7 of the CR programme focused upon an exposure based approach using cognitive restructuring and other skills learnt. Session 8 of the CR programme presented information about utilising CR and other skills for relapse prevention. The last five sessions of the MB programme presented information and training on mindfulness-based strategies as ways of coping with stress and its related symptoms.

The MB programme manual, compiled by the author, varied from the fourth chapter on but was based on the existing stress management manual used at the Bankstown Clinic for Anxiety and Traumatic Stress (Manicavasagar & Blaszczynski, 1995). A separate MB leader's guideline manual was written by the author and used to ensure consistency with possible future replication. Comparable progressive relaxation audio tapes were given to participants of both programmes in the first two sessions. Participants in the MB programme were also given additional audio tapes that were guided MB exercises that could be practiced at home. The MB tapes

were recorded by the author on amateur equipment and involved his voice and instructions. Copies of all manuals and tapes are available upon request from respective sources. The content of the material presented and the exercises given in the MB programme were derived from sources such as Linehan (1993), Hayes et al., (1999), Kabat-Zinn (1990), Fryba (1995) as well as the author's personal and professional experience and training in MB strategies. Due to programme differences, the MB programme included an additional screening procedure. Prior to beginning the MB programme potential participants were informed about possible risks involved, the self-motivating nature of the programme, and asked to sign an agreement about group participation (Appendix D). This matched procedures which have been used in similar MB programmes (e.g., Linehan, 1993; Salmon, Santorelli & Kabat-Zinn, 1998).

Outcome measures

Quantitative Measures

In all there were five dependent variables. These included three sub-scales from the Depression Anxiety and Stress Scale-21, the Anxiety Sensitivity Index and the Automatic Thoughts Questionnaire.

Depression Anxiety and Stress Scale-21 (DASS-21)

The DASS-21 is a 21-item short version of the 42-item DASS. The DASS-21 is a scale that is useful to measure and distinguish the negative emotional states of depression, anxiety and stress (Page, 1998). The DASS-21 measures the same experiences as the DASS but appears to have some advantages over the DASS in that it has fewer items, has a cleaner factor structure and smaller inter-factor correlations (Antony, Bieling, Cox, Enns &

Swinson, undated). The DASS-21 is comprised of three scales which provide separate measures of depression, anxiety, and stress.

The depression scale measures: dysphoria, hopelessness, self depreciation, devaluation of life, disinterest, anhedonia and inertia. Scores above 10 indicate mild levels of depression.

The anxiety scale measures: autonomic arousal, situational anxiety, anxious affect, and skeletal muscle effects. Scores above 7 indicate mild levels of anxiety.

The stress scale measures experiences often associated with stress (and GAD) that include: difficulty relaxing, nervous arousal, being easily upset and agitated, being irritable being over reactive and being impatient. Scores above 14 indicate mild levels of stress.

Internal and concurrent validity of these scales are acceptable. For example, a commonly accepted and valid measure of depression is the Beck Depression Inventory (BDI) and a commonly accepted and valid measure of anxiety is the Beck Anxiety Inventory (BAI). Both these scales correlate significantly with the DASS. The correlations between the DASS depression scale and the BDI is 0.74 and the correlation between the DASS anxiety scale and the BAI is 0.81 (Lovibond & Lovibond, 1996). No comparable scale exists for the stress scale of the DASS. The DASS-21 is appropriate for both researchers and clinicians to measure current state or change in state over time (Lovibond & Lovibond, 1996).

The Automatic Thoughts Questionnaire (ATQ)

The ATQ is generally used to measure the frequency of negative automatic thoughts (Hollon and Kendall, 1980). The ATQ was developed to

help assess the change in cognitive content (such as negative self statements) as a function of treatment and the ATQ is considered as a measure of depression. Cut off scores for depression have not been suggested. However, Hollon and Kendall (1980) reported a mean of 79.6 (SD 22.3) for depressed subjects and a mean of 48.6 (SD10.9) for non-depressed subjects.

The ATQ has demonstrated high internal reliability and cross validation with other scales (Hollon & Kendall, 1980). Correlations with the BDI and the State Trait Anxiety Inventory (STAI) were statistically significant (Hollon & Kendall, 1980). Similar reliability and cross validation were also found in later studies and the ATQ has been considered as a reliable and valid measure of depression related cognition (Harrell & Ryon, 1983).

The ATQ was included because it measures changes in depression and negative automatic thoughts that are often the targets for cognitive restructuring.

The Anxiety Sensitivity Index (ASI)

The ASI was developed as a measure of sensitivity or “reactivity” to anxiety symptoms. Sensitivity to anxiety symptoms has also been called fear of fear (Taylor, Koch Woody, & McLean, 1996). Original studies involving college students (n=127) revealed adequate test/retest reliability and validity with a single factor structure and a high degree of inter item relatedness (Reiss, Peterson, Gursky, & McNally, 1986)

Elevated ASI scores (i.e., greater than 25) can be found with those with both anxiety and depression (Taylor et al., 1996). The ASI correlates with elevated scores on validated anxiety measures (such as the BAI) as well as

elevated scores on measures of depression (such as the BDI) (Taylor et al., 1996). This instrument was included because it measures depressive and anxiety related factors. Repeated administration of the ASI can measure possible changes in the participants' tendencies to react to symptoms of anxiety.

Qualitative measures

Qualitative measures were not included in the CR programme because they were not part of the normal evaluation procedures used there. However they were included in the Lismore MB programme, in order to add content and substance to quantitative data, and to assist in the interpretation of these data.

The MB-programme involved the therapists maintaining programme records for each participant. These records included:

- a general record of each session including attendance and how much the content and format of each particular session was consistent with the plan for that session and the manual.
- a record and evaluation of individual participation
- a record of any untoward mental health signs exhibited
- a record of session by session positive or negative feedback that participants may have given.

Homework sheets were given to those in the MB programme from session 4-8. These sheets included a section for participants to make comments if they wished (Appendix E).

A client satisfaction evaluation, usually in the form of a survey, is part of NRAHS programme procedures and was given to programme participants on completion of the eighth MB session (Appendix F).

A rough measure of MB skill practice or compliance was taken at the two month follow up outcome measure sequence or occasion. This consisted of asking respondents how many minutes per day that they may have averaged practicing mindfulness skills in the previous three months. The four different domains assessed were sitting or lying, walking, general daily activity, and physical exercise (see Appendix G). The responses were tabulated where scores of no practice = 0, under 10 minutes =1, between 10 and 30 minutes = 2, between 30 and 60 minutes = 3 and more than 60 minutes = 4. Possible scores ranged from 0 (no practice) to16 (possibly 4 hours or more a day).

Table 1

Sequence of intervention and evaluation summarised.

Sequence or occasion	MB-Programme	CR-Programme
1.Screening	<ul style="list-style-type: none"> • General intake and assessment interview 	<ul style="list-style-type: none"> • General intake and assessment interview
2.Pre-session 1	<ul style="list-style-type: none"> • SCID-I • SCID-II • DASS-21 • ASI • ATQ • Group participation agreement signed 	<ul style="list-style-type: none"> • SCID-I • SCID-II • DASS-21 • ASI • ATQ
3.Sessions 1-3	Intervention that was not CR or MB specific	Intervention that was not CR or MB specific
4.Post session 3 pre session 4	<ul style="list-style-type: none"> • DASS-21 • ASI • ATQ 	<ul style="list-style-type: none"> • DASS-21 • ASI • ATQ
5.Sessions 4-8	MB intervention	CR intervention
6.Post session 8	<ul style="list-style-type: none"> • DASS-21 • ASI • ATQ Client satisfaction survey.	<ul style="list-style-type: none"> • DASS-21 • ASI • ATQ
7.Two month follow-up	<ul style="list-style-type: none"> • DASS-21 • ASI • ATQ Review practice compliance	<ul style="list-style-type: none"> • DASS-21 • ASI • ATQ

Statistical Power Calculations

In order to determine minimal participant numbers, power calculations were conducted before the project began. The test sampled was the Stress subscale of the DASS-21. The statistical information was gathered from studies cited in Lovibond & Lovibond (1996). The standard deviation used for the calculations was derived from the data collected from 46 patients with diagnosis of Major Depression. This data was comparable to other research

using larger sample sizes. The required effect was a reduction of 12 points (or 33%) on the stress scale. This was equivalent to reducing the level of stress symptom severity from extremely severe to moderate or moderate to normal.

Statistical Analysis

The main statistical analysis involved applying the uni-variate approach to repeated measures ANOVA to measures of symptom severity from both programmes. Each dependent variable was analysed separately to estimate the effects of occasions of measurement, type of programme and the interaction between occasions of measurement and the type of programme. In this way change in symptom scores across time were evaluated and the differential impact of the two different programmes on those changes was also evaluated. Another factor added to the analysis was the use or non-use of psychotropic medications. This was added to assess whether or not change in symptom scores could be related to this factor.

The uni-variate repeated measures ANOVA approach depends upon the restrictive assumption of sphericity or compound symmetry (Stevens, 1996). Mauchley's test was used to test for violations of the assumption of sphericity. If the assumption of sphericity was violated, the significance levels were adjusted using Huynh-Feldt epsilon values.

If an effect involving the occasion factor was significant then multiple pair wise comparisons were conducted using the Bonferroni method. In addition to this, tests of within subjects contrasts were used to indicate the nature of the response profile. Linear contrasts, for example, indicate that the adjusted means either increased or decreased in a consistent manner over

time. Quadratic contrasts can indicate changes in the rate of increase of decrease over time.

Tests of between-subjects effects are included in the repeated measures ANOVA model and can, in this case, indicate differences in scores between groups delineated by programme or psychotropic medication. Such differences were not based on changes over time. With the current analyses, only significantly different between-subject effects were reported.

Chi square analysis was used to determine whether the retention rates of the two different programmes varied. This was based upon comparing how many participants completed and did not complete respective programmes.

Results

Power calculations for sample size

Calculations indicated that the minimal sample size required for an average 33% reduction of score on the DASS-21 stress scale, with a .05 level of confidence and a statistical power of 80% was 9 participants per programme. These results suggested that the actual sample sizes for the study were adequate to reduce the probability of Type I or Type II errors occurring.

SCID diagnoses

The primary and co-morbid diagnoses of participants from both programmes were mixed. For the CR programme these diagnoses included: GAD, panic disorder, major depression, dysthymia, major depressive episode, simple phobia, past major depressive episode, agoraphobia, obsessive compulsive disorder, post traumatic stress disorder and social phobia. The personality styles assessed in the CR programme completers included: avoidant, dependent, borderline, and self-defeating. The primary and co-morbid diagnoses of participants from the MB programmes included: GAD, panic disorder, major depression, dysthymia, past major depressive episode, agoraphobia, post traumatic stress disorder, social phobia, bi-polar disorder in remission and previous brief reactive psychosis. The personality styles assessed with the MB programme completers included: depressive, obsessive and borderline. For a breakdown of treatment completers' psychotropic medications and SCID diagnoses see Appendix H.

Quantitative data responses and attrition

Data from participants who missed three or more sessions were not included in the statistical analysis.

Twenty-three participants began the MB course. Three participants attended this course for only one session, 2 participants dropped out after 4 sessions and 1 participant attended sporadically and missed 3 sessions. There were no dropouts from the evening group. Quantitative data from 17 MB programme participants (11 evening and 6 daytime) were analysed. The retention rate for the MB programme was 74%.

Twenty-seven CR programme participants began this course. All beginners stayed for more than one session but 9 beginners missed three or more sessions of the CR programme. Eighteen CR participants completed the course. The retention rate for the CR programme was 67%. The retention rate comparison between the MB and the CR programmes were not significantly different ($[\chi]^2 = 0.67$, significance = .414)

Only 7 CR participants completed some of the two month follow up outcome measures. In addition, one CR participant who completed the course did not complete most of the outcome measures. Quantitative data from 17 CR programme participants' responses to pre, pre-fourth and post outcome measures were included in the statistical analyses.

