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From Placebo to self-help: Investigating retention, outcome and mechanisms in self-directed gratitude interventions

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From Placebo to Self-Help: Investigating Retention, Outcome and Mechanisms in Self-Directed Gratitude Interventions

By

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Copyright Statement

"Thank you for letting me take part in this study, even if it was a placebo, it has worked, and I am very grateful"

- Study Participant

Adam William Alfred Geraghty

From Placebo to Self-Help: Investigating Retention,
Outcome and Mechanisms in Self-Directed Gratitude Interventions

Abstract

The research presented in this thesis explored unguided self-help therapy, primarily using a gratitude technique. Psychological mechanisms that underlie the placebo response may also play a primary role in beneficial response to unguided self-help therapy. Retention (whether participants completed the intervention), outcome (whether the technique effectively reduced symptoms), and mechanisms (the psychological processes which antecede outcome and retention), were investigated with participants engaging in procedures to improve a diverse range of symptoms, namely, mood, sleep disturbance, body dissatisfaction, depression and anxiety. Studies one and two investigated the role of two placebo mechanisms, response expectancy and motivational concordance, as predictors of outcome following a gratitude technique. Response expectancy contributed to outcome to a greater extent in a laboratory setting, whereas motivational concordance explained greater outcome variance in a real-world setting. Studies three, four and five compared a gratitude technique to a problem-focused technique and a waitlist control. Across all three studies, being randomly allocated to a gratitude technique resulted in greater retention than being allocated to a problem-focused technique. Use of a gratitude technique resulted in equivalent significant reductions in body dissatisfaction (Study three), depression (Study four) and worry (Study five), compared to a problem-focused cognitive restructuring technique, and was significantly more effective than being on a waitlist in all three studies. There was some evidence that different mechanisms affect outcome and retention. Placebo theory and the contextual model of psychotherapy provide useful insight into the factors that affect outcome and retention in self-help therapy.

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Author's Declaration

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Research Ethics

Ethical approval was obtained for the all the empirical studies included in this thesis from the Science and Technology Research Ethics Committee (STREC), at the University of Plymouth. The STREC complies with both American Psychological Association, and British Psychological Society ethical standards. All participants provided fully informed consent before participating, and were informed of their right to withdraw at any point once they had commenced the study. Participants were notified that their data would be held in the strictest confidence, but would not be anonymous as would the researcher be using their email address to contact them. They were informed of the lack of anonymity before they consented to take part. There was no deception used in any of the studies, and participants were debriefed as to the full nature the aims and objectives of the studies after they had completed the interventions.

Chapter 1

Introduction

1.1 The placebo effect

Translated from Latin, the term 'placebo' literally means 'I shall please' (Shapiro, 1964). The first recorded use of the term with it's current association was in 1811 in the revised Quincy's Lexicon-Medicum, where a placebo was defined as 'an epithet given to any medicine adapted more to please than to benefit the patient' (Quincy, 1811 as cited in de Craen, Kaptchuk, Tijssen, & Kleijnen, 1999).

Defining the placebo effect has presented a challenge, and many authors have presented different formulations (Louhiala & Puustinen, 2008). Shapiro (1964) defined the placebo effect "as any therapeutic procedure (or a component of any therapeutic procedure) which is given (1) deliberately to have an effect, or (2) unknowingly and has an effect on a symptom, syndrome, disease, or patient but which is objectively without specific activity for the condition being treated" (p.136). Brody (1980) suggested that a placebo was an intervention designed to simulate medical therapy, that at the time of use was believed by the medical community not to be a specific therapy for the condition for which it is offered. Brody (1980) further proposed that a placebo effect could be considered as a change in a patients illness or symptoms attributable to the 'symbolic import' of a treatment rather than a specific or pharmacologic or physiologic property. More recently, Stewart-Williams (2004) defines the placebo effect as "any genuine psychological or physiological response to an inert or irrelevant substance or procedure" (p.198).

The complexity of the terms 'placebo' and 'placebo effect' are quickly demonstrable with closer observation of the definitions given. Shapiro's (1964) use of 'without specific activity' does not align with recent research; placebos have been shown to produce very specific effects (Montgomery & Kirsch, 1996). Stewart-Williams's (2004) definition uses the words 'inert' or 'irrelevant', however, if the placebo procedure or substance has a large effect on a symptoms, it cannot truly be inert or irrelevant.

Moerman and Jonas (2002) suggested that the placebo response be reconceptualised as the 'meaning response'. Central to Moerman and Jonas's (2002) definition is the idea that the placebo, whether it be a pill, an exercise or some other form of sham medical intervention, is itself inert. Instead it is the *meaning* attached to 'prop' in the ritual that leads to the physiological and psychological changes reported. Moerman and Jonas (2002) define the meaning response "as the physiologic or psychological effects of meaning in the origins or treatment of illness; meaning responses elicited after the use of inert or sham treatment can be called the placebo effect, when they are desirable and the nocebo effect when they are undesirable" (p.472). Moerman and Jonas's (2002) definition aligns with Brody's (1980) idea of 'symbolic import'. Although still using the term 'inert', Moerman and Jonas's (2002) definition is useful as it avoids the specific/non-specific conceptualisation. Placebo responses are often referred to as nonspecific effects, that is "effects that are not related to the causal pathways specified in the theory about how the treatment produces change" (Bootzin & Bailey, 2005. p.872). However, using the term non-specific is problematic in defining the placebo response. The concept of non-specificity is closely tied to the proposed theoretical mechanism of action. Non-specific factors often refer to all other factors that are not yet fully understood (Wampold, Minami, Tierney, Baskin,

& Bhati, 2005). As more is known about mechanisms that underlie therapeutic responses, the more particular factors change from being 'non-specific' to 'specific' factors implicated in the change process.

Placebo definitions are often modified, and new conceptualisations proposed. Recently Louhiala and Puustinen (2008) advised that placebo effects in medical or health related contexts be renamed 'care effects'. Louhiala and Puustinen (2008) proposed the 'care effect' primarily to reduce the negative connotations with the word placebo. To this end it is a useful contribution. The ready use of the phrase 'mere placebo' in research settings to describe the powerful effects of a treatment for which there is no ready explanation, or was originally intended to be impotent, denies the placebo effect the true attention it deserves (Miller & Kaptchuk, 2008). It is important to note the 'care effect' refers more specifically to placebo responses that occur in response to care and treatment. Therefore, as a definition it only describes a proportion of the effects labeled as placebo responses. In the same vein as Louhiala and Puustinen's 'care effect', Miller and Kaptchuk (2008) have proposed that the placebo effect be reconceptualised as 'contextual healing', as placebo responses occur as a function of contextual factors and cues, rather than specific biological agents in administered treatments.

The key factor in the so-called placebo response is that it is driven, in the first instance by psychological processes. These psychological processes can have direct biological effects, however, in the causal chain psychological mechanisms precede biological changes. In 'active' biological treatments, which may lead to psychological changes, changes in biology precede changes in psychology.

1.2 The 'powerful placebo'

Despite some critics (see Hrobjartsson & Gotzsche, 2004), there is an extremely large body of evidence suggesting the placebo response leads to sustained large effects. The following section reviews three psychosomatic symptoms where powerful placebo responses are consistently demonstrated.

1.2.1 Pain

Research on placebo analgesia is at an advanced stage in comparison to placebo research on other conditions. There are now a number of studies demonstrating the neurological basis and substrates of the placebo response to pain (de la Fuente-Fernandez & Stoessl, 2004). Pain research has been important in demonstrating the tangible physiological effect of placebo manipulations, challenging the criticism that the placebo effect may be a responding bias or solely regression to the mean (Hrobjartsson & Gotzsche, 2004).

Turner, Deyo, Loeser, Von Korff, and Fordyce (1994) note the placebo effect may have large effect on pain and symptoms following surgery. In a review of the placebo effect and pain, Turner et al. (2004) identify historical cases, such as Cobb, Thomas, Dillard, Merendino, and Bruce (1959) and Dimond, Kittle, and Crockett (1960), where heart surgery (internal mammary artery litigation) was compared to 'skin incision' alone, without appropriate surgical manipulation to correct the purported causes of the angina. Both Cobb et al. (1959) and Dimond et al. (1960), reported equivalent reductions in angina in both conditions, the placebo surgery and the actual surgical manipulation.

The effect of a placebo on pain is significantly affected by the suggestion given at

administration. Vase, Riley, and Price (2002) conducted two meta-analysis, one where placebos were used as control conditions in clinical analgesia trials and the second where the placebo was the main focus of the trial (primarily placebo mechanism studies). Vase et al. (2002) found significant differences between the size of the effect when a placebo was used as a control condition, or when the placebo was studied as the main focus of the investigation. Placebo analgesia was significantly greater in the latter studies where placebo was the main focus of the study. Vase et al. (2002) suggest that this likely to be due to the differences in suggestion that occur with the administration of the placebo. In randomised placebo controlled trials, it is often an ethical requirement that the participants are informed that they may have a 50% chance of receiving either an active drug or a placebo. This is referred to as a conditional expectation (Geers, Helfer, Kosbab, & Weiland, 2006). Alternatively, participants encounter full deception and are informed that they are about to receive a powerful pain killer (Montgomery & Kirsch, 1996). Vase et al.'s (2002) findings strengthen support for the strong placebo effects in pain, and also provide a suggestion as to the weak findings of Hrobjartsson and Gotzsche (2004). The studies included in Hrobjartsson and Gotzsche's (2004) study were control conditions in larger placebo controlled trials, therefore participants would have received conditional expectations.

1.2.2 Insomnia

Placebos have been shown to produce large, long-term effects on sleep latency in participants suffering with insomnia (Perlis, McCall, Jungquist, Pigeon, & Matteson, 2005). McCall, D'Agostino, and Dunn (2003) conducted a meta analysis, and showed strong sustained placebo effects in comparison with sleep medication. On this basis, McCall et al. (2003) argued for the continued inclusion of placebo conditions in

randomised controlled trials, as a necessity to show that drugs were actually out performing the strong effect of the placebo. In a review, Perlis et al. (2005) offer a suggestion as to why such large placebo effects are reported in sleep research. Perlis suggests the reinforcement schedule is an important factor in generating the effect. The initial expectancy of improved sleep may reduce worry and anxiety about falling asleep. This reduction in anxiety may lead to reduced sleep latency, and the perception of better sleep. Improved sleep acts as a reinforcer for taking the placebo, and the improved sleep continues. Alternatively, continued lack of sleep may increase the homeostatic pressure for sleep and subsequently increase the chances that a good nights sleep will naturally occur. As far as this natural sleep coincided with taking the pill, the placebo effect will be reinforced (Perlis et al., 2005).

1.2.3 Depression

Across mental health conditions where placebo effects are reported, depression shows the greatest reductions when treated with a placebo pill (Andrews, 2001). This has caused a large amount of controversy. In a meta-analytic study of antidepressant and placebo treatment for depression, Kirsch and Saperstein (1998) reported a correlation of $r = .9$ between placebo induced improvement in depression and antidepressant medication induced improvement in depression. Kirsch and Saperstein (1998) showed active medication was responsible for 25% improvement over the placebo condition, suggesting that the majority of the improvement seen in the active treatment group could be accounted for by the placebo effect. In addition, Kirsch and Saperstein (1998) went further and suggested that the additional 25% improvement shown in the active drug condition may still have been placebo response. Placebo response in the active condition may have been enhanced by the side effects of the

active drug. This is consistent with previous research showing that active placebos that produce side effects have a greater effect on reductions in symptoms, than placebos that do not (Moncrieff, Wessely, & Hardy, 2004). Kirsch and Saperstein's (1998) paper produced a lot of criticism on methodological grounds, for example, the inclusion of a small amount of studies due to stringent exclusion criteria, and the exclusion of studies that potentially showed large differences between placebo and antidepressant measures.

To counter these criticisms, Kirsch, Moore, Scoboria, and Nicholls (2002) conducted a second meta-analysis answering the methodological criticisms of the first paper, and reported the same finding. In this study, Kirsch et al. (2002) analysed data on six popular antidepressant medications submitted to the US Food and Drug Administration (FDA). They reported that approximately 80% of the response to the active antidepressants was duplicated by the placebo control groups in the 38 RCTs they analysed. More recently, Kirsch et al. (2008) replicated this finding again in a large meta-analysis of FDA data submitted with regard to four new wave antidepressant drugs. The meta-analysis again showed negligible differences between antidepressants and the placebo conditions, and differences only reached the level of clinical significance required by the FDA in only the most severe cases of depression. Unfortunately, this research was widely interpreted by the press as demonstrating that antidepressants 'do not work' (see Laurance, 2008). However, what Kirsch and colleagues research demonstrates is how powerful the placebo effect is, and how strong its effects can be on depression.