Sixteen out of 17 MB programme completers responded to the two month follow-up survey. All respondents claimed some form of daily practice that continued after the course had finished. From a maximum score of 16 for average daily MB skills practice and a minimum score of 0, the mean score

was 6.2 and the range was 3 to 9. A minimum score of 3 was equivalent to at least a few minutes purposeful or spontaneous MB practice daily.

Quantitative Outcomes

Insufficient two month follow up data were collected from the CR programme to include these data in analysis. Analyses comparing the two programmes (N=34) included only data collected from the 1st occasion, the 2nd occasion and the 3rd occasions. In order to utilise the two month follow up or 4th occasion data from the MB programme, separate analyses were conducted on the MB data (N=17) which included outcome measurements from four occasions.

All means were conditional upon the statistical model used and adjusted accordingly. For the following report all means are adjusted means and levels of significance were considered at the $p < .05$ level.

Repeated measures ANOVA for MB data only (N=17)

Using Mauchley's test, the assumption of sphericity was not violated for the DASS-21 stress score data. However, the assumption of sphericity was violated for the data from MB scores of the DASS-21 depression, DASS-21 anxiety, ASI and ATQ measures. Refer to Table 2. for significance levels.

Table 2

Significance levels using Mauchley's tests of sphericity

Variable	Sphericity	Sig. Level
DASS-21 depression	Violated	.006
DASS-21 anxiety	Violated	.015
DASS-21 stress	Not violated	.328
ASI	Violated	.001
ATQ	Violated	.008

When the assumption of sphericity was violated, tests were corrected using Huynh-Feldt epsilon values. Tests for the within-subjects effect for occasion were significant with all five dependent variables. Refer to Table 3. for values.

Table 3

Within subjects effect for occasion for MB scores

Variable	Adjustment	df	F	Significance
DASS-21 depression	Huynh-Feldt	2.11, 31.67	9.52	.000
DASS-21 anxiety	Huynh-Feldt	2.05, 35.75	12.95	.000
DASS-21 stress	Nil-sphericity assumed	3,45	8.77	.000
ASI	Huynh-Feldt	1.73, 25.99	19.71	.000
ATQ	Huynh-Feldt	2.33,35.07	12.30	.000

The means for all five dependent variables decreased significantly in measured symptom severity over the first three occasions. In each case, this change was maintained with no further significant change from the eighth session till the two-month follow up. Refer to Figures 1 to 5 for plots of changes over time. Also refer to Tables 4 and 5 for means of each variable by occasions.

Figure 1. Change over four months for MB DASS-21 depression means.

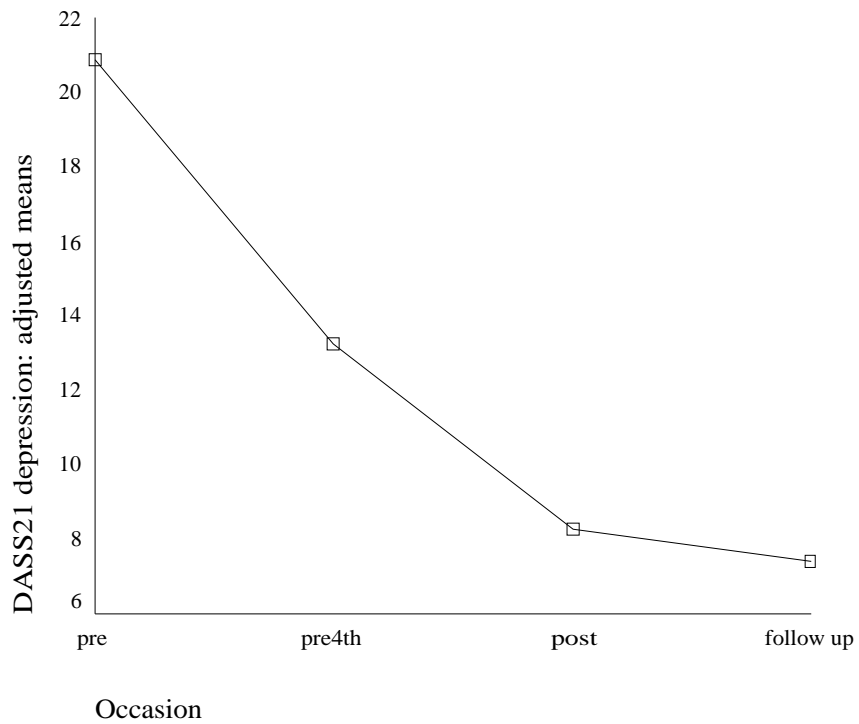


Figure 2. Change over four months for MB DASS-21 anxiety means.

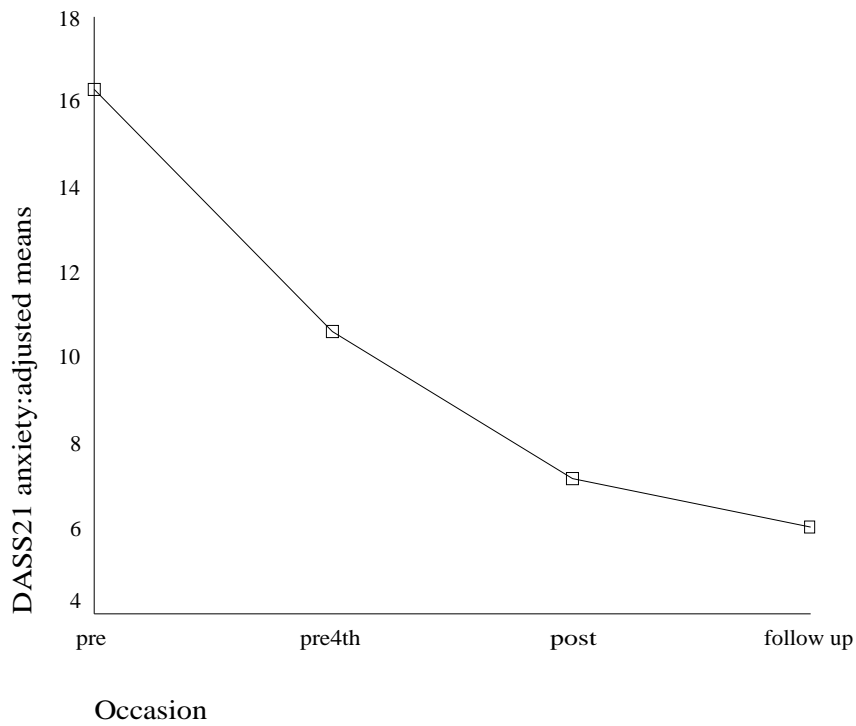


Figure 3. Change over four months for MB DASS-21 stress means.

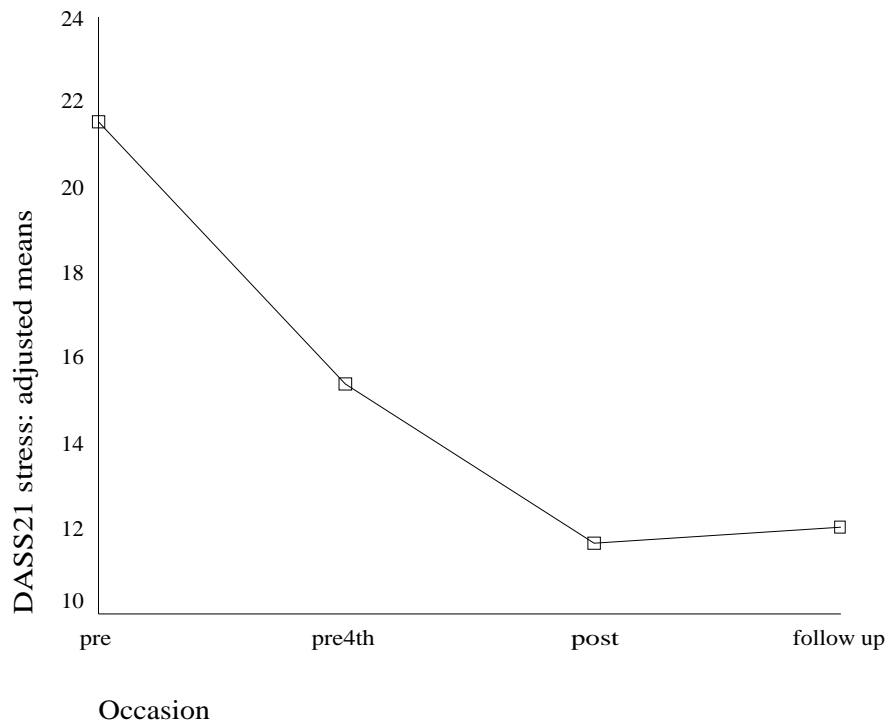


Figure 4. Change over four months for MB ASI means.

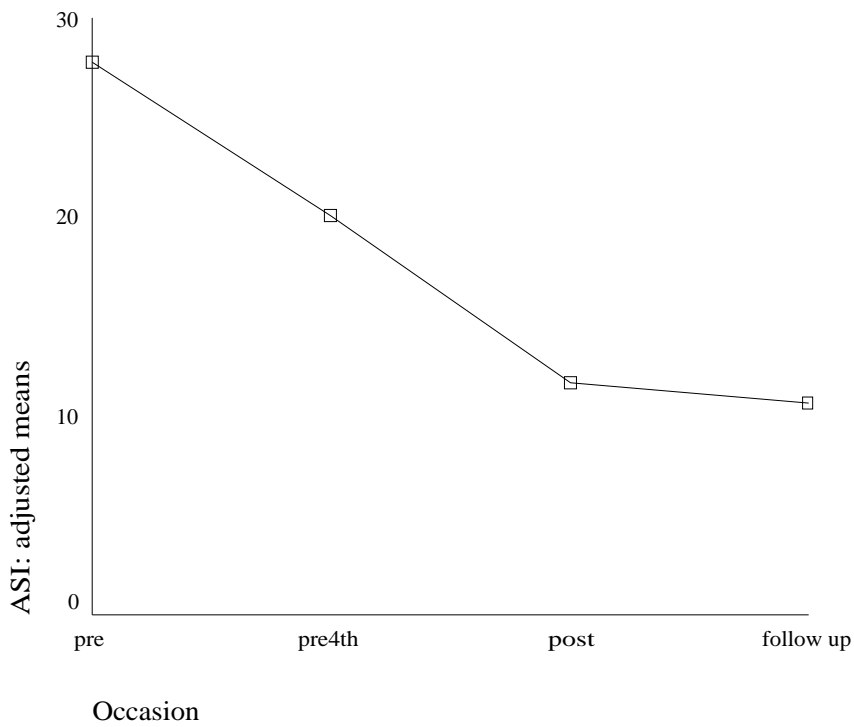


Figure 5. Change over four months for MB ATQ means.