Beyond pain, insomnia and depression, large placebo effects are consistently reported throughout an extensive list of conditions including generalised anxiety disorder (Stein, Baldwin, Dolberg, Despiegel, & Bandelow, 2006), knee injury

(Moseley et al., 2002), asthma (Kemeny et al., 2007) and Parkinson's disease (de la Fuente-Fernandez, 2007).

1.3 Mechanisms responsible for the placebo effect

In medical contexts placebo responses are often associated with the 'art of medicine' (Miller & Kaptchuk, 2008). The art of medicine refers to benefits associated with medical 'rituals' and not directly attributable to pharmacological, physiological or biological changes caused by medical intervention. Therefore, the placebo response and the 'art of medicine' are associated with a number of factors such as the doctor patient relationship, social support, anxiety reduction and hope and conditioning (Miller & Kaptchuk, 2008). Researchers who have studied the psychology of the placebo response specifically, have proposed three primary mechanisms as responsible for, or that contribute to the placebo effect. These are expectancy, conditioning and, recently, motivational concordance.

1.3.1 Expectancy

Kirsch and Lynn (1999) define response expectancies as "anticipations of automatic subjective and behavioral responses to particular situational cues, and their effects are a form of self-fulfilling prophecy" (p.504). Goldman (1999) likewise suggests:

> "The term expectancy refers to dynamic information templates stored in the nervous system that are processed to produce behavioral output. These templates are called 'expectancies' because they prepare the organism for future circumstances similar to circumstances already encountered" (p.43).

Expectancy has been implicated as *the* key mechanism in producing placebo effects (Kirsch, 1985; Montgomery & Kirsch, 1996; Montgomery & Kirsch, 1997; Kirsch & Lynn, 1999). Responses to placebo administration typically conform to the beliefs and knowledge the individual possess prior to administration. Brodeur (1965) instructed pharmacy students that the pill they were about to consume was either a tranquiliser, or a stimulant. Both objective and subjective outcomes significantly followed the direction of the expectation given. Volkow et al. (2003) studied brain metabolic activity in cocaine users, and found that expecting a placebo, or expecting methylphenidate, significantly affected activity when both groups were give methylphenidate. Expecting methylphenidate increased brain activity by 50% (Volkow et al., 2003). A number of studies have shown that the strength of the expectation directly affects the magnitude of the placebo effect experienced. Conditional expectations –'you may or may not receive an active drug' - produce smaller placebo effects than unconditional expectations – 'you are about to receive a powerful pain killer' (Geers et al., 2006). Geers, Weiland, Kosbab, Landry and Helfer (2005) have also shown that motivation can contribute to magnitude of placebo response via expectancy. Individuals implicitly primed to cooperate, experienced greater placebo response when given an expectation, than those given an expectation alone (Geers et al., 2005).

1.3.2 Conditioning

The second contributing mechanism with a large body of research support is conditioning. The conditioning perspective on the placebo response suggests that through repeated exposure to pairings between an unconditional stimulus (US) and a conditional stimulus (CS), the conditional stimulus takes on the properties of the

unconditional stimulus (Stewart-Williams, 2004). In the case of the placebo response, the active ingredient is the US and the administration procedure, apparatus or context used by the medical profession become the CS. Over time and with continuous parings between the US and the CS, the CS will take on the properties of the US, and acquire the capacity to illicit a similar response to the initial active treatment (Stewart-Williams, 2004). Much of the supporting research for the conditioning perspective on placebo mechanisms stems from research on non-human animals (Stewart-Williams & Podd, 2004). Research has demonstrated that placebo analgesia occurs in animals following conditioning procedures (Fields & Price, 1997). Ader and Cohen (1975) provided one of the strongest demonstrations of conditioned placebo responses in non-human animals. Ader and Cohen (1975) showed that an immunosuppressant reaction could be conditioned in rats first administered the immunosuppressant with a novel saccharine solution, and then with the saccharine solution alone. Placebo conditioning has also been shown to lead to changes in blood pressure, heart rate and hormone levels in human participants (Stewart-Williams & Podd, 2004).

There is debate as to whether both expectancy and conditioning contribute to the placebo effect, or one is primarily responsible. Voudouris, Peck and Coleman (1990), conducted a placebo analgesia experiment with four conditions. Participants in group one, underwent a conditioning procedure and received an expectation. Group two received conditioning alone, group three expectancy alone and group four was a control group. Voudouris et al. (1990) concluded that conditioning was responsible for stronger placebo effects than expectation. However, proposing conditioning is the primary mechanism underlying placebo effects, does not explain the occurrence of placebo effects where no prior learning has taken place. Additionally, Montgomery and Kirsch (1997) demonstrated that altering participants' expectation of outcome could eliminate

the effects of conditioning on the placebo response. There has since been a move to integrate the two approaches (see Stewart-Williams & Podd, 2004), and it has been suggested that conditioning is one way by which expectations can be acquired. As expectancy theory can explain placebo effects in novel settings or following new experience, expectancy remains the dominant construct within discussions of placebo mechanism in contexts where no prior learning could have taken place.

1.3.3 Motivational Concordance

Recently, an additional mechanism has been proposed to explain findings when placebo research is conducted in 'real-life' contexts, outside of the laboratory. The theory of motivational concordance (Hyland, Whalley, & Geraghty, 2007; Hyland & Whalley, 2008) stems from research on predicting placebo response in attempt to identify placebo mechanisms.

The role of Complementary and Alternative Medicine (CAM) in the development of motivational concordance theory

Since Shapiro's early work on the placebo in the 60's researchers have questioned whether a certain subset of people would respond more readily to placebo's than others. This lead to the empirical search for the 'placebo responder'. Early research was inconsistent with no reliable personality predictor of placebo response emerging (Lasagna, Mosteller, Von Felsinger, & Beecher, 1954; Shapiro, Struening, & Shapiro, 1979; Whalley, Hyland, & Kirsch, 2008).

Hyland, Geraghty, Joy and Turner (2006) returned to the empirical investigation of personality predictors of placebo response following research in Complementary and Alternative Medicine (CAM). One of the most popular forms of CAM is homeopathy (Cucherat, Haugh, Gooch, & Boissel, 2000). Despite some variation, the consensus among the scientific community is that homeopathic remedies act as placebos (Ernst, 2002). This view developed after a number of large scale randomised controlled trials demonstrated that homeopathic remedies did not produce improvement in symptoms beyond the level of a placebo control (Ernst, 2002).

Despite expectancy being posited as the key mechanism in placebo response, there have been a number of inconsistencies whereby expectancy did not predict outcome following CAM treatment (Lewith, Hyland, & Shaw, 2002; Brien, 2004). Hyland et al. (2006) proposed that these inconstancies indicated that the expectancy construct did not fully explain the placebo phenomena reported in real-life CAM settings. Hyland et al. (2006) designed a study to investigate predictors of placebo response including spirituality, beliefs about CAM, absorption and expectancy. They included spirituality, as spirituality predicted use of CAM (Petry & Finkel, 2004). Presumably sustained use of CAM would reflect good outcomes. Using Bach Flower Essences (BFE) [1] as placebos administered to volunteers over a three week period, Hyland et al. (2006) reported that response expectancy and both attitudes and beliefs about CAM did not independently predict placebo outcome. Dispositional spirituality independently predicted outcome. Importantly the prediction of spirituality was

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[1] Bach Flower Essences (BFE) are similar to homeopathy. They contain extremely diluted substances. The case of BFE, remedies contain brandy and water and a very small amount of water that has had flowers floated on it's surface. The brandy and water mix is said to contain the essence of the flower which is purported to have certain emotional healing powers (Hyland et al., 2006). RCT's evaluating flower essences showed the BFE no different from placebos (Walach, Rilling, & Engelke, 2001; Thaler, Kaminski, Chapman, Langley, & Gartlehner, 2009)

independent of expectancy. It is possible that a spirituality-outcome prediction may be dependent on expectancy, such that individuals higher in spirituality are more likely to expect BFE to be effective, thus producing stronger placebo effects. However, spirituality predicting outcome independently from expectancy was an anomaly and contrary to Hyland et al.'s (2006) predictions. They concluded that there might be additional mechanisms other than expectancy responsible for the placebo effect when placebos are administered in 'real-life' contexts.

Hyland et al. (2007) replicated the spirituality-outcome prediction in a second BFE study. On this occasion spirituality predicted BFE outcome independently of a conservative expectancy measure where expectations about specific symptoms were taken as well as general outcome expectancies. Hyland et al. (2007) proposed the mechanism of motivational concordance to explain this finding. As well as expectations - a cognitive mechanism - there might be an affective mechanism that works independently from expectancy. Several motivational theories including control theory, self-determination theory and self-concordance theory suggest that behaving in a way that is consistent with high order goals and values increases well-being and positive affect (Deci & Ryan, 1985; Carver & Scheier, 1998; Sheldon & Elliot, 1999). Hyland et al. (2007) suggested, that for those who are high in spirituality, taking flower essences supposedly enriched with an 'energy signature' may be perceived as behaviour that is consistent with a value or goal to be spiritual. Therefore, independently of cognitive expectation, the behavior of taking the essences twice a day for three weeks may have increased positive affect in individuals higher in spirituality, reducing symptom perception leading to larger placebo effects in this sub-sample. Hyland et al. (2007) provided support for this theory in a second study. In study two a personality disposition, dispositional gratitude, was paired with a psychological placebo therapy,

'gratitude sleep therapy'. According to motivational concordance theory, participants higher in dispositional gratitude should report sleeping better following gratitude sleep therapy; the placebo behavior is consistent with a high order value reflected in the dispositional gratitude trait measure. In the second study, the authors demonstrated that dispositional gratitude predicted placebo outcome, independently of expectancy.

Hyland and Whalley (2008) supported motivational concordance theory in a third flower essence experiment. However in this study, the placebo was framed differently in three groups. One group received a spiritual prime, one a positive prime and the last group received no prime at all. Spirituality only predicted outcome in the spiritual prime condition, and this prediction was independent of expectancy. This study gave further support for the existence of an additional affective mechanism that allows the prediction of placebo responses based on consistency between a placebo ritual and dispositional values.

Kelley (2008) suggested that motivational concordance is not opposed to expectancy, and therefore should not be treated as a competing theory. Rather, much like conditioning and expectancy, expectancy and motivational concordance must be considered additional and complementary.

1.3.4 Summarising placebo mechanisms

Research on placebo mechanisms is by no means conclusive, and despite theories often being seen as contrasting, or pitted against one another, it is likely that all three mechanisms may be additive. Critically all may be responsible for more or less of the placebo response depending on the context in which the placebo research is carried out.

1.4 The psychological placebo debate

> "There are both practical and conceptual problems with attempts to extend the placebo concept from the medical setting to the psychotherapeutic setting. Practically, it cannot be done; conceptually, it makes no sense to try"
>
> (Kirsch, 2005, p.796)

The idea of 'psychological' placebos in psychotherapy is complex. The use of placebos in psychotherapy trials is a result of the application of medical methodology to psychology. Placebos are used in medical contexts to control for the psychological effects of pharmacological or surgical treatments (Kaptchuk, 1998). This allows medical researchers to observe whether the biologically 'active' components of a new treatment, have an effect over and above the psychological effects of the same procedure. Despite the power of the placebo effect, a treatment labeled a placebo is often regarded as 'false', or a 'sham' (Kirsch, 2005; Miller & Kaptchuk, 2008). Medical researchers work to rigorously control for placebo responses to allow them to demonstrate that a particular biological intervention is responsible for change in targeted symptoms. A psychological placebo (for instance a technique or mental procedure, rather than a sugar pill) is used as a way of testing whether specific psychological procedures, exert specific effects, over and above 'placebo' or general 'non-specific' psychological responses. Initially this appears reasonable, and many researchers to date seek to use 'psychosocial placebos' when investigating new procedures (see Stice, Burton, Bearman, & Rohde, 2007). Nevertheless, when considered in more depth the use of the term placebo in psychological interventions is problematic.

Placebos are designed to control for the effects of psychological mechanisms. This is a reasonable endeavor in medical contexts where there are alternative biological

mechanisms that can take effect when psychological mechanisms are controlled. However, the effects of psychotherapy occur *through* psychological mechanisms alone. Therefore, the question in psychological placebo design becomes which mechanism to control for, or to attempt to control for? Designing a psychological placebo would require knowledge of the 'active' mechanisms responsible for psychotherapeutic change, but mechanisms underlying the placebo response remain unclear (Hyland et al., 2006), and the same is true of psychotherapy as Kazdin (2007) states:

> "after decades of psychotherapy research, we cannot provide an evidence-based explanation for how or why even our most well studied interventions produce change, that is, the mechanism(s) through which treatments operate" (p.1).