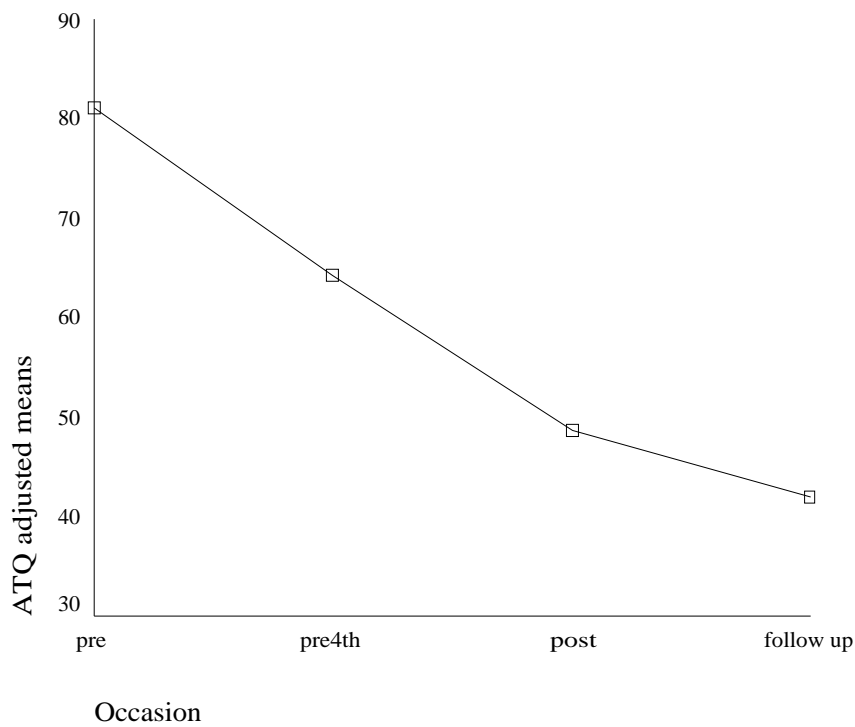


Table 4

Adjusted means and standards errors of MB DASS-21 scores

Occasion	Depression		Anxiety		Stress	
	Adjusted mean	Std. Error	Adjusted mean	Std. Error	Adjusted mean	Std. Error
1	20.88	3.28	16.25	2.34	21.50	2.49
2	13.25	2.93	10.63	2.06	15.38	2.06
3	8.25	1.97	7.13	1.62	11.62	1.92
4	7.38	2.43	6.00	1.64	12.00	2.16

Table 5

Adjusted means and standards errors of MB ASI and ATQ scores

Occasion	ASI		ATQ	
	Adjusted mean	Std error	Adjusted mean	Std error
1	27.81	4.07	80.94	8.98
2	20.06	3.48	64.06	7.86
3	11.69	2.26	48.56	4.59
4	10.63	1.78	41.94	3.67

Bonferroni multiple pair wise comparisons indicated that with all five dependent variables there were significant mean differences between some occasions but not all. Refer to Tables 6. to 9.

Table 6

MB DASS-21 depression scores: Pair-wise comparisons

Occasion (I)	Occasion (J)	Mean Difference (I-J)	Std. Error	Sig. (a)
1	2	7.63	3.58	.300
1	3	12.63*	2.71	.002
1	4	13.50*	3.61	.012
2	3	5.00	2.78	.550
2	4	5.88*	1.61	.014
3	4	0.88	2.20	1.000

* The mean difference is significant at the $p < .05$ level.

(a) Adjustment for multiple comparisons: Bonferroni.

Table 7

MB DASS-21 anxiety scores: Pair-wise comparisons.

Occasion (I)	Occasion (J)	Mean Difference (I-J)	Std. Error	Sig. (a)
1	2	5.63	2.16	.120
1	3	9.13*	2.09	.003
1	4	10.25*	2.22	.002
2	3	3.50	1.60	.268
2	4	4.53	1.57	.060
3	4	1.13	0.84	1.000

*The mean difference is significant at the $p < .05$ level.

(a) Adjustment for multiple comparisons: Bonferroni.

Table 8

MB DASS-21 stress scores: Pair-wise comparisons.

Occasion (I)	Occasion (J)	Mean Difference (I-J)	Std. Error	Sig. (a)
1	2	6.12	2.04	.053
1	3	9.87*	2.59	.010
1	4	9.50*	2.64	.016
2	3	3.75	1.90	.400
2	4	3.38	2.11	.785
3	4	-.37	1.65	1.000

*The mean difference is significant at the $p < .05$ level.

(a) Adjustment for multiple comparisons: Bonferroni.

Table 9

MB ASI scores: Pair-wise comparisons

Occasion (I)	Occasion (J)	Mean Difference (I-J)	Std. Error	Sig. (a)
1	2	7.75*	2.18	.017
1	3	16.12*	3.07	.001
1	4	17.19*	3.64	.002
2	3	8.38*	1.85	.002
2	4	9.44*	2.54	.012
3	4	1.06	1.43	1.000

*The mean difference is significant at the $p < .05$ level.

(a) Adjustment for multiple comparisons: Bonferroni.

Table 10

MB ATQ scores: Pair-wise comparisons

Occasion (I)	Occasion (J)	Mean Difference (I-J)	Std. Error	Sig. (a)
1	2	16.88	9.41	.559
1	3	32.38*	6.91	.002
1	4	39.00*	8.00	.001
2	3	15.50	6.66	.211
2	4	22.13*	6.28	.018
3	4	6.63	3.22	.346

*The mean difference is significant at the $p < .05$ level.

(a) Adjustment for multiple comparisons: Bonferroni.

The results of the within subjects contrasts showed that there were significant linear contrasts for the MB means with all five dependent variables. Significant quadratic contrasts were also evident for the MB means from the DASS-21 depression, DASS-21 stress and the ASI variables. Refer to Table 11. for within subjects contrasts values and Figures 1. to 5. for graphical representation of contrasts.

Table 11

MB means: Within subjects contrasts

Variable	Contrast	<u>df</u>	<u>F</u>	Significance
DASS-21 depression	Linear	1,15	20.29	.000
	Quadratic	1,15	6.67	.027
DASS-21 anxiety	Linear	1,15	22.88	.000
DASS-21 stress	Linear	1,15	3.10	.003
	Quadratic	1,15	5.67	.031
ASI	Linear	1,15	23.99	.000
	Quadratic	1,15	7.38	.016
ATQ	Linear	1,15	30.03	.000

Repeated measures ANOVA for CR programme and MB programme data combined (N=34)

Except for the ATQ measure taken from the first occasion, the means from all five dependent variables were generally higher with the CR programme participants at all occasions. However, when analysed, only the DASS-21 anxiety means from participants in the CR programme were significantly higher than the MB programme at all occasions. This was indicated by a test of between subjects effects where there was significant effect for programme with the DASS-21 anxiety means ($F = 56.03$, $df = 1,28$, $Sig. = .047$). Refer to Tables 12. and 13. for means of each occasion by programme. Refer to Figures 6. to 10. for a graphical representation of the differences between programmes. These figures plot the change over three occasions differentiated by programme. The statistical nature of these changes will be clarified later.

Table 12

Adjusted means and standard errors of DASS-21 means by programme

Programme & Occasion	Depression		Anxiety		Stress	
	Adjusted mean	Std. error	Adjusted mean	Std. Error	Adjusted mean	Std. Error
MB 1	18.64	4.07	13.71	3.45	18.96	3.18
MB 2	9.87	3.44	8.44	3.10	13.82	2.94
MB 3	7.92	2.92	6.63	2.28	11.44	3.09
CR 1	23.16	3.76	22.78	3.18	23.00	2.93
CR 2	16.88	3.17	17.61	2.85	20.77	2.71
CR 3	10.77	2.69	10.50	2.11	16.67	2.84

Table13

Adjusted means and standard errors of ASI and ATQ scores by programme

Programme & Occasion	ASI		ATQ	
	Adjusted mean	Std error	Adjusted mean	Std error
MB 1	25.05	4.71	75.69	10.82
MB 2	17.18	4.57	58.23	10.36
MB 3	10.04	3.50	47.21	8.04
CR 1	28.24	4.60	75.44	11.08
CR 2	24.32	4.46	69.67	10.61
CR 3	14.76	3.41	55.21	8.23

Figure 6. Change over three occasions for DASS-21 depression means: MB and CR programmes

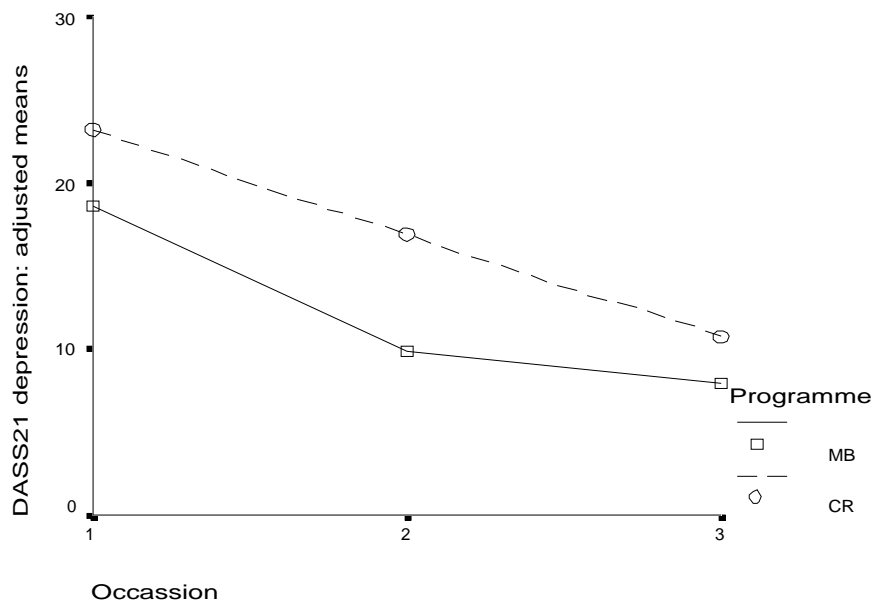


Figure 7. Change over three occasions for DASS-21 anxiety means: MB and CR programmes

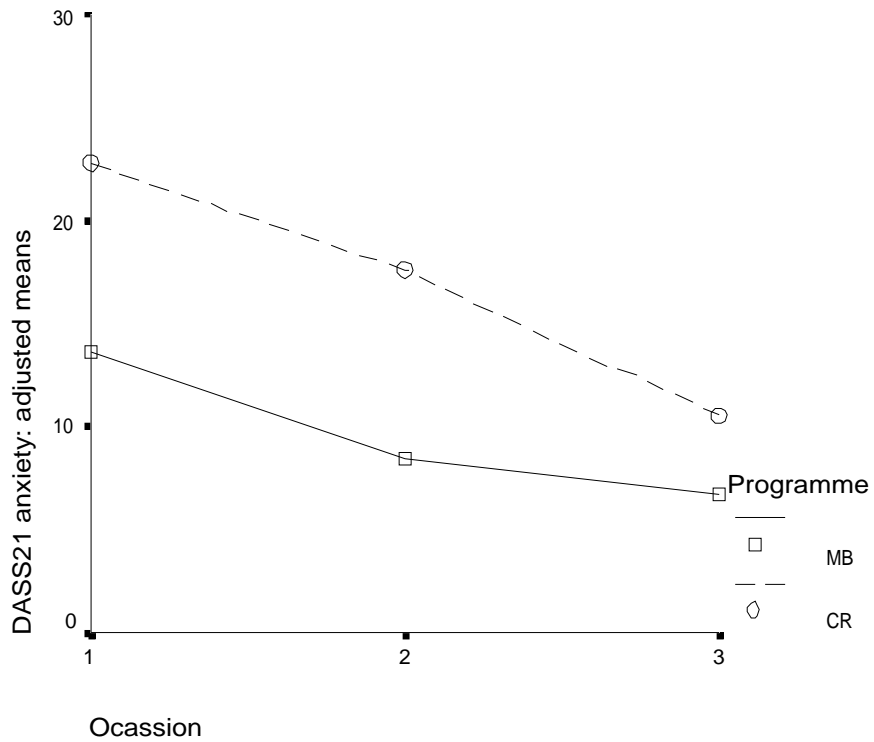


Figure 8. Change over three occasions for DASS-21 stress means: MB and CR programmes.

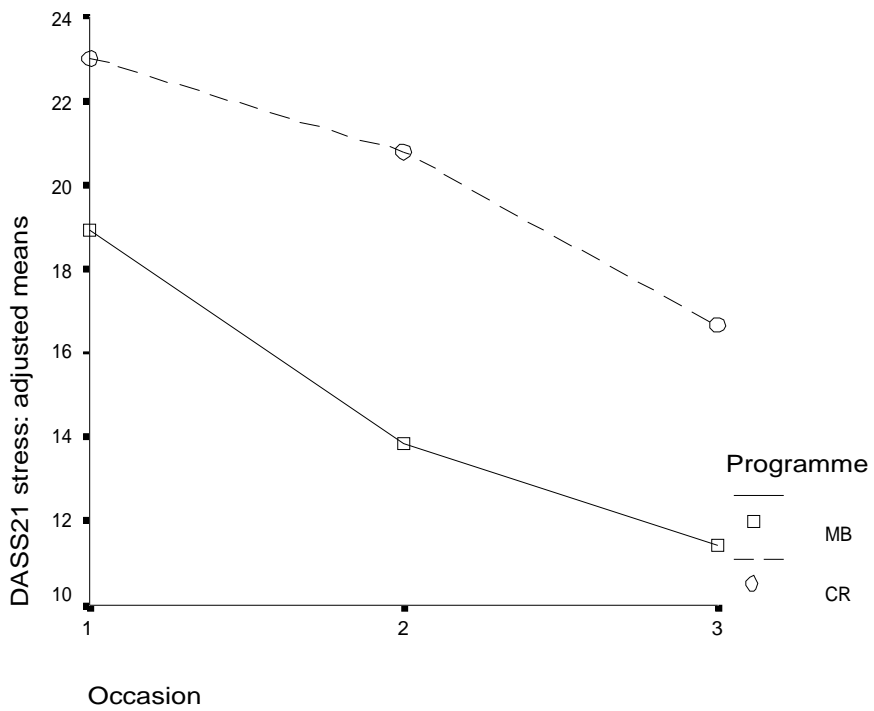


Figure 9. Change over three occasions for ASI means: MB and CR programmes

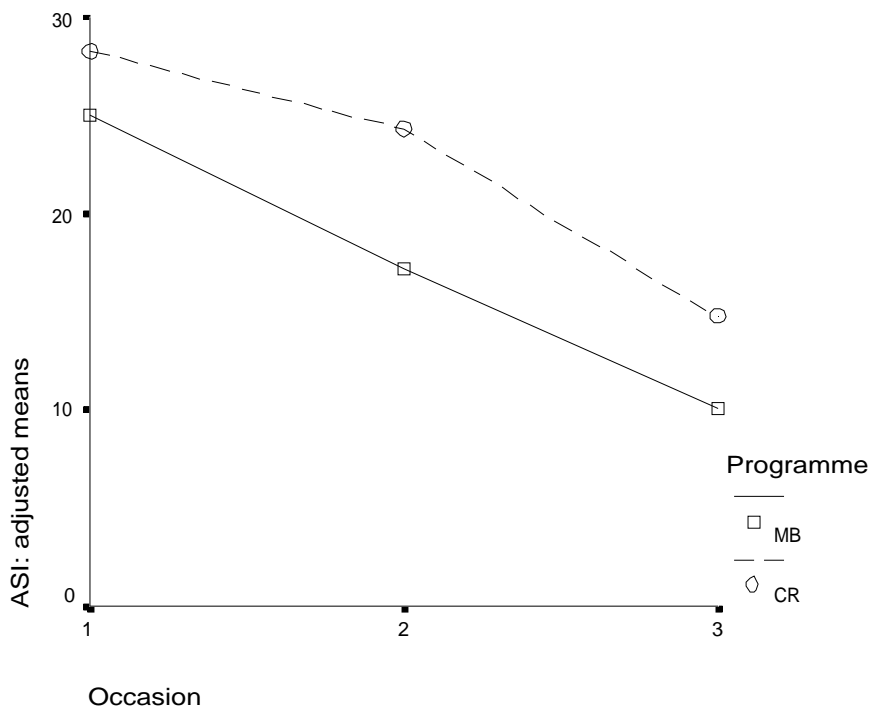
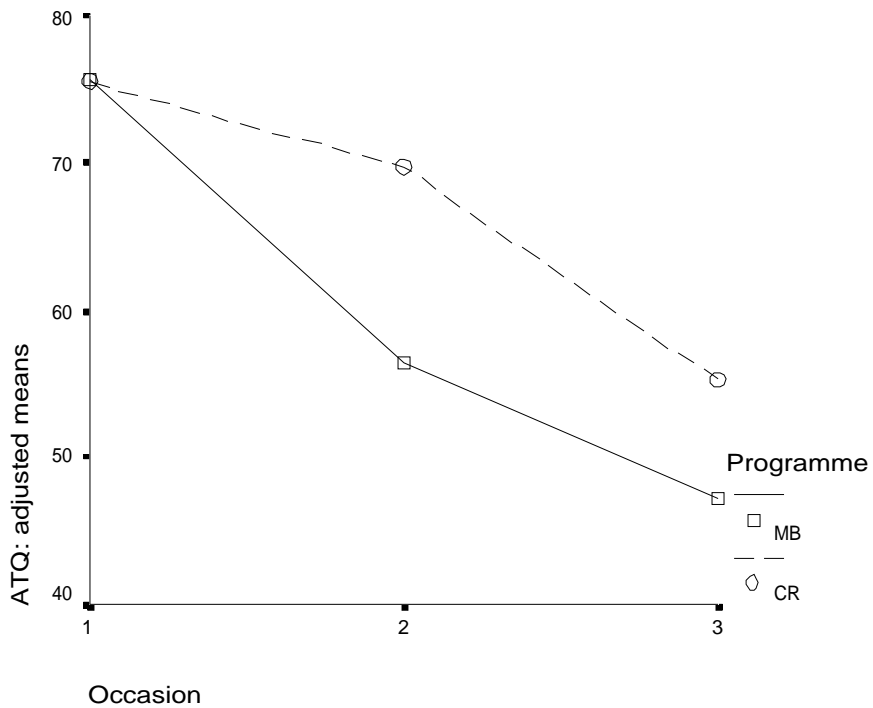


Figure 10. Change over three occasions for ATQ means: MB and CR programmes.



In order to run the analyses, data from both programmes were combined. Using Mauchley's test, the assumption of sphericity was not violated for the DASS-21 depression, ASI and ATQ combined programmes' data. However, the assumption of sphericity was violated for the data from the DASS-21 anxiety and the DASS-21 depression scores. Refer to Table 14. for significance levels.

Table 14

Combined programmes: Mauchley's test of sphericity

Variable	Sphericity	Sig. Level
DASS-21 depression	Not violated	.105
DASS-21 anxiety	Violated	.045
DASS-21 stress	Violated	.003
ASI	Not violated	.335
ATQ	Not violated	.296

When the assumption of sphericity was violated, tests were corrected using Huynh-Feldt epsilon values. Tests for the within-subjects effect for occasion were significant with all dependent variables. Refer to Table 15. for values.

Table 15

Combined programmes: Within subjects effect for occasion

Variable	Adjustment	df	F	Significance
DASS-21 depression	Nil-sphericity assumed	2,56	14.22	.000
DASS-21 anxiety	Huynh-Feldt	1.94, 54.29	16.08	.000
DASS-21 stress	Huynh-Feldt	1.71, 47.75	5.97	.007
ASI	Nil-sphericity assumed	2,54.	27.21	.000
ATQ	Nil-sphericity assumed	2,50	10.33	.000

The means from all five dependent variables from both programmes combined decreased significantly over the period of intervention. If plotted graphical representation of these changes would be consistent with those indicated with Figures 6. to 10. Refer to Tables 16. and 17. for means and standard errors by occasion.

Table 16

Combined programmes: Adjusted means and standards errors of DASS-21 scores

Occasion	Depression		Anxiety		Stress	
	Adjusted mean	Std. error	Adjusted mean	Std. Error	Adjusted mean	Std. Error
1	20.90	2.77	18.24	2.35	20.89	2.16
2	13.38	2.35	13.03	2.10	17.30	2.00
3	9.35	1.99	8.57	1.55	14.05	2.10

Table17

Combined programmes: Adjusted means and standards errors of ASI and ATQ scores

Occasion	ASI		ATQ	
	Adjusted mean	Std error	Adjusted mean	Std error
1	26.65	3.29	75.57	7.75
2	20.75	3.19	62.95	7.42
3	12.40	2.44	51.21	5.75

Bonferroni pair wise comparisons indicated that with the DASS-21 anxiety and ASI combined programmes' means there were significant differences between all occasions. With the remaining three dependent variables there were significant differences between some occasions but not all. Refer to Table 18.

Table 18
Combined programmes: Pair-wise comparisons

Variable	Occasion (I)	Occasion (J)	Mean Difference (I-J)	Std. Error	Sig. (a)
DASS-21 Depression	1	2	7.52*	2.49	.016
	1	3	11.55*	2.30	.000
	2	3	4.03	1.73	.084
DASS-21 Anxiety	1	2	5.22*	1.90	.031
	1	3	9.68*	1.89	.000
	2	3	4.46*	1.27	.004
DASS-21 Stress	1	2	3.69	2.05	.252
	1	3	6.93*	2.45	.026
	2	3	3.25	1.63	.073
ASI	1	2	5.89*	1.80	.008
	1	3	14.25*	2.20	.000
	2	3	8.36*	1.80	.000
ATQ	1	2	12.61	6.10	.147
	1	3	24.62*	5.19	.000
	2	3	11.74	4.697	.058

*The mean difference is significant at the $p < .05$ level.

(a) Adjustment for multiple comparisons: Bonferroni.

The results of the within subjects contrasts showed that there were significant linear contrasts for the combined programmes' means with all five dependent variables. Refer to Table 19. for details.

Table 19
Combined programmes: Within subjects contrasts

Variable	Contrast	df	F	Significance
DASS-21 depression	Linear	1,28	25.26	.000
DASS-21 anxiety	Linear	1,28	26.26	.000
DASS-21 stress	Linear	1,28	8.00	.009
ASI	Linear	1,27	41.97	.000
ATQ	Linear	1,25	22.05	.000

There were no statistically significant interaction effects between occasion and programme or occasion and medication use with any of the dependent variables. Refer to Table 20. and Table 21. for values.

Table 20

ANOVA interaction effects between occasion and programme

Variable	Adjustment	df	F	Significance
DASS-21 depression	Nil-sphericity assumed	2,56	0.46	.637
DASS-21 anxiety	Huynh-Feldt	1.94,54.29	1.58	.217
DASS-21 stress	Huynh-Feldt	1.71,47.75	0.27	.767
ASI	Nil-sphericity assumed	2,54	0.53	.595
ATQ	Nil-sphericity assumed	2,50	0.827	.443

Table 21

ANOVA interaction effects between occasion and medication

Variable	Adjustment	df	F	Significance
DASS-21 depression	Nil-sphericity assumed	2,56	0.82	.445
DASS-21 anxiety	Huynh-Feldt	1.94,54.29	0.433	.644
DASS-21 stress	Huynh-Feldt	1.71,47.75	0.32	.691
ASI	Nil-sphericity assumed	2,54	0.52	.598
ATQ	Nil-sphericity assumed	2,50	0.395	.675

Qualitative OutcomesProgramme Records

In general the MB programme adhered to the plan as directed in the MB leaders' guidelines and participants' MB manual. There were, however, some minor deviations to the plan as required by the situation. In session five, with the evening MB group, the discussion deviated away from the planned

topic and only 15 minutes were devoted to practicing mindful walking and “body scan”. Participants had varying responses to the exercises and the homework. Some preferred the mindful moving to the still sitting or lying exercises and vice versa. The greatest variation of preference came with the mindful eating exercise. The evening group commented that it was a helpful exercise to show how mindfulness could be applied to daily activities. The daytime group commented that they felt awkward doing this exercise and one participant requested exclusion because she did not want to eat with other people.