Despite the stated lack of knowledge about psychological mechanism responsible for all therapeutic responses, researchers often attempt to control for what they see as the main 'non-specific' or placebo factors. These primarily include expectancy and attention. Therefore, it is common to see the use of 'attention controls' in psychotherapy trials, where participants are met, listen to, but administering specific techniques is refrained form (for an example see David-Ferdon & Kaslow, 2008)

Critically, the term 'placebo response' could also be referred to in its simplest form as a 'psychological response'. To try and separate certain psychological mechanisms is almost impossible. Different mechanisms are likely to be intimately connected. For example, a group of researchers may devise a theory of psychological dysfunction after much empirical study of the causes of the particular dysfunction. They will then develop an intervention based on their new theoretical understanding (Clark, 2004). This may be compared to a no treatment control and a placebo control, such as empathic listening, attention, or a shorter less in depth treatment (Kirsch, 2005). If, for

example, the new treatment produces significantly greater improvements than the control or placebo conditions, the researchers will assume that their new intervention acted on the particular mechanism suggested by their theory. However, as Kazdin (2005) suggests in cases such as these, it is not possible to rule out the possibility that participants in the new treatment condition had a new, more convincing rationale and therefore *expected* the treatment to work to a greater extent than those in the other conditions. This increased expectancy may have created the differential effects across the conditions.

Well designed placebos should be indistinguishable from the treatment to which they are being compared (Kirsch, 2005). If they are distinguishable, they will not control fully for placebo responses. This presents another challenge to the idea of using psychological placebos. Psychological placebos involve procedures, interpersonal interactions and explanations; thus it is impossible to make them fully indistinguishable without the placebo becoming identical to the treatment. Additionally, it is not possible to be blind to condition, and therefore results may be unwittingly biased toward researchers preferences (Luborsky et al., 1999).

Using psychological placebos in comparative psychotherapy research as controls is complex and troublesome. Many of the mechanisms that are responsible for placebo effects – or 'psychological responses' are likely to be the same as the mechanism underlying beneficial change in psychotherapy (Wampold et al. 2005).

Psychological placebos are often used in placebo research (Geers, Helfer, Kosbab, Weiland, & Landry, 2005; Geers, Kosbab, Helfer, Weiland, & Wellman, 2007; Hyland et al., 2007), and this is also theoretically challenging. Geers et al. (2005), Geers et al. (2007) and Hyland et al. (2007) all used a form of 'placebo sleep therapy' in their

placebo mechanism research. Geers et al. (2005), ask participants to write the events of the day before they sleep under the assumption that this technique had effectively helped people sleep in the past. Hyland et al. (2007), asked individuals to write lists of things they are grateful for before sleep, coupled with rationale that gratitude will help sleep. When in all studies, participants report sleeping better, this acknowledged as a 'placebo' effect. This was presumably because in all cases there was no apparent pre determined mechanism reported to underlying the effects of the treatment – therefore they must be placebo effects. However, if studied purposefully, and a mechanism explicitly stated – these non-specific 'therapies' would become specific, and no longer be labeled placebo.

The above is a critique of the use of the term 'placebo' in these contexts, rather than the valuable contributions of Geers et al. (2005) and Hyland et al. (2007). Beyond the bounds and contradictions of terminology and definition, what these studies do highlight are psychological mechanisms underlying outcome change following individuals' attempts to help themselves – in these cases improve sleep.

1.5 Moving from placebo to self-help response

The placebo response is primarily a psychological response that leads to the experience of benefit in targeted symptoms. Mechanisms that lead to change in physical and psychological symptoms, both over short time periods following placebo administration, and over longer-term psychotherapy, remain unclear. In face-to-face psychotherapy, of all mechanisms potentially leading to change, a good therapeutic relationship is perhaps the most consistent predictor of outcome (Horvath & Symonds, 1991; Horvath & Luborsky, 1993). The therapeutic relationship is complex and has been studied by a large number of researchers (Krupnick et al., 1996). What remains

almost entirely unstudied are the mechanisms and processes underlying self-directed, or 'self-help' therapy. That is, attempts to self-direct psychological interventions or therapeutic exercises without the guidance or human contact. Both Geers et al.'s (2005) and Hyland et al.'s (2007) work on placebo mechanisms features self-help contexts. In both cases, individuals undertake procedures alone in attempt to produce change in a symptom. Using fully self-directed therapy allows change mechanisms to be restricted to person-based psychological variables and technique variables alone, excluding interpersonal interaction variables. This reduces complexity to a degree, and provides an opportunity to investigate a simpler example of psychotherapeutic change.

Self-help[2] research is gaining momentum as intervention technologies improve and the internet is increasingly used as a method of intervention delivery (Muñoz et al., 2006). However, mirroring face-to-face psychotherapy research, self-help research has focused almost entirely on outcomes. The process involved in both completing interventions and the mechanism of change following completion, have been left unstudied.

It is critical to develop a detailed understanding of the processes underlying change following administration of psychological techniques purported to be effective, whether termed 'psychological placebo' or 'self-help therapy'. What occurs after each, placebo administration or engaging in self-help therapy, is a psychological response to an intervention or therapy activity.

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[2] Within this thesis, 'self-help' or 'self-directed therapy' will refer to empirically derived self-help interventions (i.e. interventions which feature a collection of educational information and psychological/behavioral techniques) administered over a set period of time, rather than self-help as in popular self-help books or self-help groups (i.e. peer led support groups).

1.6 Mechanism, retention and outcome in self-directed interventions

Research on empirically derived self-help therapy began in the late 1980s (Scogin, Jamison, & Gochneaur, 1989). The potential to administer therapy over the internet has lead to self-directed therapy research growing at a very fast pace over the last five years (Bennett & Glasgow, 2009). There are now journals devoted entirely to internet based therapeutic interventions (e.g. Journal of Medical Internet Research). Interest in self-help therapy research has been sustained primarily by consistent results showing self-help interventions are effective (Bennett & Glasgow, 2009). Despite some examples of self-help therapy having little effects on symptoms (Mead et al., 2005), in some cases self-help interventions produce effect sizes equivalent to those seen in traditional face-to-face therapy (Carlbring et al., 2005). Self-directed interventions have been shown to be effective for broad range of dysfunctions including depression (Mackinnon, Griffiths, & Christensen, 2008), anxiety (Christensen, Griffiths, Korten, Brittliffe, & Groves, 2004), body dissatisfaction (Cash & Lavallee, 1997) and panic disorder (Carlbring et al., 2005).

1.6.1 Mechanism

Current research has focused almost entirely on outcome, and identifying whether new waves of self-help treatments effectively reduce symptoms. How or why these self-directed treatments have an effect has been neglected. It is not clear what causes the failure to address this key issue. One possible explanation is that there is an assumption that the treatments will work in the same way as therapeutic procedures and techniques do when administered in face-to-face psychotherapy settings. However, the

essential ingredients that lead to beneficial change following face-to-face psychotherapeutic intervention remain contested (Wampold, 2001; DeRubeis, Brotman, & Gibbons, 2005). A good therapeutic relationship is critical (Krupnick et al., 1996). Consistency in the predictive power of therapeutic relationships has left some to suggest that the relationship is in fact the most important component of therapy (Hubble, Duncan, & Miller, 1999). Beyond the therapeutic relationship, hope and expectancy of change are purported to important ingredients (Weinberger & Eig, 1999). There is strong debate as to the role of specific therapeutic techniques in creating outcome change (see DeRubeis et al., 2005; Siev, Huppert, & Chambless, 2009).

The defining feature of self-directed therapy is the significantly decreased role of the therapist. In 'pure' self-help or fully self-directed therapy the role of the therapist is removed completely. This has large implications for the understanding of process following self-directed therapy. If the human relationship and contact is critical for change in therapy, then removing this aspect completely may have dire consequences for outcome. A widely cited study by Spek et al. (2007) appeared to show a relationship between the extent of guidance and contact in self-directed therapy and positive outcome. The more contact encountered, the greater the benefit of the intervention. However, to assign human contact, attention and guidance as solely responsible for change following self-directed interventions may be an over generalisation. Studies on fully self-directed therapy (without contact) consistently show that those who complete interventions report significant improvement in target symptoms (Farvolden, Denisoff, Selby, Bagby, & Rudy, 2005; Muñoz et al., 2006; Christensen, Griffiths, Mackinnon, & Brittliffe, 2006). Therefore, other non-relationship factors become increasingly important in self-directed contexts.

The role of specific technique in producing outcome is highly contested, and many researchers suggest that much remains unknown (Doss, 2004; Higginson & Mansell, 2008). Marks (2002) states:

> "We no little about which treatment components produce improvement, how they do so and why they do not help all sufferers. Therapy is coming of age regarding efficacy for anxiety and depression, but is only a toddler regarding the scientific principles to explain its effects" (p.200)

In unguided contexts the role of technique becomes increasingly important. With regard to factors that influence therapy outcome, aside person-based variables that the participant/client brings (including expectancy, initial symptom levels), without the therapist, the technique is all that remains. Therefore, the following section will discuss the contribution of technique to therapy outcome in detail. The review will be focused on face-to-face therapy. Mechanism, and the role of technique are very rarely discussed in the self-help literature.

There are two main schools of thought regarding the importance of specific techniques in intervention outcome. These schools can be conceptualised as revolving around two different approaches to psychotherapy, the medical model and the contextual model.

1.6.1.1 Two models of change

The medical model

The dominant model currently used as a base for both research and intervention design in psychotherapy is the medical model (Wampold, Ahn, & Coleman, 2001).

This model is derived from research and biological intervention standards used by conventional medicine. According to Wampold, Ann and Coleman (2001) the medical model contains five key components; 1) the client presents with a disorder, problem or complaint; 2) there exists psychological explanation for the disorder, problem or complaint; 3) the theoretical conceptualisation and knowledge are sufficient to posit a psychological mechanism of change; 4) the therapist administers a set of therapeutic ingredients that are logically derived from psychological explanation and mechanism of change, and 5) the benefits of psychotherapy are due, for the most part, to the specific ingredients.

The dominance of the medical model in psychotherapy research has been suggested as stemming from conflicts between psychiatrists and psychologists (Hubble et al., 1999). The rise of managed care in mental health settings in the US in the 1990's led to a need for standardised treatments and the requirement of evidence of efficacy. Psychiatry responded by providing many drug treatments for mental disorders (Wampold, 2001). The American Psychological Association saw this as a threat and established a Clinical Psychology task force stating "If clinical psychology is to survive in this hey day of biological psychiatry, APA must act to emphasize the strength of what we have to offer – a variety of psychotherapies of proven efficacy" (Task Force on Promotion and Dissemination of Psychological Procedures, 1995, p.1). The strong emphasis on the medical model has lead to the increasing supremacy of particular therapy approaches consistent with the models formulisation. Cognitive Behavioral Therapy (CBT) is currently the government-sponsored treatment of choice in the United Kingdom (see IAPT, Department of Health). The theories that form the basis of CBT are derived directly from empirical evidence in the cognitive sciences (Clark, 2004). Additionally, CBT is highly structured and is easily standardised into manualised

treatment, with specific treatment approaches for specific psychological dysfunctions. Despite privileges given to CBT, there is a lack of evidence from methodologically rigorous trials suggesting that it is more effective than other available psychological therapies (Leichsenring, 2001; Luborsky et al., 2002; Wampold, Imel, & Miller, 2009).

The contextual model

The contextual model (Wampold, 2001) is a meta-model based on the principles developed by Frank and Frank (1991). The contextual model proposes that individuals present to psychotherapy practitioners, or seek healing agents such as books and possibly websites, when they feel demoralised by the problems they experience. Importantly, Frank and Frank (1991) assert that people seek therapy for the demoralisation that results from their symptoms rather than for symptom relief itself. Therefore, according to the contextual model, psychotherapy has an effect largely by directly remoralising individuals and only indirectly treating the direct symptoms (Frank & Frank, 1991). Wampold (2001) posits that the contextual model has six main components that are key to effective therapy; 1) the therapist addresses the clients sense of alienation through developing an effective supportive relationship; 2) the therapist maintains the persons expectation of remediation by linking hope with the techniques prescribed by the therapy; 3) the therapist provides new learning experiences; 4) the persons emotions are aroused as a result of the therapy; 5) the practice of therapy and/or the therapist enhances the individuals sense of self-efficacy; and finally 6) the therapy process or therapist provides opportunities for practice.