Untoward negative symptoms reported and observed

Two participants reported difficulties with bringing attention to controlled or abdominal breathing exercises during session two. Attempting to control the speed of the breath made them feel more anxious about it. Ways to manage this reaction were explained to the group. One participant reported initial anxiety with the “body scan” tape used at home. With practice and reassurance this anxiety passed. Another participant reported restlessness, distress and increased negative self-evaluation when being attentive to some bodily sensations in stationary postures. This participant was encouraged to practice mindfulness of daily activities and attempt to perceive thoughts as events and not be too concerned about their content. She later reported positive progress.

In session five another participant was disruptive to group discussions. It was also observed that this participant generally seemed restless and unable to maintain any stationary postures. He later revealed that he confused mindfulness with self-analysis and that being still increased this

tendency and his agitation. He stated however, he found being active (such as riding his bicycle or cleaning his flat) with mindfulness helpful to ameliorate ruminative thinking patterns.

Evaluation Questionnaire

Due to space limitations it is not possible to present all the qualitative information gathered from the MB evaluation questionnaire. Nevertheless, a summary of salient points will be outlined.

All but one respondent reported that they had noticed positive changes in their mental, emotional or physical health since they started the course. The one respondent who stated that there was no positive or negative changes also wrote that they had confidence that, if practiced, the exercises would be helpful and that the mindful breathing exercises was calming.

All respondents acknowledged that there may have been many (non-mindfulness based) factors related to positive changes. However, they generally commented that attending the course and learning and practicing MB skills had a strong positive impact upon their mental, emotional or physical health. See Appendix I for some quotes

Feedback of a critical nature about mindfulness practice was not evident in the evaluation questionnaire responses. There was, however, some commentary about how the format and presentation of the course could be improved. One participant stated that she did not find the mindful eating exercise practical. Three participants stated that they would have liked more time given to interactive discussion, an opportunity to ventilate about their problems and hear about others' problems. One participant marked that the

presentation was “fair” and wrote that she was confused “about the main aim of the conversations” in some sessions. Nevertheless she found each session was beneficial. Two participants said that they would have liked more time devoted to “meditation”. Two participants stated that they thought the course should have been longer.

All respondents circled “yes” to questions about recommending the course to a friend, attending the course again or doing more advanced courses and using the skills learnt in the course in the future.

All respondents marked within the “very satisfied” range when asked how satisfied they were with attending the programme.

Discussion

This study proposed two general research questions. The first question asked whether or not a MB stress management course could reduce stress related depressive and anxiety symptom severity within its participants. The second question asked whether or not a MB programme was comparable to empirically supported approaches that use cognitive restructuring. The first question was addressed with the statistical analyses that involved only the MB course participants (N=17). The second question was addressed with the analyses that included the CR programme participants' data (N=34).

The quantitative results provided evidence that participation in a MB stress reduction programme may help to reduce severity of stress, anxiety and depressive symptoms in a clinical population. The results also indicated that the MB intervention may be comparable to stress management interventions that utilise empirically supported procedures such as cognitive restructuring.

The quantitative results were supported by the qualitative information. At a subjective level most MB programme participants stated that they found the MB programme practical and helpful to cope with depressive and anxiety symptoms.

The MB stress management programme seemed a feasible means to address the need for generic approaches to anxiety and depressive symptoms with clinical populations in community based settings. This conclusion, however, can only be tentative because threats to internal validity are evident. These threats increased the possibility either a Type I (claiming

an effect when there is not an effect) or a Type II (claiming no effect when there is an effect) error occurring.

In this study, internal validity was compromised in order to enhance external validity. In other words research procedures were adjusted to incorporate the procedures of existing clinical practice. The following discussion will expand upon the results of the evaluation mentioned above, highlight some of the potential threats to internal validity, consider ways to address these threats, provide suggestions for further future studies and, in conclusion, consider the implications of, and possible limitations to, MB practices.

Support for MB stress management programmes

The results of the current evaluation are consistent with the findings of previous studies (e.g., Kabat-Zinn et al., 1992; Teasdale et al., 2000; Zettle & Rains, 1989) in that mindfulness based strategies may be helpful to reduce anxiety and depressive symptom severity with clinical populations. The scores from the three sub-scales of the DASS-21 represented levels of general symptom severity. The ASI represented anxiety sensitivity as well as levels of anxiety and depressive symptom severity and scores from the ATQ were measures of negative automatic thoughts and depression. Over the periods of both 8-session programmes, adjusted means of every outcome measure taken reduced significantly from within severe or moderate ranges to normal or non-pathological ranges. During this time all adjusted means changed in a progressive and linear manner until the respective courses finished. Two month follow data was not analysed for the CR programme but for the MB programme participants the changes were maintained for at least two months

as there no significant differences between means of MB scores taken immediately after the course finished and at follow up

The MB course deviated from the CR course after session 3 and mindfulness was explained in session 4. However, there is a large overlap between MB skills and behavioural skills such as progressive relaxation and abdominal breathing and, in reality, participants began practicing these mindfulness related skills in the first three sessions. The ASI means from both courses changed significantly between pre-test and occasion 2 (before the fourth session). These results support the efficacy of behavioural approaches such as relaxation and abdominal breathing as well as goal setting, time management and problem solving in alleviating anxiety symptoms including anxiety sensitivity (e.g., Andrews et al., 1995; Roth & Fonagy, 1996). Borkovec & Costello, (1993 cited in Roth & Fonagy, 1996) found that adding cognitive approaches to behavioural approaches such as progressive relaxation was more effective for anxiety management than using such behavioural approaches alone. The continued significant reduction of the ASI means for both programmes from session three, add support to the practice of combining cognitive with behavioural interventions and that MB strategies may be comparable to CR to reduce anxiety sensitivity.

With both programmes there were significant differences between ATQ means from pre-test (occasion 1) to post test (occasion 3). During the whole of the MB course, no instructions were given to participants to challenge and deliberately change the content of their thoughts. On the contrary, participants were encouraged to develop acceptance, let various thoughts “be” and develop a cognitive distance or space from thoughts. Nevertheless, negative

content, as measured by the ATQ, appears to have changed significantly. These particular results are similar to those found by Leon (1992), where he speculated that the content of negative thoughts with depressed participants changed as a result of process-oriented disengagement. The results of the current study have both similarities and differences with the Zettle and Rains (1989) study. In this study ATQ scores changed significantly over time after comprehensive distancing without deliberate effort to change thought content but, as previously mentioned, scores on the DAS did not.

The results from this study are consistent with the cognitive therapy premise that negative thought content is related to dysphoric affect and symptom severity (Beck, 1979). The results also support, however, the possibility that negative thought content can change without wilful or deliberate intent, but by using acceptance and process-oriented approaches such as mindfulness.

The specific mechanisms associated with changes in thought content were not the focus of this study. However, the mechanism of change could have been related to how mindfulness may be able to short circuit dysfunctional cyclic tendencies such as worry and rumination. This possibly was reinforced by the comments found in the participant survey. These comments included remarks such as:

(With) techniques to come back to the present I don't have to get carried away so much in cyclic thinking...
mindfulness centres me more....
stops some of the lead weight of thoughts drowning me.....

has helped me not get caught up in that stuff and bring me back to the moment instead of dwelling...

concentrating on the matter at hand you have no time to dwell on the bad stuff...

The outcomes from the MB programme were directly compared to the outcomes from the CR programme by using a repeated measured ANOVA and testing for the interaction effect between programme and the occasion of outcome measure. Unfortunately, complete follow up data from the CR programme was not available and this excluded the use of this data in comparisons. Nevertheless, over three occasions, no interaction effects were found between occasion and programme and the levels of non-significance were relatively high. This indicated that changes over occasion were not dependent upon the programme. That is, the pattern of response with the two programmes was highly similar. In reference to the second research question, these similarities provide supportive evidence that MB strategies are comparable in effectiveness to with CR strategies, as ways to deal with stress related depressive and anxiety symptoms.

There was one significant between subjects effect. The DASS-21 anxiety means taken from the CR programme participants were significantly higher than MB programme participants throughout the period of programme participation. This result does not contradict the possible similarities of change patterns between the two programmes. It may, however, reflect differences in participant symptom characteristics and will be discussed later under the heading "Lack of comparability issues".

The relationship between occasion of assessment and stable psychotropic medication use was examined in order to determine whether such use may have had an impact on the results. However, there was found to be no significant interaction effects with these factors. This indicated that changes in means were not dependent upon whether or not participants used psychotropic medications.

Attrition issues

Attrition from psychotherapy programmes is a common phenomenon. (Howard, Krause, Orlinsky, 1986; Ley, 1997). A factor related to this is the failure of some participants, who complete the programmes, to provide the information necessary to enable evaluation of outcomes. More than half of the completing CR programme participants failed to provide follow up information.

The retention rate from the both programmes was not significantly different. The 74% retention rate of the MB programme in the current study is slightly less than other similar MB programmes. In one study that analysed MBSR course adherence (Kabat-Zinn & Cahpman-Waldrop 1988 in Salmon, Santorelli and Kabat-Zinn 1998) it was shown that for 716 course beginners, with a variety of stress related conditions, 598 participants or 83%, completed their respective 8-week courses. The current MB programme was directed at a clinical population. The lower retention rate of this study could reflect the general tendency for those with more severe symptomatology to drop out of courses that teach self-management strategies such as relaxation and meditation (Delmonte, 1987;Ley, 1997).

It is uncertain why various individuals discontinued the CR programme because the primary researcher was unable to follow up with inquires.

However, follow up inquiry was possible with the MB programme participants. The reported reasons for discontinuing the MB programme varied. Except for one report they were not related to the structure, content, leaders or experiential exercises related to the course. The situation where three participants left after the first session was, perhaps, more a reflection of flaws in the screening procedures than the course content. With these three, one participant was experiencing an acute crisis and the other two were simply not motivated to continue.

Those who attended more than one session but missed three or more had other reasons for not continuing. Two of these participants had, according to the SCID-II, avoidant personality traits and they found it difficult being with other participants. The other participant experienced untoward mental health signs and symptoms that seemed related to attending the programme. He became restless in exercises that required stationary postures but enjoyed moving exercises. During one MB exercise he described an experience similar to self focussed attention and this exacerbated his negative affect. This participant also explained that he was confused about what mindfulness was and thought it was about introspectively analysing himself. After leaving the group format he continued to see the author and develop MB strategies on an individual therapy basis. He later commented that he found MB strategies helpful when he was active (such as when he rode his pushbike or cleaned his flat) but not when he sat still.

In the MB programme the risk of developing relaxation induced anxiety was mentioned as part of the informed consent process. Participants' mental states, as well as progress in mindfulness skills were monitored session to

session by the group leaders. If it became evident that RIA was beginning to occur, participants were instructed in specific skills and strategies to manage this experience.

Threats to validity

The strongest and most rigorous designs for research involve true experimental designs incorporating randomised controlled populations (Johnson, Ottenbacher & Reichardt, 1995). This study used a quasi-experimental design with an open trial. It is argued that this research method, and methods like it, reflect a more naturalistic treatment protocol than is the case with randomised controlled trials (Blampied, 2001; Kazdin, 1986; O'Gorman, 2001, Roth & Fonagy, 1996). Nevertheless, by not using a true experimental design, threats to the validity of statistical conclusions with the findings were evident and this was a limitation.

The potential threats to internal validity were accepted as a compromise in order to enhance external validity, and as adaptation to the practical realities of clinical practice at two NSW Health Department sites. These potential threats and other issues will be addressed below.

Lack of Non-treatment Controls

It could be argued that the positive changes that occurred with both the MB and the CR programme participants occurred with the passage of time and not because they attended stress management programmes. One way to address this argument is by comparing programme participants to non-intervention controls such as wait list or non-directive control groups. A wait list control group was proposed if the number of applicants to the MB programme exceeded the group size stipulations. There were, however, an

insufficient number of applicants to enable the creation of an ethically justifiable wait-list control group.

Even if it were possible to include a control group it may have proved difficult to: 1/ maintain compliance in their completion of the questionnaires in the absence of therapeutic input and 2/ control for the possibility that they may have received other treatment while on the wait list.

Sample size problems

The minimal sample size suggested by the power analysis conducted with the DASS-21 stress scale was 9 participants per programme and this was generalised to all the dependent variables and thus the study. However, this sample size estimate may have been inaccurate in relation to the nature of the present study.

The current research compared two types of intervention testing the similarity between two groups. Test of equivalence (i.e., the similarity between groups) may require different power calculations than tests of non-equivalence (differences between groups). Jones, Jarvis, Lewis and Ebbutt (1996) discussed this issue with regard to evaluating drug trials and assessing the comparability of newer medications to older medications that already indicate success. They offered different calculations to assess minimal sample sizes for tests of equivalence. These calculations were not conducted with the current project but a valid minimal sample size for a test of equivalence may be two to three times larger than a minimal sample size for a test of non-equivalence. In order to be more certain about decreasing the probability of either a Type I or Type II error occurring it seems reasonable to assume that sample sizes for future research should be at least 30-40

participants per programme. Time and resource limitations restricted this possibility in the current study.

Lack of comparability issues

One methodological problem with the current study related to possible differences in demographic and environmental influences between one programme based in a multi-ethnic western Sydney suburb and another programme based in a north coast NSW rural town. It would be preferable in future studies to compare programmes offered in the same general area.

Another methodological flaw with the current piece of research was that the symptom patterns or diagnoses of the populations being investigated could have varied too much to allow comparisons. The MB programme included one participant with the diagnosis of bipolar disorder in remission, one participant with major depression without anxiety features, one participant with a previous psychotic disorder and three participants with Borderline personality traits. The CR programme had only one participant with Borderline personality traits, and no participants with histories of bi-polar or psychotic disorders. In addition, the DASS-21 anxiety scores, on the whole, were significantly higher for the CR programme participants. Unlike the MB programme the CR programme accepted participants whose co-morbid profile always included an anxiety disorder. In general, the MB participants were more heterogenous and the CR programme participants were more inclined to have an anxiety disorder.

This, in part, may reflect differences between services offered in metropolitan and rural areas. In metropolitan areas the general population is large enough to justify the existence of specialised programmes. In rural

settings, however, the small general population sizes, as well as the lack of clinical resources means there is a need to develop and evaluate programmes that can be offered to clinical populations who are far more heterogeneous in nature. Comparison of MB and CR programmes, which are delivered to equally heterogeneous populations, would enable a more valid comparison of outcomes.

Differential Therapist Variables

It could be argued that the results may have been related to differences in therapists' variables rather than differences between therapeutic intervention. Therapists' variables could include interpersonal or teaching skills as well as enthusiasm, commitment and a bias to particular types of intervention. One way to address this issue would be to have both programmes run by the same team of therapists in future.

It could be argued, however, that since both programmes were "manualised", the impact of some therapist variables were minimised. It is also important to consider both programmes were equivalent in that they were conducted by skilled therapists with extensive training in their respective intervention strategies. To be successful it is assumed that group leaders should also have an understanding of, commitment to, confidence about, and enthusiasm for, the benefits of the information and skills that they are transmitting. Therefore therapist bias may be a natural and therapeutic component of an intervention programme.

Future Studies

As this study was considered as a preliminary study future studies should firstly aim to address the methodological issues discussed above.

Despite the problems with wait lists (listed above), at times they are justified by need. When they do occur they should be utilised within a research design. In the future, when potential participants apply for a stress management course they could be informed about possible waiting lists. A requirement of programme participation could then be the need to complete symptom measures on a regular basis even if this is months before a programme begins.

Further replications or variations of the current study in the same or different settings could address problems with sample size and statistical power. This would add to accumulated data, sample size and statistical power.

Therapist variables could be addressed by having therapists competently trained in both MB strategies and CR. Then, comparability problems could be addressed by conducting both programmes and comparisons from data collected at the same sites possibly by the same therapists.

If therapists became competent in different approaches the possible benefits of combining various approaches could be explored. For example, training in mindfulness skills could add to the ability to identify and objectify negative thought patterns. Then the rational analysis found with cognitive restructuring may help to cease these negative patterns. Future research could compare three different programmes for dysfunctional thinking styles such as worry and rumination. One programme would involve training in MB skills only, another programme could involve training in conventional CR skills only and the other programme could involve combined training.

Other comparisons could involve different approaches to MB programmes. For example, MBSR programmes do not normally entail training in goal setting time management and problem solving. The MB programme used in the current project involved these components and it was different to MBSR programmes in that the time directed at MB skills training was much less. ACT, another MB approach, includes a component directed at clarifying values and direction. The addition of these components may provide additional benefits beyond traditional MB training. Or, alternatively, less time directed at MB skills training may detract from the degree of benefits. Future studies could explore these questions.

Another option for valid MB research could involve single case research designs (Blampied, 2001). Such an option could involve individually based programme training, outcome measures taken at appropriate times and is a way to adapt research to existing clinical practice.

Conclusion: Implications and limitations

The results provide support that MB stress management courses may be helpful in alleviating symptoms of anxiety and depression in clinical populations when offered through in community mental health settings. Mindfulness can be applied in all situations and not only when one experiences distress. This coping skill seems to be generic, accessible, and adaptable. Teasdale et al., (1995) commented that the flexible nature of mindfulness may increase its practice effect and enhance a prophylactic function.

The survey responses were replete with positive comments about how mindfulness helped with depressive and anxiety symptoms. Further to this,

one participant commented upon how it became, for her, a tool of personal development beyond merely overcoming anxiety and depression. Despite the positive comments, practitioners and trainers should exercise caution. Like any self-motivating approach, mindfulness is not a panacea for life's stressful woes and it does have limitations in application.

Mindfulness is a self-help tool that can be self-taught. However, with individuals who experience severe symptomatology or "clinical populations" one limitation is the potential for the practice to be misunderstood as self-analysis or self focussed attention. If mindfulness is misunderstood and it is practiced incorrectly, the potential to exacerbate symptoms becomes high. This danger underscores the need for skilful and precise instruction and monitoring. Instructors need to have personal experience with MB skills so that they can guide those who may be vulnerable through dangerous terrain. If there is a lack of experienced instructors, then the availability of guidance or training in community settings is limited.

Some instructors may have personal experience but lack the ability to monitor clinical signs and symptoms in others. Thus, when working with clinical populations, the best option is to have therapists who have both training in mindfulness based practices and mental status examinations.

Another issue relates to whether or not practitioners, and consequently instructors need to have a philosophical framework from which to understand and practice MB skills. Throughout this document mindfulness has been explained as a coping skill or strategy, a way of being, and a meditation practice. It was also explained that mindfulness or elements of mindfulness might be found in a variety of different psychotherapeutic paradigms. At a

superficial level mindfulness may be applied to a variety of problems. As a strategy, however, mindfulness could be misunderstood as a mechanistic tool that is separate from its context. This may be a limitation for individuals, including therapists, who wish to apply mindfulness as if it were merely another psychotherapeutic tool used to only treat specific symptoms. In therapeutic paradigms where mindfulness practice is a key factor, such as ACT, DBT and Buddhist psychology, correct understanding and a philosophical foundation to practice is paramount (Hayes et al., 1999; Linehan 1993; Fryba, 1995). In these paradigms, mindfulness is considered as an interdependent factor that cannot be separated from a whole array of other healthy mental tendencies. The basic philosophical underpinning of Buddhist psychology, as an example of one paradigm that utilises MB practices, is that all conditions change and that all things are subject to rules of interdependence.

With conventional CBT practices, psycho-education is a primary initial strategy (Craighead et al., 1994). For example, those who use CBT skills firstly develop a theoretical understanding of how negatively laden thoughts may lead to depressive or anxious states, and then this education is reinforced by personal experience.

It is uncertain whether or not MB practitioners can develop deeper and deeper levels of mindfulness without an appreciation of its philosophical premises. Obviously, some form of basic psycho-education is required to practice MB skills. However, if the psycho-education becomes elaborate or detailed there may be a fine line between psycho-education and proselytising

a philosophical approach. This dilemma may be another limitation to teaching MB approaches as stress management strategies in community settings.

MB skills have been utilised to manage symptoms of stress for thousands of years and now they are becoming popular with contemporary psychologists. The aim of this study was to evaluate the effectiveness of a MB stress management programme with a heterogeneous clinical population in a community setting. The results of the evaluation were aimed at therapists so that they may further understand the parameters of mindfulness practices with clinical populations. The results supported the effectiveness of taking an MB approach. The strength of the support is arguably limited, however, by design flaws and these limitations were discussed. The results of the current study add to the available empirical evidence on the efficacy of MB practices thus enabling clinicians to be in a better position to exercise clinical discretion regarding the use of these practices.

References

American Psychiatric Association. (1994). Diagnostic and Statistic Manual of Mental Disorders Fourth Edition. Washington: American Psychiatric Association

Andrews, G., Crino, R., Hunt, C., Lampe, L., & Page, A. (1995). The Treatment of Anxiety Disorders: Clinicians guide and patient manual. Cambridge: Cambridge University Press.

Antony, M.M., Bieling, P.J., Cox, B.J., Enns, M.W. & Swinson, R.P. (undated). Psychometric properties of the 42-item and 21-item versions of the Depression Anxiety Stress Scales (DASS) in clinical groups and a community sample. Psychological Assessment. Paper available from M.M Antony, Ph.D., Anxiety Disorders Clinic, Clarke Institute of Psychiatry, 250 College St., Toronto, ON M5T1R8, Canada.

Astin, J.A. (1997). Stress reduction through mindfulness meditation: Effects on psychological symptomatology, sense of control and spiritual experiences. Psychotherapy & Psychosomatics, 66:2, 97-106.

Australian Psychological Society (1994). The Australian Psychological Society Ltd Code of Professional Conduct. PO Box 126, Carlton South Vic 3053, Australia.

Barlow, D.H. (2000). Unravelling the mysteries of anxiety and its disorders from the perspective of emotional theory. American Psychologist, November, 1247-1263.

Beck, A.T. (1976). Cognitive Therapy and the emotional disorders. New York: New American Library.

Blampied, N.M. (2001). The third way: Single-case research, training and practice in clinical psychology. Australian Psychologist, 36:2, 157-163.

Bogart, G. (1991). The use of meditation in psychotherapy: A review of the literature. American Journal of Psychotherapy, XLV:3, 383-412.

Borkovec, T.D. (1994). The nature, functions, and origins of worry. In G.Davey and F.Tallis (Eds.) Worrying: Perspectives on theory, assessment and treatment. Chichester: John Wiley and Sons.

Borkovec, T.D., Mathews, A.M., Chambers, A., Ebrahimi, S., Lytle, R., & Nelson, R. (1987). The effects of relaxation training with cognitive or non-directive therapy and the role of relaxation-induced anxiety in the treatment of generalized anxiety. Journal of Consulting and Clinical Psychology, 55(6), 883-888.

Brown, T.A., Barlow, D.H. and Liebowitz, M.R. (1994). The empirical basis of Generalized Anxiety Disorder. American Journal of Psychiatry, 151:9, 1272-1280.

Brown, T.A., Chorpita, B.F., Korotitsch, W., & Barlow, D.H. (1997). Psychometric properties of the Depression Anxiety Stress scale (DASS) in clinical samples. Behaviour Research and Therapy, 35 (1), 79-89.

Cox, T. (1978). Stress. London: McMillan Press Co

Craighead, L.W., Craighead, W.E., Kazdin, A.E. & Mahoney, M.J. (1994). Cognitive and Behavioural Interventions: An empirical approach to mental health problems. Boston: Allyn and Bacon.