The contextual model does not deemphasize the role of specific technique. Specific techniques are important in both the medical and contextual models. However, in the contextual model of psychotherapy, specific techniques are important in that they

are necessary to construct a coherent treatment that therapists have faith in and that provides a convincing rationale to persons seeking therapy (Wampold, 2001). Parallels are often drawn between the contextual model of psychotherapy and placebo response. Some proponents of the medical model view of psychotherapy suggesting that the contextual model of psychotherapy implies that all psychotherapy is a placebo – once again this highlights the problems with definition.

There are many parallels between placebo response in therapeutic contexts and psychotherapy (Wampold et al., 2005). For psychotherapy to be deemed a placebo is only a detrimental if placebo response is defined as a 'response to inert treatment'. If placebo response is reconceptualised, as has been suggested by Miller and Kaptchuk (2008) as 'contextual healing', or a psychological response to the meaning in the therapy, as Moerman and Jonas (2002) propose, the overlap between placebo response and psychotherapy is considerable. In fact, the placebo response *is* psychotherapy – a psychological response to many different forms of therapy.

It remains controversial as to which model of psychotherapy more accurately describes the role of technique and the change mechanisms that lead to benefit following psychotherapy (Craighead, Sheets, Bjornsson, & Arnarson, 2005). Research may offer insight regarding which view of psychotherapy is a closer fit with the empirical data. A full review is beyond the scope of this thesis, however the next section will be used to review key findings and meta-analyses that may highlight components necessary in effective therapeutic encounters.

There are substantial methodological shortfalls in drawing broad conclusions regarding comparative therapeutic efficacy from a single study. All investigations inevitably have methodological flaws, and in all studies there is chance that an effect

may be due to type one error. This has lead to researchers turning to meta-analysis rather than single studies when examining the differential efficacy of psychotherapy techniques. Meta-analysis refers to the statistical analysis of a collection of analytic results for the purpose of integrating the findings (DerSimonian & Laird, 1986). This allows broader conclusions to be made, based on the findings of multiple studies. The primary question to be investigated by researchers has been whether one set of specific techniques is more effective than another. Or, put differently, are some therapeutic approaches and techniques more effective than others? There are a number of seminal meta-analyses that have addressed this question. One of the first was a meta-analysis conducted by Smith and Glass, (1977). Smith and Glass (1977) reviewed 375 studies that compared at least two different psychotherapy approaches with a control group. Their results revealed that psychotherapy is significantly more effective than no treatment. On average an individual receiving therapy will be 75% more likely to recover from their symptoms that someone not in therapy (Smith & Glass, 1977). Importantly, they reported that few important differences in effectiveness could be identified between different therapeutic treatments.

Since Smith and Glass's (1977) landmark analysis, there have been many more conducted that revealed similar results (see Robinson, Berman, & Neimeyer, 1990). A meta-analysis that had a large impact on the psychotherapy research community and lead to a deal of controversy (see Crits-Christoph, 1997), was conducted by Wampold, Mondin, Moody, Stich, Benson and Ahn (1997). Wampold et al. (1997) compiled 115 studies that compared 'bone fide' treatments, that is, treatments that are intended to be therapeutic. This required excluding studies where therapies were compared to treatments designed specifically to control for factors rather than being treatments in and of themselves. Wampold et al. (1997) reported that size of the difference different

therapies had on outcome remained homogeneously distributed around zero. Many of the treatments were not significantly different from each other. Where differences were found they were small (e.g. Cohen's $d = .20$).

In a more recent study, Luborsky et al. (2002) examined the findings of 17 meta- analyses comparing the relative efficacy of psychotherapy treatments and concluded again, that the effect sizes of the difference between different approaches on outcome was small (Cohen's $d = .20$) and non-significant. Importantly, Luborsky et al. (2002) report that if you control for therapist allegiance (whether the research was carried out by researcher invested in one of the treatments) the size of the effect of the difference decreases further.

A criticism of this meta-analytic research is that the studies mentioned collapse across different psychological conditions. Opponents of the idea that all psychotherapies are equally effective, suggest that if meta-analysis only includes studies comparing treatments for one condition, they may find differences between treatments (Crits-Christoph, 1997). Imel, Wampold, Miller and Fleming (2008) and Benish, Imel and Wampold (2008) tested this proposition for two specific disorders. Benish et al. (2008) carried out a meta-analysis using 14 studies on diverse treatments for Post Traumatic Stress Disorder (PTSD) including CBT, psychodynamic therapy, stress inoculation and exposure. Benish et al. (2008) report that effect sizes were homogeneously distributed around zero, indicating that there were no significant differences between the widely varying psychotherapies and decreases in PTSD symptomology. Imel et al. (2008) carried out a meta-analysis on 37 studies investigating two or more treatments for alcohol dependence. Again this study revealed no significant differences between treatments with effect sizes distributed evenly

around zero. The consistent results from each of these meta-analytic studies suggests that when two different treatments approaches are presented to individuals seeking relief of symptoms, no one technique is substantially more effective than another. All bone fide techniques appear to be similarly effective.

Randomised trials of psychotherapy are highly controlled, and in most cases those individuals presenting with comorbidity are excluded. Although important, randomised controlled trials do not always provide accurate estimates of the size of effect of different treatments when the therapies are delivered in usual care, outside trial settings (Rothwell, 2005; Sanson-Fisher, Bonevski, Green, & D'Este, 2007). It is important to examine comparisons of different therapies and techniques when they are administered as part of regular mental health care. Stiles, Barkham, Twigg, Mellor-Clark and Cooper (2006) and Stiles, Barkham, Mellor-Clark and Connell (2008) compared CBT, Person Centered Therapy (PCT) and Psychodynamic Therapy (PDT) as practiced in routine care in two large samples, (n = 1309, and n = 5613). In both studies, Stiles et al. (2006) and Stiles et al. (2008) found that the differing theoretical approaches tended to have equivalent outcomes.

There are two explanations for the consistent finding of equivalence. The first, as suggested by DeRubeis et al. (2005) is that all therapies may be equally effective, however, beneficial effects may occur through different mechanisms. The second explanation is that treatments are equivalent as they exert effect on symptoms through the same mechanisms (Frank & Frank, 1991; Hubble et al., 1999; Wampold, 2001).

Another methodological practice that can be used to determine whether specific therapy techniques are responsible for change is the 'dismantling' study. In this design two or more therapies are compared and are kept equivalent, however, a technique

purported to be necessary for symptom relief, based on theory underpinning the specific approach, is removed from one of the therapies. According to the logic of the design, if the specific techniques are necessary then the therapies without the techniques should be significantly less effective in reducing symptoms. Jacobson et al. (1996) carried out one of most cited dismantling studies. Jacobson et al. (1996) dismantling CBT into behavior therapy, cognitive therapy and compared this to a full CBT treatment. They reported that there were no significant differences between the techniques. Each intervention significantly reduced depression. There are many examples of dismantling studies, where the 'dismantled' intervention is as effective as the complete treatment (see Hilbert & Tuschen-Caffier, 2004). Due to the limitations of single study designs when drawing broad conclusions, Ahn & Wampold, (2001) conducted a meta-analysis on component analysis studies, where therapeutic interventions were dismantled and components compared. After analysis of 27 studies, Ahn & Wampold (2001) reported that the effect size for the difference between a therapeutic intervention with and without its critical components was not significantly different from zero. Ahn and Wampold (2001) concluded that these results cast doubt on the specificity of psychological treatments.

There is lack of research showing that one therapeutic technique will affect one specific process to a greater extent than therapies that do not target that particular process. For example, Zeiss, Lewinsohn and Muñoz (1979) provided three different treatment approaches and techniques for participants with depression. Participants were presented with either interpersonal training, targeting cognitions or introducing pleasant events. Zeiss et al. (1979) concluded that "no treatment modality had a specific impact on the variables most relevant to its treatment format. Instead, all patients improved on most dependent variables, regardless of whether the variables were directly addressed in

treatment" (p.427). Despite some research purporting to show a particular technique effecting a particular process (Whisman, 1993), it is possible that these results may have been as a results of differences in priming and expectations. Kanter, Kohlenberg, and Loftus (2004), showed that the way in which a cognitive therapy rationale was presented influenced the reported symptoms and experience of the participants under experimental conditions. Kanter et al. (2004) asked participants to monitor their thoughts and feelings after looking at emotion provoking images. Participants presented with an ABC rationale for emotional reaction, where A referred to activating experiences, B referred to thoughts and cognitions and C referred to affective feelings, were more likely to report that their thoughts affected their affective responses. Participants presented with an alternative rationale, ACB, that affective feelings would influence thoughts, reported that their respective feelings affected their thoughts, in line with their rationale.

Although Kanters et al.'s (2004) research was conducted under experimental conditions, their findings reflect early research on systematic desensitization (SD). Oliveau, Agras, Leitenberg, Moore and Wright (1969) administered systematic desensitization procedure with or without a rationale to participants with specific phobia, and found that those who received SD with the rationale, experienced significant phobic reductions compared with those who did not receive the rationale. In another study of phobic participants Marcia, Rubin and Efran, (1969) provided a standard, actual SD procedure, or a credible high expectancy procedure that contained no psychologically 'active' treatment components. Marcia et al. (1969) reported that high expectancy participants improved as much as did SD participants.

Busch, Kanter, Sedivy and Leonard (2007) repeated Kanters et al.'s (2004) experiment. Extending the original study they included high and low demand condition for both rationales, ABC ACB. Additionally, they followed participants up after a week, and presented them with the same image task. Busch et al. (2007) found that the ABC rationale lead to participants reporting that thoughts effected feelings, in both high and low demand characteristic conditions, where as in ACB condition, participants only reported feelings affecting thoughts significantly more, in the high demand ACB condition. Busch et al. (2007) also report that those in the ACB condition did not maintain their reports in the direction of the rationale a week later. Busch et al. (2007) interpret this finding as showing that the ABC rationale is more representative of actual mechanism, whereas response changes following the ACB rationale, are a function of demand characteristics.

Despite appearing to counter the Kanter et al (2004) study, there are several important methodological flaws to Busch et al's (2007) investigation. The most important, one that the authors note, is the relative difficulty of both rationales to carryout. Busch et al. (2007) and Kanter, et al. (2004) studies are essentially awareness training exercises. It may be significantly easier to become aware of thoughts, then feelings, than it is to become aware of feelings initially. People can readily express what they are thinking, whereas it is often much more difficult to pinpoint feelings. Busch et al.'s (2007) findings may show simply that the ACB rationale is actually harder to do, and therefore has less effect on the way participants report experiences. Designing two equally credible rationales that are equally easy to experience may provide a better test. Critically, the participants were undergraduates, therefore it is likely that rationales may have less of on influence on students taking part in an experiment, than the effect of a rationale on an individual taking part in therapy. In a real therapy context, where

individuals are demoralised and hoping for change, rationales are likely to be a much more persuasive and prominent part of therapy.

There are no definitive conclusions from the above research. These examples show just how complex difficult it is to identify specific techniques or specific ingredients. The finding that all bone fide techniques are equally effective is controversial and is strongly resisted by some researchers (see Tarrier et al., 2002; Siev et al. 2009). These researchers insist that differences may emerge as methodology improves, and meta-analysis moves beyond inclusion of underpowered studies. Additionally, some suggest that as understanding of psychological disorder increases, this may lead to the development of treatments that are genuinely more effective than existing therapies (see Siev & Chambless, 2007). Due to the close alignment with placebo concepts and mechanisms, the current thesis will take a primarily contextual model/common factors perspective in the choice and focus on predictors nd self-help mechanisms. However, later studies (Chapters three, four and five), feature designs that allow questions from a 'specific' approach to be answered.

1.6.2 Self-help mechanisms

Beyond the complexity of definitions, placebo responses in therapeutic contexts and benefit following self-help therapy may essentially reflect the same phenomenon; a psychological response to interpreted meaning associated with a rationale and procedure. Therefore, in self-help interventions, with the absence of guidance or interpersonal therapeutic interaction, process and change may be affected by placebo mechanisms such as expectancy and motivational concordance. It is also possible that specific techniques may have an effect on specific symptoms in the self-help domain. Although this is contested in face-to-face therapy, there is very little research on the

underlying mechanisms in self-help interventions. Chapter four of this thesis will address this question more directly.

1.6.3 Attrition and unguided self-help – changing approach

Most studies involving participants from community or clinical samples report attrition (studies conducted on undergraduate participants rarely encounter substantial dropout). In unguided self-help high levels of attrition are the rule, rather than the exception. So much so, that Eysenbach (2005) proposed a 'law of attrition' suggesting that in any intervention that does not feature human contact, particularly those that are provided over the internet, a substantial proportion of participants will dropout. Studies of unguided health interventions for both mental and physical health frequently report attrition at levels ranging from 50 – 80% (Eysenbach, 2005).