Davis, M., Eshelman, E.R., and McKay, M. (1988). The relaxation and stress reduction workbook, 3rd edition. Oakland, California: New Harbringer publications.

Dass, R. (1972). Remember be here now. New Mexico: Newspaper printing corporation.

Delmonte, M.M. (1987). Meditation: Contemporary theoretical approaches. In M. West (Ed.) The psychology of meditation. (pp. 39-53). Oxford: Clarendon Press.

Delmonte, M.M. (1987b). Personality and meditation. In M. West (Ed.) The psychology of meditation. (pp. 118-134). Oxford: Clarendon Press.

De Silva, P. (1984). Buddhism and Behaviour Modification. Behaviour Research and Therapy. 22:6, 661-678.

Epstein, M. (1995). Thoughts without a thinker. New York: Basic Books.

Epstein, M. (1990). Psychodynamics of meditation: Pitfalls on the Spiritual path. The Journal of Transpersonal Psychology. 22, 17-34.

Fenner, P. (1995). Reasoning into Reality: A systems-cybernetics model and therapeutic interpretation of Buddhist middle path analysis. Boston: Wisdom Publications.

First, M.B., Spitzer, R.L., Gibbon, M. & Williams, J.B. (1990). Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I), Clinician Version. Washington, DC: American Psychiatric Press Inc.

First, M.B., Gibbon, M., Spitzer, R.L., Williams, J.B. & Benjamin, L. (1997). Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II). Washington, DC: American Psychiatric Press Inc.

Fryba, M. (1995). The Practice of happiness: Exercises & Techniques for developing mindfulness, wisdom and joy. Boston: Shambala.

Fryba, M. (1989). The art of happiness: Teachings of Buddhist psychology. Boston: Shambala.

Goleman, D. (1995). Emotional Intelligence. London: Bloomsbury.

Goleman, D. (1988). The Meditative Mind. London: Thorsons.

Goleman, D. (1975). The Buddha on meditation and states of consciousness. In C.T. Tart (Ed.) Tranpersonal Psychologies. London,: Routledge & Kegan Paul Ltd.

Hampton, M.D. (1997). Dialectical Behavior Therapy in the treatment of persons with Borderline Personality Disorder. Achives of Psychiatric Nursing, 11:2, 96-101.

Happold, F. C. (1963). Mysticism: A Study and an Anthology. Middlesex, England: Penguin Books Ltd.

Harrell, T.H. and Ryon, N.B. (1983). Cognitive-Behavioral assessment of depression: Clinical validation of the Automatic Thoughts Questionnaire. Journal of Consulting and Clinical Psychology, 51(5), 721-725.

Hayes, S.C., Strosahl, K.D. & Wilson, K.G.(1999). Acceptance and Commitment Therapy. New York: The Guilford Press.

Heide, F.J., & Borkovec, T.D., (1984). Relaxation-induced anxiety: Mechanisms and theoretical implications. Behavior Research and Therapy, 22:1,1-12.

Howard, K.I., Krause, M.S., & Orlinsky, D.E., (1986). The attrition dilemma: toward a new strategy for psychotherapy research. Journal of Consulting and Clinical Psychology, 54, 106-110.

Hollon, S.D. & Kendall, P.C. (1980). Cognitive-behavioural self-statements in depression: development of an Automatic Thoughts Questionnaire. Cognitive Therapy and Research, 4 (4), 383-395.

Ingram, R.E. (1990). Attentional nonspecificity in depressive and generalised anxious affective states. Cognitive Therapy and Research, 14:1, 25-35.

Johnson, M., Ottenbacher, K.J., and Reichardt, C.S. (1995). Strong quasi-experimental designs for research on the effectiveness of rehabilitation. American Journal of Physical Medicine & Rehabilitation, 74, 383-392.

Jones, B., Jarvis, P., Lewis, J.A., & Ebbutt, A.F. (1996). Trials to assess equivalence: the importance of rigorous methods. British Medical Journal, 313. 36-39.

Kabat-Zinn, J. (1990). Full catastrophe living. Using the wisdom of your body and mind to face stress, pain, and illness. New York: Guilford Press.

Kabat-Zinn, J., Massion, A.O., Krieteller, J., Peterson, L.G., Fletcher, K.E., Pbert, L., Lenderking, W.R., and Santorelli, S.F. (1992). Effectiveness of a meditation-based stress reduction programme in the treatment of anxiety disorders. American Journal of Psychiatry, 149(7), 936-943

Kabatt-Zinn, J., Lipworth, L., Burney, R. (1985). The Clinical use of mindfulness meditation for the self regulation of chronic pain. Journal of Behavioral Medicine, 8(2), 163-190.

Kabatt-Zinn, J. Wheeler, E., Light, T., Skillings, A., Scarf, M.J., Cropely, T., Hosmer, D., and Bernhard, J.D. (1998). Influence of mindfulness meditation-based stress reduction intervention on rates of skin clearing in

patients with moderate to severe psoriasis undergoing (UVB) and photo-chemotherapy. Psychosomatic medicine, 60:5, 625-632.

Kazdin, A.E. (1986). Comparative outcome studies of psychotherapy: Methodological issues and strategies. Journal of Consulting and Clinical Psychology, 54:1, 95-105.

Kearney, P. (1995) Developing awareness. Sakyamuni News, January. Sakamuni Buddhist centre. 32 Archibald St, Lynehan, ACT, 2602.

Kearney, P. (2000) Introduction to Satipatthana. A talk given in Lismore NSW, Australia. 18-3-2000.

Keller, J., Nitschke, J.B., Bhargava, T., Deldin, P.J., Gergen, J.A., Miller, G.A. & Heller, W. (2000). Neurological differentiation of depression and anxiety. Journal of Abnormal Psychology, 109, 3-10.

Kohlneberg, R.J., Hayes, S.C., and Tsai, M. (1993). Radical behavioral psychotherapy: Two contemporary examples. Clinical Psychology Review, 13, 579-592.

Lazarus, A. (1976). Psychiatric problems precipitated by transcendental meditation. Psychological Reports, 39, 601-602.

Leon, A. (1992). Cognitive modification in the treatment of depression. Cognitive restructuring, cognitive disengagement or both. Unpublished manuscript. A research project to fulfil the requirements of the Masters of Psychotherapy Degree in the Faculty of Medicine, School Psychiatry, University of New South Wales.

Ley, P. (1997). Compliance among patients. In A. Baum, S. Newton, J. Weinman, R. West and C. McManus (Eds). Cambridge Handbook of Psychology, Health and Medicine. Cambridge: Cambridge University Press.

Linehan, M.M. (1993). Cognitive-Behavioral Treatment of Borderline Personality Disorder. New York: The Guilford Press.

Linehan, M.M. (1993b). Skills training manual for treating Borderline Personality Disorder. New York: The Guilford Press

Linehan, M.M., Armstrong, H.E., Suarez, A., Allmon, D., and Heard, H.L. (1991). Cognitive-Behavioural Treatment of chronically parasuicidal borderline patients. Archives of General Psychiatry, 48, 1060-1064.

Linehan, M.M., Armstrong, H.E., and Heard, H.L. (1993). Naturalistic follow-up of a behavioural treatment for chronically parasuicidal borderline patients. . Archives of General Psychiatry, 50, 971-974.

Lovibond, S.H & Lovibond, P.F. (1996). Manual for the Depression Anxiety Stress Scales. Sydney: The Psychology Foundation of Australia Inc.

Lyubomirsky, S., & Nolen-Hoeksema, S. (1995). Effects of self-focussed rumination on negative thinking and interpersonal problem solving. Journal of Personality and Social Psychology. 69:1, 76-190.

Mckay , M., Davis, M. and Fanning, P. (1981). Thoughts and Feelings: The art of cognitive stress intervention. Oakland, CA: New Harbringer Publications.

Mahoney, M.J., and Thoresen, C.E. (1974). Self Control: Power to the Person. Monterey, California: Brooks/Cole Publishing Company.

Manocha, R. (2000). Why Meditate. Australian Family Physician, 29:12, 1135-1138.

Mikulas, W.L. (1981). Buddhism and Behavior Modification. The Psychological Record, 31, 331-342.

Muirhead, G.(1999). Using mind-body therapies in primary care.

Patient Care, 33:12, 108-126.

Manicavasagar, V. & Blaszczynski, A. (1995). Stress Management: A practical guide. Liverpool, NSW: Psychiatry Research and Teaching Unit, University of New South Wales.

Nathan, P.E. & Gorman, J.M. (Eds.) (1998). A guide to treatment that works. New York: Oxford University Press.

Narada Maha Thera (1979). A manual of Abhidhamma. Kuala Lumpur: Buddhist Missionary Society.

Naranjo, C. (1970). Present Centeredness: Techniques, Prescription and Ideal. In J. Fagen and I. L. Shepherd(Eds) Gestalt Therapy Now. New York: Harper Colophon Books.

Nolen-Hoeksema, S., McBride, A., & Larson, J. (1997). Rumination and psychological distress among bereaved partners. Journal of Personality and Social Psychology.72:4, 855-862.

Nolen-Hoeksema, S. (2000). The role of rumination in depressive disorders and mixed anxiety/depressive symptoms. Journal of Abnormal Psychology, 109:3, 504-511.

Nyanaponika Thera. (1962). The Heart of Buddhist Meditation. London: Rider & Co.

O'Gorman, J.G. (2001). The scientist-practitioner model and its critics. Australian Psychologist, 36:2, 164-169.

Parnell, L. (1999). EMDR in the treatment of adults abused as children. New York: Norton and Co Inc.

Perkins, R.(1999). The efficacy of mindfulness-based techniques in the reduction of stress in a sample of incarcerated women. Dissertation Abstracts International, 59:9-B, 5104.

Perls, F. S. (1970). Four lectures. In J. Fagen and I.L. Shepherd (Eds.) Gestalt Therapy Now. New York:Harper Colophon Books

Rahula, W. (1959). What the Buddha Taught. Grove Press:New York.

Rapee, R.M. and Barlow, D.H. (1993). Generalised Anxiety Disorder, Panic Disorder, and the Phobias. In Sutker, P.B. and Adams, H.E. (Eds.)Comprehensive Handbook of Psychopathology. Plenum press: New York.

Reiss, S., Peterson, R.A., Gursky, D.M. & McNally, R.J. (1986) Anxiety sensitivity, anxiety frequency and the prediction of fearfulness. Behaviour Research and Therapy, 24(1), 1-8.

Rice, P.L. (1987). Stress and health. Monterey, California: Brooks Cole publishing Co.

Rogers, C. R. (1961). On Becoming a Person. London: Constable & Company Ltd.

Roth, A., and Fonagy, P. (1996). What works for whom: A critical review of psychotherapy research. New York: The Guilford Press.

Salmon, P.G., Santorelli, S.F., and Kabat-Zinn, J. (1998). Intervention elements promoting adherence to mindfulness-based stress reduction programmes in the clinical behavioral medical setting. In S.A. Shumaker, E.B.Schron, J.K. Ockene, & W.L. McBee (Eds.) The handbook of health behavior change. New York: Springer Publishing Co.

- Salovey, P., Bedell, B.T., Detweiler, J.B., and Mayer, J.D. (1999). Coping intelligently. In C.R. Snyder (Ed) Coping: The psychology of what works. New York: Oxford University Press.
- Schuster, R. (1979). Empathy and mindfulness. Journal of Humanistic Psychology, 19:1, 71-77.
- Sharpiro, D.H. & Zifferblatt, S.M. (1976). Zen meditation and behavioral self-control: Similarities, differences and clinical applications. American Psychologist, July, 519-532.
- Sharpiro, F. (1989). Eye movement desensitisation: A new treatment for post traumatic stress disorder. Journal of Behavior Therapy and Experimental Psychiatry, 20, 211-217.
- Simons, A., Garfield, S. & Murphy, G. (1984). The process of change in Cognitive Therapy and pharmacotherapy for depression. Archives of General Psychiatry. 41, 41-51.
- Smith, M.A. (1987). Meditation as psychotherapy: a new look at the evidence. In M. West (Ed.) The psychology of meditation. (pp. 136-149). Oxford: Clarendon Press.
- Speca, M., Carlson, L.E., Goodey L.E., and Angen, M. (2000) A randomized, wait list controlled clinical trial: The effect of a mindfulness meditation-based stress reduction programme on mood and symptoms of stress in cancer outpatients. Psychosomatic Medicine 62:5, 613-622.
- Speeth, K. R. (1982). On psychotherapeutic attention. The Journal of Transpersonal Psychology. 14, 141-160.

Stephens, A. (1997). Stress and disease. In A. Baum, S. Newman, J. Weinman, R. West, and C. McManus (Eds.) Cambridge handbook of psychology, health and medicine. Cambridge: Cambridge University Press.

Stevens, J.L. (1996). Applied multivariate statistics for the social sciences. 3rd edition. New Jersey: Laurence Erlbaum.

Strosahl, K.D., Hayes, S.C., Bergan, J. & Romano, P. (1998). Assessing the field effectiveness of Acceptance and Commitment Therapy: An example of the manipulated training Research Method. Behavior Therapy, 29, 35-64.

Taylor, S., Koch, W.J., Woody, S., & McLean, P. (1996). Anxiety sensitivity and depression: How are they related. Journal of Abnormal Psychology, 105(3), 474-479.

Teasdale, J.D. (1985). Psychological treatments for depression: How do they work? Behavior Research and Therapy, 23:2, 157-165.

Teasdale, J.D., Segal, Z., Williams, M.G., Ridgeway, V.A., Soulsby, J.M. & Lau, M.A. (2000). Prevention of relapse/recurrence in major depression by Mindfulness-Based Cognitive Therapy. Journal of Consulting and Clinical Psychology, 68:4, 615-623.

Teasdale, J.D., Segal, Z., and Williams, M.G. (1995). How does Cognitive Therapy prevent depressive relapse and why should attentional control (Mindfulness) training help? Behaviour Research and Therapy, 33 (1), 25-39.

Wells, A. (1990). Panic disorder in association with relaxation induced anxiety: An attentional training approach to treatment. Behavior Therapy, 21, 273-280.

West, M.A. (1987). Traditional and psychological perspectives on meditation. In M. West (Ed.) The psychology of meditation. (pp. 5-23). Oxford: Clarendon Press.

Wople, J. (1969). The practice of behaviour therapy. New York: Pergamon Press.

Yapko, M.D. (1997). Breaking the patterns of depression. New York: Doubleday.

Yapko, M.D. (2001). The co-morbidity of anxiety and depression with Dr Michael Yapko. A one day workshop presented at Wesley Hospital, Auchenflower Qld, Australia, 2nd August.

Zettle, R.D. & Rains, J.C. (1989). Group cognitive and contextual therapies in the treatment of depression. Journal of Clinical Psychology, 45:3, 436-445.

APPENDICES

Appendix A: Cognitive Behavioural Therapy and Mindfulness-Based approaches compared.

Appendix B: Letter to potential referrers

Appendix C: Information sheets and consent forms

Appendix D: MB program participation agreement

Appendix E: MB program homework sheets.

Appendix F: MB program evaluation survey

Appendix G: MB practice compliance estimate sheet

Appendix H: Breakdown of participants' psychotropic medication use and SCID diagnoses.

Appendix I: Quotes from MB program participants.

Appendix A:Cognitive Behaviour Therapy (CBT) and Mindfulness Based approaches compared

Similarities

- Both CBT and mindfulness based practices centre around the understanding that there is a functional relationship between thought content, thought process, overt behaviours, and mood disturbances (Teasdale et al., 1995).
- Both CBT and mindfulness focus on dealing with issues that arise in a current time context.
- CBT and mindfulness training share the emphasis of monitoring thoughts and perceptions in a realistic and accurate manner and not viewing mental and physical experiences in a catastrophic manner (Kabat-Zinn, Massion, Krieteller, Peterson, Fletcher, Pbert, Lenderking & Santorelli 1992).
- CBT and mindfulness practices both emphasize the need for practice in the form of homework (Kabat-Zinn, et al., 1992).
- Some strategies that are used with CBT that overlap and may also be part of mindfulness include relaxation training, breathing techniques, distraction, focusing attention upon an object or an activity, and increasing awareness of the environment (Manicavasagar & Blaszczynski, 1995).
- Distancing or decentring procedures where individuals are encouraged to view their thoughts as representations of reality rather than facts that should be “believed” are a feature of both mindfulness based practices and CBT practices (Teasdale et al., 2000; Zettle & Rains, 1989).

Differences

- The emphasis in CT is distinguishing between the faulty and non-faulty content of thoughts. CBT approaches generally emphasise rationally analysing the content of thoughts and purposefully or deliberately changing the content of irrational or dysfunctional thoughts and thinking patterns. Mindfulness practices may draw attention to content of thoughts and there may be some rational analysis of the thoughts as healthy or unhealthy. However, the emphasis with mindfulness is upon perceiving the process of thoughts (ie their changing and interdependent nature) and “just” acknowledging thoughts as thoughts (Kabat-Zinn, 1995). With MB

practices healthy thoughts may be encouraged or promoted and unhealthy thoughts may be discouraged and the change mechanism is not wilful or forceful. Mindfulness may change the relationship between thought and the thinker and by doing so the content of toxic thoughts may also change. (Fenner, 1995). In general, mindfulness practices encourage a willingness to allow thoughts and emotions to be and let change in a natural manner (Teasdale, et al., 1995).

- As mindfulness can be considered as one defining aspect of Buddhist psychology and there are some fundamental ontological differences with Buddhist psychology and CBT (Fenner, 1995). “Western” psychologies such as CBT emphasise rapid and specific change. Buddhist psychology, on the other hand, emphasises contentment and acceptance with the way things are, change that may occur over many years and a generic holistic perspective about life rather than the elimination of specific symptoms.
- From a philosophical perspective, causality in CBT is considered as linear where thoughts or beliefs often mediate psychological consequences. In practices that utilise mindfulness (such as Buddhism, DBT and ACT) causality is considered as interdependent, contextual and contingent.
- Mindfulness is more generic in nature than CBT. CBT tends to target specific disorders, problems, situations or thinking styles whereas this does not occur with mindfulness practices. Mindfulness is taught as a “way of being” that can be used as a generic skill in all situations and not only when an individual is experiencing distress. Teasdale et al., (1995) commented that this feature of mindfulness may increase its practice effect and enhance a prophylactic function.
- With CBT practices individuals may be systematically exposed to specific anxiety provoking situations or cues. Systematic desensitisation is not purposely practiced with mindfulness-based approaches, and situations or anxiety provoking stimuli are addressed as they arise.
- Identifying with thoughts and emotions is only considered a problem when they are negative CBT practices. With MB practices the tendency to identify with any thought or emotion is considered problematic. Within an ACT model of psychopathology, for example, behavioural disorders are

considered to arise from a number of contextual factors including “cognitive fusion”. Cognitive fusion is explained as a failure to distinguish self from the content of thoughts and feelings (Stroshahl et al., 1998). If one identifies with a conceptual self based upon emotional or thought content one is vulnerable to suffering as these experiences change. ACT emphasises identification with an “observer self”. The “observer self” provides a more stable realm of consciousness where individuals are more readily able to tolerate inevitable change.

Appendix B: Letter to potential referrers

Appendix C: Information sheets and consent forms. Lismore arm of study first and Bankstown arm second.

Appendix D: MB program participation agreement

Appendix E: MB program homework sheets.

Appendix F: MB program evaluation survey

Appendix G: MB practice compliance estimate sheet

Appendix H: Breakdown of participants' psychotropic medication use and SCID diagnoses.

MB program

Participant	Medications	SCID diagnoses
MB1	Antidepressant (Serzone)	GAD Previous Major depression depressive personality traits
MB3	Antidepressant (tricyclic-Dothep)	GAD
MB4	Antidepressant (Zoloft)	Previous Major Depression with co-morbid GAD (not current)
MB5	Antidepressant (Aropax)	GAD, PTSD, Social Phobia, Dysthymia
MB6	Antidepressant (Efexor)	Depression Borderline personality Disorder Traits
MB7	Antidepressant (Aropax)	GAD Co-morbid Depression Panic Disorder
MB8	Nil	GAD Panic Disorder Obsessive and Depressive Personality traits
MB9	Antidepressive (Efexor) Benzodiazepine (Xanax)	Major Depression with co-morbid GAD Borderline Personality Traits
MB10	Nil	GAD Previous depressive episode and dysthymia
MB11	Nil	GAD
MB12	Nil	GAD Agoraphobia
MB13	Antidepressant (Aropax)	Depression
MB16	Antidepressant (tricyclic-deproxin)	Depression GAD
MB18	Mood Stabilisers (Epilum)	Bipolar in remission. PTSD Depression with anxiety features current
MB19	Antidepressant (Cipramil) Antipsychotic (Reperidone)	GAD Brief reactive psychosis (in past)

MB23	Benzodiazapine (Valium PRN)	GAD Panic disorder
MD24	Antidepressant (Efexor) Benzodiazapine (Valium PRN)	GAD Depression Borderline Personality Disorder traits

CR program

Participant	Psycho-tropic Medications	Presenting problem and SCID diagnoses
CR 1	Nil	Panic disorder, GAD, Major depression, Dysthymic. Dependent, passive aggressive, self defeating and borderline personality traits.
CR2	Antidepressant	GAD, Major depression, past Major depressive episode. (personality features not assessed)
CR3	Nil	Simple phobia, past major depressive episode.
CR4	Anxiolytic (Benzodiazepine)	Panic disorder, GAD current Major depressive episode.
CR5	Antidepressant (Prozac)	GAD
CR6	Antidepressant (Aropax)	Panic disorder
CR7	Nil	Specific phobia
CR8	Nil	GAD
CR9	Anxiolytic (Inderal)	GAD
CR10	Antidepressant (Aropax)	Specific phobia
CR12	Antidepressant	Panic disorder, Agoraphobia, GAD, Major depressive episode, Dysthymia
CR13	Nil	OCD, Major Depressive disorder in past.
CR14	Antidepressant (Cipramil)	Specific phobia
CR15	Antidepressant (Serzone)	GAD, Social phobia, Avoidant and dependent personality traits
CR16	Antidepressant (Aropax)	Panic disorder, PTSD, Major Depression disorder.
CR17	Nil	Panic disorder, Agoraphobia
CR18	Antidepressant (Zoloft)	GAD, Major Depressive episode (current), Avoidant personality traits.

Appendix I: Quotes from MB program participants

Some of the comments about positive changes and mindfulness included:

- *anxiety is less.*
- *I stand up for myself I believe in myself I have become more strong*
- *I am at much more ease with the way I am.*
- *Mindfulness is a tool for grounding yourself and not getting carried away with thoughts (sliding into depression).*
- *(I am) being able to make adjustments to my behaviour.....to avoid stress to my emotions....more tolerance, warmer relationships.*
- *I'm not as scared of my anxiety ...I try to see things as they are.. I see things in a more positive manner now.*
- *(it) helped me not get "caught up" in that "stuff" and bring me back to the moment instead of dwelling.*
- *All positive thoughts instead of negative and being able to look at things differently*
- *Positive, more in tune with life...because my whole attitude changed once I became aware of what I could do to help myself.*
- *More able to control anxiety*
- *More aware and able apply strategies....to a range of situations*
- *I have more choice about my actions and responses to emotions*
- *I don't get caught up so much in cyclic thinking.*
- *Positive. Better wellbeing*
- *A huge drop in stress, anxiety and all negative emotions. A much more enjoyment of life.*