In unguided, or fully self-directed trials, attrition should be studied as a phenomenon in and of itself, rather than an inconvenient aspect of trial methodology. Recently, Baskin et al. (2008) called for more in depth study of differential rates of attrition. Baskin et al. (2008) stated that comparative outcome trials were not leading to new conclusions. They proposed that much more connected to therapeutic benefit was whether the participants actually complete the studies after allocation to a particular therapy, or engaged with the trial. Considered in this way retention becomes as important as outcome. Both factors must be considered when investigating process in unguided self-help therapy. Some techniques may produce large benefits, but may lead to very high attrition, other techniques may lead to lower rates of attrition, but be less effective.

1.6.4 Outcome

For those who complete the process, self-directed interventions effectively reduce symptoms across a wide range of mental and physical health problems (Farvolden et al., 2005; Muñoz et al., 2006; Christensen et al., 2006). A related question is whether similar techniques are useful for improving outcomes of varying problems. The idea that one form of therapy, or one collection of techniques, may benefit multiple dysfunctions, fits closely with the contextual model of psychotherapy. If remoralisation lies at the heart of improvement in psychological symptoms, then a coherent and convincing rationale, coupled with techniques based on the rationale, may have a remoralising effect across a range of problems. According to the medical model conceptualisation of psychotherapy, and 'specific treatments for specific disorders' (Butler, Chapman, Forman, & Beck, 2006), one treatment improving multiple disorders appears more incoherent. However, there is a growing amount of research on what is being termed transdiagnositic approaches to therapy, and in particular Cognitive Behavioral Therapy. At its basic level, a transdiagnositic approach applies the same basic therapy structure across disorders. Transdiagnostic approaches are based on the premise that despite varying cognitive and behavioral outputs, many disorders have very similar process at their core. Ehring and Watkins (2008) for instance, suggest that negative thinking be considered a transdiagnostic characteristic. Nevertheless, transdiagnositic approaches are still novel, 'specific treatments for specific disorders' is still the dominant mantra for those working within a medical model conceptualisation of psychotherapy.

1.7 Selecting techniques for investigating self-help process – the use of gratitude

Self-help interventions utilised in empirical research are multi-component psychotherapy packages, primarily based upon a cognitive behavioral model of therapy (Christensen et al., 2004). In order to evaluate mechanism and process fully in face-to-face therapy, researchers have consistently suggested breaking treatment packages down to their component parts (Lundh, 2009). Put simply, it is hard to begin to understand why a package as a whole works on depression for instance, when there are lots of different components – are all of them necessary? Are some effective and others not? All these are questions that are only beginning to be confronted in the face-to-face therapy domain, and there is very little research with regard to which components are necessary in the self-help therapy packages. Despite the lack of knowledge as to why self-help treatments work, and what is necessary for effective symptoms reduction, new self-help therapies, often internet based, are springing up for a remarkably broad range of problems including headaches (Devineni & Blanchard, 2005), tinnitus (Kaldo et al., 2008) and compulsive hording (Muroff, Steketee, Himle, & Frost, in press).

The approach taken in this thesis is different. Rather than attempt to develop a new full self-help therapeutic intervention and attend primarily to outcome, the aim of the current research was an in depth investigation of process following a simple psychological technique used in a unguided self-help context. This approach allowed critical questions to begin to be addressed. For instance, is it possible to predict outcome based on potential change mechanisms? What is the role of contextual mechanisms such as expectancy in change following self-help techniques? Does change in technique orientation differentially affect outcome across varying symptoms? These are all questions that have gone unanswered. However, until process research is conducted full-scale intervention design will be ill informed. In particular, it is unclear how designers of current full-scale self-help interventions chose which components they are

to use in their self-help interventions. They may use techniques that were effective in face-to-face interventions, however, it is still unknown as to why they work. Continuing to design interventions without knowledge as to how techniques work will significantly restrict the application and potential effect of self-help interventions. One example is the problem of attrition in unguided interventions (Christensen, Griffiths, & Farrer, 2009). Without guidance, people stop using self-help psychological techniques. Is it possible to change the technique, so people are more able to continue without guidance, and how will changes in technique affect outcome? This is one question where the beginnings are addressed in this thesis.

The studies included in the current thesis use relatively short-term 'models' of self-help in order to begin to explore fundamental questions. Selected self-help techniques, rather than complete packages, were offered to participants. On some occasions participants were consulted as to how a technique affected them immediately following its use, other occasion's individuals were asked to try techniques for a period of weeks, and then report back.

Although different techniques were used in different studies, a technique based around gratitude was used as the primary self-directed technique in this thesis. A gratitude technique was chosen as it reflects a simple, relatively straightforward technique that can be used in unguided contexts. Importantly, using gratitude allows an intervention where the technique remains constant (listing items one is grateful for), whereas the rationale for the proposed benefit of the technique can be easily manipulated. This makes it a useful technique in addressing questions of technique specificity. Additionally the technique is relatively novel, and has a distinctly positive orientation. This makes it useful to compare against methods currently used in self-

directed interventions (in the latter stages of this thesis) that are problem focused and symptom specific. Finally, gratitude techniques have emerged out of the relatively recent positive psychology movement. There has been very little research regarding the processes involved in completing a gratitude technique. Although there has been a lot of excitement about positive psychology techniques (Seligman, Steen, Park & Peterson, 2005), it is likely that these techniques work in part through the same contextual mechanisms as all interventions posited to produce change in experience (whether increased well-being, or reduced depression). As participants were asked to reflect on grateful experiences throughout this thesis, it is important to discuss the meaning of gratitude.

1.8 What is gratitude?

Gratitude has long been viewed as fundamental for both functional communities and personal well-being (Emmons & McCullough, 2003). The importance of gratitude in society can be seen in the centrality it is given in many of the world's religions including Christianity, Islam, Judaism, Buddhism and Hinduism (Emmons, 2004).

Bertocci and Millard (1963) define gratitude as "the willingness to recognise the unearned increments of value in ones experience" (p389). More recently, Emmons and McCullough (2003) have summarised gratitude as stemming from "the perception of personal outcome, not necessarily deserved or earned, that is due to the actions of another person" (p.337). The expression of gratitude is inherently other-directed (Emmons & McCullough, 2003). Gratitude can be directed at both human and non-human entitles, such as God. Additionally, people can also experience transpersonal gratitude. Transpersonal gratitude can go beyond a theistic orientation and gratitude directed at the cosmos more generally (Emmons, 2004). Developing a more specific

analysis of gratitude, Fitzgerald (1998) proposed that there are three key components to gratefulness; 1) a warm sense of appreciation and goodwill, 2) a sense of goodwill toward the person or thing, and finally, 3) a disposition to act that flows from appreciation and goodwill.

1.8.1 Gratitude as emotion

According to Rosenberg (1998), affect is composed of a number of different interrelated levels. Moods are seen as longer-term experiences that wax and wane through personal experience. Emotions, however are seen as more short term, and are often experienced as more intense than moods. At the highest level of abstraction are affective traits. These are differences in personality that confine and restrict the extent and the quality of the emotion or mood that is experienced. Gratitude has been described at all three levels, as an affective trait, a mood and an emotion.

McCullough, Emmons and Larson, (2001) have suggested that gratitude represents 'moral affect'. Moral affect is defined as affect that results from, and typically stimulates, moral behavior. McCullough et al. (2001) set out three important functions of gratitude that make it an affective experience with a particularly moral tone. Gratitude is suggested to function as a moral barometer; a moral motive; and a moral reinforcer (McCullough et al. 2001). As a moral barometer, gratitude functions to serve as a measure of the prevision of benefit received from another individual or moral agent that enhances the receivers well-being. Individuals' are most likely to experience gratitude when (a) "they have received particularly valuable benefit (b) effort and cost have been expended on their behalf (c) the expenditure on their behalf seems genuine, and (d) the expenditure of effort their behalf was not determined by the existence of a role based relationship, where the giving and receiving of benefits is expected"

(McCullough et al., 2001, p.252). Gratitude may work as an 'affective readout', sensitive to the provision of benefit by another in ones social environment. Gratitude may also act as a moral motive (McCullough, 2001). Feeling grateful may motivate the extension of prosocial behavior to others. Tsang (2006) has showed that, in an experimental setting, individuals who experience gratitude are more likely to act in a prosocial way. Participants who received a favour were significantly more likely to allocate resources to the benefactor, and experience more gratitude. Finally, McCullough et al. (2001) suggest that gratitude may act as a moral 'reinforcer'. Although stated as a separate factor by McCullough et al. (2001) the examples given appear to suggest that gratitude activates prosocial behavior, including volunteering and leaving larger tips in restaurants. It is likely that reinforcement value of gratitude leads to prosocial behavior in the widest form; whether that be the specific individual who provided the benefit, or society in general, as a whole.

1.8.2 The benefits of gratitude

Gratitude has been associated with many potential benefits, both psychological and physiological. In the following section gratitude's relationship to satisfaction with life, well-being, depression and sleep will be discussed with regard to the empirical evidence.

McCullough, Tsang and Emmons (2002) conducted some of the first research to empirically demonstrate that dispositional gratitude was significantly related to increased satisfaction with life (SWL), a relationship that had long been anecdotally discussed (McCullough et al. 2001). McCullough et al.'s (2002) research went beyond demonstrating a simple significant relationship between gratitude and SWL, importantly they showed that dispositional gratitude explained additional variance in satisfaction

with life, above the pre existing 'Big Five' domains of personality (McCrae & Costa, 1987). McCrae and Costa (1987) propose that personality is organized in a hierarchical fashion, with broad domains at the top of the hierarchy, and more specific facets toward the lower ends of the hierarchy. Wood, Joseph and Maltby (2008) proposed that gratitude is more likely to be represented at the facet level of personality. Therefore, to test whether dispositional gratitude really does predict additional variance in satisfaction with life, all the lower facets of the 'Big Five' personality model need to be controlled for. In a study designed to control for both the domains and the facet levels of personality, Wood et al. (2008) demonstrated that with all the Big Five domains and facets controlled, dispositional gratitude still predicted significant variance in satisfaction with life. Of the personality facets Wood et al. (2008) measured, dispositional gratitude was significantly related to warmth, gregariousness, positive emotions, openness, trust, altruism and tender mindedness. Wood et al. (2008), suggest that this pattern of correlations demonstrate the primarily social nature of gratitude. This research represents some of the strongest empirical evidence of the fundamental relationship between gratitude and satisfaction with life.

Well-being, along with satisfaction with life, are positive constructs proposed as primary outcomes of expressing gratitude (Emmons & McCullough, 2003) and benefits of being higher in dispositional gratitude. Research has suggested that well-being takes two forms, Subjective Well-Being (SWB) and Psychological Well-Being (PWB). SWB is seen as being related to pleasure or eudemonics, and PWB is related to the experience of meaning in life, and meaningful social relationships (Ryff, 1989). Wood, Joseph, and Maltby (2009) specifically explored the relationship between both SWB and PWB and a disposition to be grateful. Additionally, to be sure that gratitude is uniquely related to both SWB and PWB, Wood et al. (2009) controlled for both the domains and facets of

the Big Five personality taxonomy. Without this control, gratitude's relationship with both SWB PWB may be fully explained by pre existing personality facets such including agreeableness or altruism. Wood et al. (2009) reported that dispositional gratitude explained additional variance in both SWB and PWB with the domains and facets of the Big Five model of personality controlled. Wood et al.'s (2009) study is one of the first investigations to demonstrate the significant relationship that dispositional gratitude has with PWB. Gratitude was significantly correlated with environmental mastery, personal growth, positive relationships, purpose in life and self-acceptance.

Wood et al.'s (2008, 2009) research was cross sectional, and as such cannot determine the causal relationship between gratitude, well-being stress. To further this research and investigate the affect of a grateful disposition over time, Wood, Maltby, Gillett, Linley and Joseph (2008) employed a longitudinal method to investigate the role of dispositional gratitude in stress and depression over a life transition period. In two studies, Wood, Maltby et al. (2008) measured dispositional gratitude, social support, stress and depression in university undergraduates at the start of their degree course. Starting university represents a large life transition for young people, therefore this context is particularly suited to examine to role of dispositional gratitude transition period. Wood, Maltby et al. (2008) report that after testing several a priori Structural Equation Models, gratitude lead to greater social support, less stress and reduced levels of depression at time two in both studies. Social support, less stress and reduced depression, importantly, did not explain differences in gratitude at time two. Having a grateful outlook appears to provide a buffer against stress and reduces depression.

Although limited research exists, preliminary evidence suggests that dispositional gratitude may have an effect on physical health. The primary mechanism

through which gratitude is likely to have on physical health is through increased well-being. There is a wealth of research suggesting that positive affect and increases in well-being and positivity impact on immune function, leading to better health and slower disease progression (Pressman & Cohen, 2005). However, there is also evidence that gratitude may be uniquely associated with physical health, and in particular, sleep. In one of the first studies to experimentally manipulate gratitude participants reported that completing lists of things they were grateful for 14 nights lead to significant improvements in sleep quality, both reported hours of sleep and feeling more refreshed in the morning (Emmons & McCullough, 2003). This preliminary evidence lead Wood, Joseph, Lloyd and Atkins (2009) to investigate whether individual differences in trait gratitude were related to sleep quality after controlling for the Big Five domains and Facets of personality. Wood, Joseph et al. (2009) reported that dispositional gratitude was significantly related to reported sleep quality, controlling for the other relevant traits. Importantly, gratitude appeared to be related to sleep quality through the mechanism of pre sleep cognitions. That is when attempting to sleep, those high in dispositional gratitude are less likely to think negative and worrying thoughts. The evidence on the relationship between gratitude and sleep is preliminary, although it does suggest that the benefits of gratitude may affect health in both physical and psychological domains.

Both state and trait gratitude is strongly associated with many benefits. Inevitably, this has lead to research on whether it is possible to intervene and explore the benefits of expressing gratitude. In this next section, a number of studies will be reviewed and the discussed in terms of reported findings and limitations.

1.8.3 Gratitude interventions

The first experimental investigation to test if gratitude was causally related to well-being was carried out by Emmons and McCullough (2003). In a three study investigation, Emmons and McCullough asked participants to practice 'counting blessings' over a period of two weeks, three weeks or four weeks. The gratitude intervention was compared to three control conditions: Counting burdens, or daily hassles; downward social comparisons; usual events and no treatment control or a wait list. The research findings from Emmons and McCullough's (2003) study were mixed. In general writing lists of gratitude items over the intervention periods produced more gratitude and well-being than writing lists of hassles, or a wait list control. However, writing gratitude lists did not produce more daily gratitude or positive affect than control conditions; writing about daily events, or writing downward social comparisons. The strongest finding from the studies that make up Emmons and McCullough (2003) investigation comes from study three. In study three, the researchers investigate the effects of expressing gratitude, compared to a no treatment control in participants suffering from adult-onset neuromuscular disease. Emmons and McCullough (2003) report that participants allocated the gratitude list condition reported significantly more positive affect and less negative affect than those in the control group. They also reported significantly improved sleep compared to control participants. The findings regarding increases in positive affect were also supported by observer ratings made by a spouse or a significant other.

The mixed results reported in studies one and two of Emmons and McCullough's (2003) investigation may stem from the use of university undergraduates taking part in the study for 'course credit'. University students, on average, tend to be

well-adjusted, middle class young adults. This may have led to a ceiling affect on the well-being measures. Additionally, students taking part in a psychology study provides a very different motivational context, to people volunteering to reduce distress.

Seligman, Steen, Park and Peterson (2005) conducted a study designed to test the effect of positive psychology interventions on both happiness and depression in a group of self-selected visitors to an 'authentic happiness' website. Seligman et al. (2005) included a gratitude condition that involved writing a letter expressing gratitude to an individual who has had a positive affect on the participants life. The participants in the gratitude condition, then had to go and deliver this letter to the particular individual. This was compared to a control condition where participants had to write about early memories. The gratitude condition lead to significantly more happiness and significantly less depression than an 'early memories' control condition (Seligman et al., 2005).

In a further study evaluating the effect of writing gratitude lists, Lyubomirsky, Schkade and Sheldon (2005) report that in a six week intervention, students who kept gratitude lists once a week reported significant increases in well-being compared to control participants who simply completed measures of well-being pre a post six weeks. In a further study, Sheldon and Lyubomirsky, (2006) reported that generating gratitude lists among undergraduates did not increase positive affect or reduce negative affect at follow up, compared to controls.

A number small-scale studies in the positive psychology literature have used gratitude list/diary conditions and reported mixed findings (Froh, Sefick, & Emmons, 2008; Watkins et al., 2003). Nonetheless, the general conclusions from these small

research studies is that completing gratitude lists has some positive effect on increasing happiness and well-being.

Reviewing the literature that exists on gratitude interventions reveals a mixed association between carrying out gratitude based interventions, and increases in well-being. There are a number of possible reasons for relatively weak findings. Trying to increase happiness in samples without dysfunctional symptoms may be difficult. Attempting to 'cultivate' gratitude may have very different effects on well-being and psychological state compared to naturally occurring gratitude. Attempts to reflect on gratitude may seem 'forced' therefore render the exercise an ineffective psychological technique for intervention. The gratitude techniques may have had reduced effects on outcome, as they were not used to lower psychological distress. Focusing on happiness and well-being may mask potential effects of gratitude on improving psychological health. Additionally, positive psychology researchers may not have given due consideration to the full depth of intervention science. Applying a contextual model of therapeutic change, hope and expectancy would have been reduced significantly by the motivational context of the studies – students taking part for course credit. If gratitude techniques were coupled with a coherent rationale that increases hope and expectancy in a sample seeking help, the effect of gratitude interventions may have been stronger.

1.9 Overview of Studies

The mechanisms underlying beneficial outcome after unguided self-help therapy are unclear, as are factors that affect intervention processes such as attrition. Using gratitude techniques, the aim of this thesis was to contribute to the understanding of the psychological processes involved when individuals attempt to help themselves reduce symptoms, primarily without contact or direct guidance. In order to develop a more

complete understanding change following self-help gratitude techniques, it was important initially to investigate components and mechanisms of change in the simplest of settings. Chapter two investigates mechanisms leading to reported change in affect following administration of a gratitude technique on a single occasion. The investigation in Chapter three leads from and expands the study in Chapter two by investigating mechanisms following perceived change in sleep quality, after participants complete gratitude techniques over a three-night period. Chapter four features an investigation of both retention and outcome following self-directed gratitude techniques used for body dissatisfaction over a two-week period. Additionally, the study in Chapter four takes the investigation further with the inclusion of waitlist controls, and a standard problem focused self-help technique. Chapter five describes an investigation of gratitude techniques for depressive symptoms over a two-week period. Retention is explored as a function of self-directed technique. Chapter six leads from Chapters four and five by investigating the effect of gratitude techniques on worry. Developing further, the study in Chapter six draws on a self-regulatory framework to guide the selection of variables that may predict attrition, including hope and optimism. Finally, Chapter seven discusses the implication of the current research series for understanding processes that underlie individual's attempts to self-direct psychological therapy.

Chapter 2

Predicting short-term affect following a gratitude exercise

In the current thesis, a gratitude technique was the primary self-help exercise used to explore processes involved in unguided self-directed intervention. Studies that have used gratitude interventions have invariably used one of two methods, either a gratitude diary, where participants practice cultivating gratitude by recording lists of things from their life for which they feel grateful, or a gratitude letter, where participants write and deliver a letter of gratitude to someone who has contributed to their life (Emmons & McCullough, 2003; Seligman, Steen, Park, & Peterson, 2005). A gratitude list, or diary in studies lasting over a day, was chosen due to its relative simplicity. Delivering a letter to an individual and expressing thanks is likely to be a very emotionally charged interpersonal experience (Seligman et al., 2005), making it therapeutically and experimentally complex. Additionally, writing a letter of gratitude is a more difficult task than creating brief gratitude lists. This may lead to very high dropout if a letter technique was used in studies without external incentives. In study one, the predictors of perceived improvement in affect were examined following a single completion a gratitude list. Beginning in this way, and examining the exercise in its simplest form, provides a starting point for the following chapters.

2.1 Study one

Completing a gratitude list has been consistently shown to increase positive affect in the short term (Emmons & McCullough, 2003). The potential mechanisms underlying this affect increase remain unclear, as do the personality and situational characteristics of those most likely to benefit from the technique. The relationship between gratitude, as it occurs naturally in day-to-day life, and positive affect may be direct and unmediated. Gratitude appears to be a form of moral affect (McCullough et al., 2003) that is experienced as positive by most (Gallop, 1999). However, when direct strategies are taken to intervene and increase positive affect through the use of gratitude, mechanisms that underlie the effect may change, and additional mediators may be responsible for benefit that occurs. This study investigates the role of two therapeutic mechanism that may partially underlie the effect of a gratitude exercise on positive and negative affect, namely response expectancy (Kirsch, 1985) and motivational concordance (Hyland, Whalley, & Geraghty, 2007; Hyland & Whalley, 2008).

A large proportion of variance following change after any psychological intervention will remain unexplained (Hubble, Duncan, & Miller, 1999). This is likely to be due to the complexity and multiple facets responsible for change, as well as the widespread lack of knowledge regarding therapeutic change mechanisms (Kazdin, 2007). However, there are some proposed contextual mechanisms that may be responsible, to varying degrees, for perceived change following psychological technique purported to be beneficial, such as a creating a gratitude list. Response expectancy (Kirsch, 1985) and motivational concordance (Hyland & Whalley, 2008) are two such mechanisms that may be responsible for change across many forms of intervention, and may occur independently of relationship factors in self-directed contexts. Investigating

potential mechanism underlying the effect of a gratitude technique will provide insight into change processes, and thus potentially identify conditions under which a gratitude technique is likely to be most beneficial.

According to response expectancy theory (Kirsch, 1985) response expectancies are responsible for therapeutic non-volitional responses in short term therapy contexts – and these are unmediated. Response expectancies may directly affect experience, and are often proposed as the key mechanism underlying placebo responses. Put simply, according to response expectancy theory, those who have high expectations that a gratitude exercise is likely to benefit them are most likely to report greatest levels of positive affect. According to motivational concordance theory (Hyland et al., 2007; Hyland & Whalley, 2008), concordance between personality traits reflecting higher order motives, and therapy exercise/technique may predict outcome, independently from expectancy. Those participants high in dispositional gratitude may experience greater increases in positive affect after completing a gratitude list, compared to those lower in dispositional gratitude. This increase in positive affect will not be dependent on expectations about the technique. Rather positive affect may stem from partaking in behaviour that is consistent with higher order values (Carver & Scheier, 1990; Emmons, 1996). The motivational concordance theory has not been tested in short-term laboratory contexts, it may or may not be a valid mechanism responsible for change in the current context.

McCullough, Emmons, and Tsang, (2004) have proposed two hypotheses that may inform the question as to who is likely to benefit from gratitude exercises. In a discussion of how trait gratitude may relate to grateful experiences in day-to-day life, McCullough et al. (2004) proposed the 'conductance hypothesis' and the 'resistance

hypothesis'. According to the conductance hypothesis, for those who have higher levels of trait gratitude, discrete emotional experiences of gratitude are more likely to be 'conducted up' into longer lasting grateful moods, than those who are lower in trait gratitude. For individuals lower in trait gratitude, discrete emotional experiences are less likely to be noted and have an effect, or be conducted up into positive moods. According to the resistance hypothesis, the moods of people high in dispositional gratitude are so strongly determined by personality processes, that discrete emotional experiences of gratitude in day-to-day life are unlikely to affect their moods.

Although these hypotheses relate more directly to links between trait, mood and discrete emotional experience, they may inform and direct predictions as to who is likely to report benefit following a short gratitude exercise. According to the resistance hypothesis, individuals high in dispositional gratitude may experience less positive affect following a gratitude exercise than those low in dispositional gratitude. For those disposed toward gratitude, gratitude is likely to be experienced more intensely and more frequently than those who are not (McCullough, Tsang, & Emmons, 2002), therefore, preparing a gratitude list may be less novel and influence affect to a lesser degree. Alternatively, according to the conductance hypothesis, those high in dispositional gratitude, may be more likely to 'conduct up' the discrete emotional experience of preparing a gratitude list, and therefore experience greater increases in positive affect, compared to someone who was low on gratitude.

With regard to the influence of dispositional gratitude on the effects of a gratitude based task, both motivational concordance and response expectancy theory would be situated within a 'conductance' hypothesis; both theories propose that being disposed to gratitude will increase the positive effects of a gratitude task. However,

there is also support for the resistance hypothesis. McCullough et al. (2004) showed that those higher in dispositional gratitude were less likely to be affected by daily discrete experiences of gratitude. Additionally, beyond gratitude, David, Green, Martin and Suls (1997) reported that neuroticism and extraversion did not moderate the effect of desirable or undesirable daily life events on mood. Therefore, it is equally possible that completing a gratitude list may be most beneficial for someone who does not regularly experience gratitude.

Another factor that may influence the effect of a gratitude list on positive and negative affect is the perceived difficultly of recalling items/experiences to be grateful for. Finding writing a gratitude list difficult may have a negative influence on affect after the task, which may highlight that the participant may not have much to be grateful for. This offers another possible reason why those high in dispositional gratitude may benefit more from a gratitude task. As stated previously, those higher in dispositional gratitude are more likely to experience gratitude more frequently (McCullough, Tsang, & Emmons, 2002) and therefore will have more events and experiences to draw from in order to create their list, and thus find the task easier. Satisfaction in achieving the task easily, whether gratitude or not, may lead to increased positive affect.

The current study was designed to examine potential predictors of affect change, reductions in negative affect as well as increases in positive affect, following completion of a gratitude list. The focus was primarily placed on two contextual mechanisms that may play a role in change following self-directed techniques, response expectancy and motivational concordance. This study also provided the opportunity to confirm previous research with regard to the correlates of baseline dispositional gratitude – studies have shown that dispositional gratitude is related to positive affect

and spirituality (McCullough, Tsang, & Emmons, 2002). A waitlist or alternative control group was not included in this study. The primary aim of the present investigation was not to test whether gratitude was more effective in inducing affect change than something else such as doing nothing, or doing some other task. Rather the aim was to address potential correlates and predictors of reported affect change following a use of a gratitude exercise.

2.2 Method

Participants

Eighty-two undergraduate psychology students from the University of Plymouth, UK, took part in return for course credit. The sample included 71 females and 11 males. The mean age was 22, with 88.9% ranging from 18-30, and 11.1% ranging from 30-51.

Measures

Affect

To measure changes in affective state the Positive and Negative Affect Schedule was used (PANAS; Watson, Clark, & Tellegen, 1988). PANAS consists of two 10-item measures measuring positive affect and negative affect. Positive items include "Interested" and "Alert", Negative items include "Upset" and "Disinterested". Participants rate items from 1, "very slightly or not at all" to 5 "extremely". Participants were asked to rate how they were feeling 'now, at the present moment'. (Watson et al., 1988) report high internal consistency for both subscales with PA α = .87 and NA α = .87.

Dispositional Gratitude

The Gratitude Questionnaire (GQ-6) is a six-item scale developed by McCullough et al. (2002) to measure dispositional gratitude. A seven-point scale is used with higher scores indicating greater gratitude. The scale has four positive items and two negative items, including "I have so much in my life to be grateful for" and "I am grateful to a wide range of people." McCullough et al., (2002) report the internal consistency for the six-item scale as α =.72.

Dispositional Spirituality

Dispositional Spirituality was measured using the Spiritual Connection Questionnaire (Wheeler & Hyland, 2008). The Spiritual Connection Questionnaire is a 14-item scale designed to measure a spiritual connection with the universe, and the sense of happiness that brings. The scale consists of seven positive items such as "My spirituality makes life good for me" and seven negative items such as "I feel no spiritual connection to the world around me" and had an internal consistency of α = .92 in the current sample.

Expectancy

Expectancy was measured using a single-item scale indicating the extent to which participants believed that their mood would be improved by the gratitude technique. The question was "At this point in time, do you expect the gratitude technique to improve your mood?" Participants were asked to "circle the number that describes your opinion" on an 8-point scale with end points labeled *I think it very unlikely it will help me* (1) and *Yes, I definitely expect it will help* (8).

Ease of Task Completion

Ease with which participants generated items to be grateful for was measured with a single item scale. The question was "how easy was it for you to think of items for you to be grateful for?" Participants were asked to respond on a seven-point scale, with end points labeled *extremely difficult* (1) and *extremely easy* (7).

Procedure

Participants provided informed consent and were asked to complete all baseline measures. Baseline measures were not randomised and were completed in the following order: Demographic information (including age and gender), PANAS, GQ-6, SCQ-14 and Expectancy. Participants completed the gratitude list alone in a soft furnished room within the Psychology department at the University of Plymouth. Participants were given a booklet containing a rationale describing how gratitude may increase positive affect, followed by instructions for the task. After participants had read the instructions they were asked to rate how much they expected the task to improve their mood. They were then asked to write down 8 things that they felt grateful for in the booklet provided. When they finished their list, they were instructed to read carefully through what they had written, and were asked to focus on the feeling of 'being grateful'. When participants had finished the gratitude task, after approximately 20 minutes, they completed the final PANAS outcome scale. Participants were then debriefed and asked if they had any further questions about the study.

2.3 Results

Baseline correlations were examined between positive and negative affect measures, gender, age, dispositional spirituality, and dispositional gratitude (see Table

1.1). Dispositional Gratitude, Spirituality and Positive affect were significantly positively correlated. Expectation of beneficial outcome was significantly negatively correlated with negative affect, but not significantly correlated with positive affect. Gender was negatively correlated with dispositional gratitude; females had higher dispositional gratitude than males at baseline.

Table 1.1

Pearson's correlations between baseline measures (n = 82). Gender coded female = 0, male = 1.

Variable	1	2	3	4	5	6
1. Positive Affect						
2. Negative Affect	-.08					
3. Gender	.04	.11				
4. Age	.24*	-.11	-.17			
5. Dispositional Gratitude	.38**	-.22*	-.26*	.08		
6. Spirituality	.31**	.09	-.13	.19	.31**	
7. Expectancy	.16	-.28*	-.16	-.18	.32**	.23*

Note. * = $p<.05$, ** = $p<.01$

To examine change after completing the gratitude list first the percentage change for both positive affect and negative affect was examined. Seven percent of participants reported feeling less positive affect following the exercise, 1 % reported no change, and 92 % reported positive affect increase. With regard to negative affect, 7 % reported increases in negative affect 25% reported no change, and 68% reported reductions in negative affect.

To test whether completing the gratitude technique had significantly improved mood a paired sample t-test was carried out on both positive and negative affect, comparing pre-intervention scores with post intervention scores. Gratitude therapy significantly increased positive affect from time one ($M = 27.99$, $SD = 6.50$) to time two ($M = 32.96$, $SD = 7.70$), $t(81) = -8.48$, $p < .01$, effect size, Cohen's $d = .70$, and significantly reduced negative effect from time one ($M = 13.05$, $SD = 4.33$) to time two ($M = 11.28$, $SD = 2.91$), $t(81) = 5.78$, $p < .01$, effect size, Cohen's $d = .48$. Completing a gratitude list significantly influenced affect; increasing positive affect and reducing negative affect. Figure 1 shows box plots for both positive affect and negative affect pre and post gratitude task.

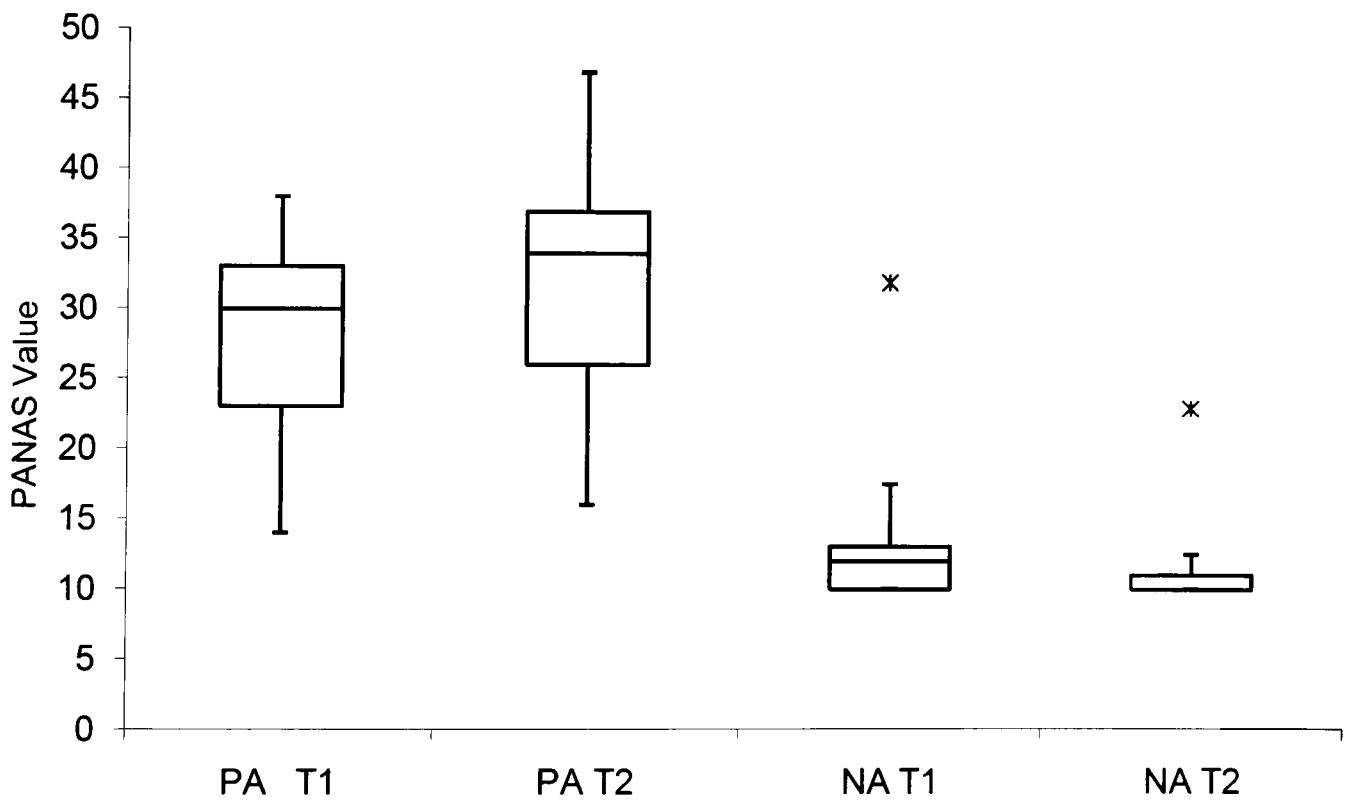

Figure 1. *Box plots showing Positive Affect (PA) and Negative Affect (NA) at Time 1(T1), and Time 2 (T2), n = 81.* [3]

[3] The box plots show the lower quartile, the median and the upper quartile. The ends of the 'whiskers' are set at 1.5*IQR above the third quartile and 1.5*IQR below the first

A hierarchical linear regression model was used to test whether baseline spirituality and dispositional gratitude significantly predicted positive and negative affect at time two with affect at time one controlled. Variables were entered in steps, initially with positive affect at time two as a dependent variable. Spirituality, as measured by the SCQ, was entered with time one positive affect in step one. Spirituality significantly predicted positive affect at time two with time one positive affect controlled ($\beta = .17, p = .04$). Dispositional gratitude was entered in step two. Spirituality was no longer significant ($\beta = 12, p = .12$) , and dispositional gratitude significantly predicted time two positive affect ($\beta = .18, p = .03, R^2$ change $= .03, p = .03$). The same model was replicated with negative affect, however, neither spirituality or dispositional gratitude significantly predicted reductions in time two negative affect.

A mediation analysis was used to test whether the relationship between dispositional gratitude and outcome following a gratitude task was mediated by expectancy. Initially positive affect was examined. Using Baron and Kenny's (1986) four steps to test for mediation three regression analyses were carried out. In each regression positive affect at time one was entered simultaneously with predictors of interest. In step one, a regression model showed significant correlation between the predictor, dispositional gratitude and outcome, positive affect at time two ($\beta = .20, p < .05$). In step two, a second regression model showed a significant correlation between the predictor dispositional gratitude and the mediator, expectancy ($\beta = .31, p < .01$). In step three, and a third regression model, the mediator expectancy, correlated with the

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quartile. Minimum and maximum outliers are shown if they fall outside of this range. This format continues for all box plots in the thesis.

outcome, positive affect at time two, with the predictor variable, dispositional gratitude controlled ($\beta = .29, p < .01$). In the final of the mediation steps, expectancy can be said to mediate the relationship dispositional gratitude and positive affect at time two, if when controlled, the relationship between dispositional gratitude and positive affect at time two is not significant; $\beta = .12, p = .13$. All the steps were met suggesting a full expectancy mediated relationship between dispositional gratitude and positive affect following the creation of a gratitude list. To test the significance of the indirect effect (i.e. the extent of the mediation) a Sobel test was used (1982), and was significant, $z = 2.68, p < .01$.

To test whether the same pattern of relationships occurred between dispositional gratitude and reductions in negative affect, the same steps were followed. However, the first step was not satisfied, dispositional gratitude did not significantly correlate with reductions in negative affect ($\beta = -.12, p = .10$). In the case of negative affect a regression model with negative affect at time one, expectancy, dispositional gratitude and spirituality showed that expectancy was the strongest predictor of reductions in negative affect following a gratitude exercise (see Table 1.2).

Table 1.2

Multiple regression model for predicting negative affect at time two (n =82).

Predictor	B	SE	β
Negative Affect (T1)	.47	.05	.75**
Expectancy	-.38	.14	-.20**
Dispositional Gratitude	-.04	.05	-.06
Spirituality	.00	.01	-.00

Note. R^2 for model = .64, p <.001. * = p<.05, ** = p<.01

In a final analysis, whether ease of task completion predicted positive affect and negative affect after completing the gratitude exercise was tested. Ease of task completion along with time one positive affect were entered into a regression model with time two positive affect as a dependent variable. Ease of task completion did not significantly predict time two positive affect (β = .11, p =.17). The same analysis was conducted for negative affect, and showed that ease of task completion did not predict negative affect at time two (β = .02, p =.77).

2.4 Discussion

In this study the predictors of both negative and positive affect were examined following a gratitude exercise used in a short-term laboratory context. Baseline dispositional gratitude was significantly related to baseline positive affect and spirituality, but not related to baseline negative affect. Dispositional spirituality significantly predicted positive affect following the gratitude technique, although this effect became non-significant when dispositional gratitude was entered into the model.

Dispositional gratitude significantly predicted positive affect following the gratitude technique, and this relationship was fully mediated by expectancy. Only expectancy predicted negative affect with time one negative affect controlled.

Participants with high levels of dispositional gratitude had higher levels of positive affect and spirituality at baseline. This finding confirms previous research (McCullough et al., 2002) and adds support to the strong association dispositional gratitude and well-being related constructs (McCullough et al., 2002; Wood, Joseph, & Maltby, 2008; Wood, Joseph, & Maltby, 2009). Dispositional gratitude was related to baseline positive affect but not negative affect. This is consistent with the suggestion that positive affect and negative affect are different constructs (Watson et al., 1988), and also demonstrated that dispositional gratitude is more readily associated with greater positive affect rather than less negative affect. Female gender was associated with significantly higher dispositional gratitude. This supports recent research showing that females are more likely to feel less burden and obligation and more gratitude on receiving a gift (Kashdan, Mishra, Breen, & Froh, 2009).

Reading a rationale for the benefits of gratitude and completing a gratitude list resulted in significant increases in positive affect from pre to post technique. The effect size of this change ($d = .68$) was medium to large using Cohen's classifications (Cohen, 1988). There was a smaller but significant reduction in negative affect from pre to post gratitude technique. This supports previous research highlighting gratitude's effect on positive affect, and that gratitude is experienced by most as positive (Gallop, 1999), despite the possibility of being related to indebtedness (Watkins, Scheer, Melinda, & Russell, 2006).

From the baseline dispositional measures, spirituality and dispositional gratitude, only dispositional gratitude independently and significantly predicted time two positive affect with time one positive affect controlled. However, this relationship was fully mediated by expectancy. This finding provides evidence against the resistance hypothesis, suggesting that those higher in dispositional gratitude are more likely to experience benefit following a gratitude-based task, compared to those low in dispositional gratitude. Based on the measures used, response expectancy theory (Kirsch, 1985; Kirsch, 1999; Kirsch & Lynn, 1999) offers the best explanation for the data; those higher in dispositional gratitude were more likely to expect the gratitude exercise to improve their mood, and greater expectancy was directly related to reports of both greater positive affect, and less negative affect. The data do not support motivational concordance theory. Although dispositional gratitude predicted outcome following a gratitude exercise, this relationship was fully mediated by expectancy. Motivational concordance is a theory of therapeutic change explicitly stated as occurring independently from expectancy (Hyland &Whalley, 2008). It is possible that motivational concordance contributes to beneficial outcome to a greater degree in real-life contexts outside laboratory settings (Hyland et al., 2007). In short term laboratory settings, expectancy may be a primary mechanism of change when the exercise is self-directed i.e. without therapeutic interpersonal guidance. This view is consistent with conventional placebo research (de Craen, Kaptchuk, Tijssen, & Kleijnen, 1999).

There was no significant relationship between ease of task completion and perceived affect change, despite those higher in dispositional gratitude finding writing the list significantly easier. In a short-term context, response expectancy may be a more dominate change mechanism. Finding the task difficult in a diary context i.e. over more

than one day may have a greater influence on outcome, as increased difficulty and expended effort to recall positive aspect of life becomes demoralising.

There are some limitations to this study. The use of university undergraduates participating for course credit changes the motivational context of the study. This may have an effect on the mechanism that underlie reports of positive change. It is possible that participants were conforming to demand characteristics, and may have felt indifferent following the gratitude exercise, but still reported felling better. In future, including measures of social desirably would enable tests of whether this was the case. Using university undergraduates also limits the generalisability of these results. The result presented in this study may not generalise to therapeutic processes likely to occur in self-directed interventions with individuals taking part with the initial hope of therapeutic benefit and over longer periods of time. These limitations are not only true of the current study but also apply to all previous research that has investigated gratitude techniques using university undergraduates taking part for credit (Emmons & McCullough, 2003), or school children taking part to fulfil a component of a class (Froh, Sefick, & Emmons, 2008). Despite these limitations, the finding represents an important contribution; previous research has not taken the process in its simplest form and modelled predictors of affect following completion of the technique.

In conclusion, being predisposed to experience gratitude may lead to greater beneficial outcome following a gratitude technique. Response expectancies may be particularly important in short-term contexts, and represent a primary change mechanism. Placebo mechanism such as expectancy may be particularly important following the administration of gratitude techniques.

2.5 Implications for forthcoming study

This study represents a necessary starting point for the thesis. However, the limitation of using university undergraduates necessitates the move away from this population in order to fully investigate retention, outcome and mechanism following self-directed gratitude techniques. It is also necessary to investigate process outside of the laboratory, and over longer periods of time. In order to study self-directed interventions in a context where findings will be most applicable to real world self-help therapy process, from this point on, studies in this thesis used only members of the general public. Additionally, the only incentive for completion offered was the possibility of therapeutic benefit. Thus maximising the external validity and ecological validity of the research.

To move to a more ecologically valid context the next study will follow the methodology used by Hyland et al. (2007) and investigate outcome mechanisms following self-directed gratitude therapy with a rationale to improve sleep. The role of expectancy following gratitude interventions remains unclear. Despite Hyland et al. (2007) reporting that dispositional gratitude predicted outcome following gratitude sleep therapy independently from expectancy, this has not been replicated. Finding that motivational concordance did not explain the findings of the current study, may be due to the differing contexts e.g. sleep versus short-term affect in a laboratory. It may also be due to instability of motivational concordance as a potential self-help mechanism. It is important to replicate Hyland et al. s (2007) finding to test whether motivational concordance is a mechanism worth perusing in this domain.

Chapter 3

The role of placebo mechanisms in the effect of gratitude on sleep

Study one demonstrated that being high in dispositional gratitude lead to increased likelihood of experiencing increases in positive affect after completing a gratitude list. Expectancy was an important mechanism that mediated this disposition-outcome relationship. In order to continue to investigate mechanisms responsible beneficial outcome following a self-directed gratitude diary, study two used a sample recruited from the general public, taking part solely for potential therapeutic benefit. Volunteers were asked to try a gratitude technique to enhance sleep quality. Gratitude has been associated with improved sleep quality previously (Emmons & McCullough, 2003). Study two investigated the relationship between contextual/placebo mechanisms in an ecologically valid, real-world context.

3.1 Study two

Gratitude has been strongly associated with psychological benefits including satisfaction with life and well-being (Wood, Joseph, & Maltby, 2008; Wood, Joseph, & Maltby, 2009). The reported benefits of gratitude go beyond psychological health. Although McCraty and Childre (2004) have shown the cardiovascular benefits of appreciation, sleep is the physical health domain that has received most attention with regard to the benefits of gratitude. In a study using a population with neuromuscular disease, Emmons and McCullough (2003) showed that participants reported improved sleep after completing a gratitude diary. Hyland, Whalley and Geraghty (2007) found

that 75% of participants reported improved sleep quality sleeping better after completing a gratitude list on just one night. Wood, Joseph, Lloyd and Atkins (2009) conducted a study that demonstrated that dispositional gratitude was uniquely associated with good sleep, even after controlling for the 'Big Five' personality facets. Researchers continue to comment on the potential of the positive relationship between gratitude and sleep (Linley, Hendrickx, & Osborne, 2009). Offering individuals the chance to try gratitude techniques to improve sleep quality provides an opportunity to identify mechanisms that contribute to perceived sleep improvement in a self-help context. This study focused on the relationship between two contextual/placebo mechanisms, response expectancy and motivation concordance. Both mechanism have been proposed as contributing to placebo response in novel[4] therapy contexts.

Early research attempting to identify a stable placebo responding personality trait was largely unsuccessful (Moerman, 2002). Resent research using person x situation interactions to identify predictors, has shown that it is may possible to predict placebo response using dispositional variables, although the predicting disposition will vary with the therapy context (Geers, Helfer, Kosbab, Weiland, & Landry, 2005; Hyland, Geraghty, Joy, & Turner, 2006; Geers, Kosbab, Helfer, Weiland, & Wellman, 2007; Hyland et al., 2007; Hyland & Whalley, 2008). This research is important as it necessitates the identification and explanation of the mechanisms through which personality influences placebo outcome. These mechanisms may also contribute to self-help therapy outcome. Continuing research in this area may increase understanding as to why self-help techniques are effective.

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[4] Conditioning is another mechanism thought to be responsible for placebo effects, however prior learning experiences need to have taken placebo for conditioning to occur.

Two research groups have successfully predicted placebo responses from baseline dispositional measures. Critically, the researchers suggest different mechanisms for the disposition-outcome correlation. Geers et al. (2005) and Geers et al. (2007) suggest that expectancy is the mechanism that allows the disposition-outcome correlations, whereas Hyland et al. (2007) and Hyland and Whalley (2008) suggest that in real-world contexts, it is motivational concordance that leads to the disposition-outcome correlation.

Geers et al. (2005) and Geers et al. (2007) have shown that it is possible to predict placebo outcome based on baseline measures of dispositional optimism. In two studies, Geers et al. (2005, 2007) showed that as optimism among participants increased, response to a positive expectation increased. As pessimism increased, response to a negative expectation increased. Although trait level variables such as dispositional optimism could moderate the effect of expectancies, response expectancy theory suggests that expectancy remains the causal agent in change following placebo administration i.e., there is a direct unmediated relationship between expectancy and outcome (Kirsch, 1985; Kirsch & Lynn, 1999).

Hyland et al. (2006), Hyland et al. (2007), and Hyland and Whalley (2008) have shown that dispositional spirituality predicted outcome following a spiritually oriented placebo (flower essences), and Hyland et al. (2007) showed that dispositional gratitude predicted beneficial response after using a gratitude technique to improve sleep. An important difference between the research carried out on dispositional predictors of placebo response is that Geers et al.'s (2005, 2007) work was carried out in analogue settings (using university undergraduates given incentives for study completion) whereas Hyland et al.'s (2006, 2007, 2008) research was carried out without incentives;

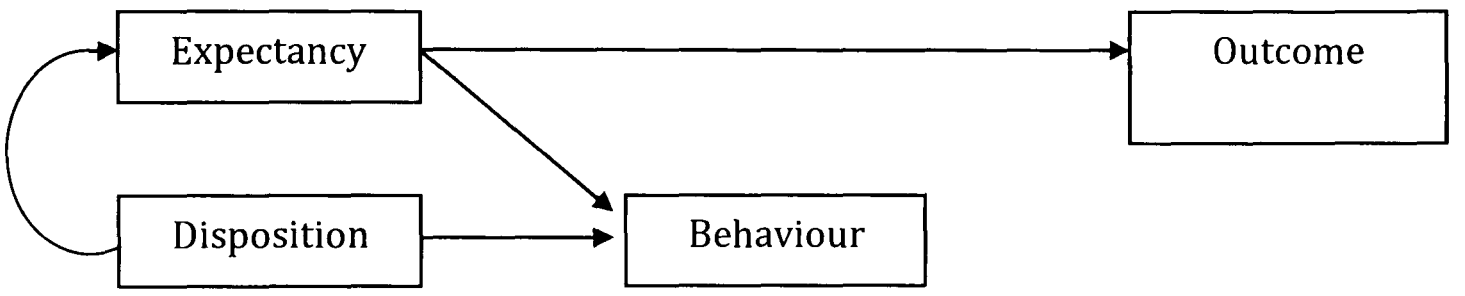
participants took part solely for potential therapeutic benefit. Hyland and Whalley (2008) have proposed that in real-world contexts, motivational concordance is a mechanism that leads to perceived benefit, and allows prior prediction of outcome based on the concordance between personality dispositions and the context the therapy/placebo. Although motivational concordance theory has been discussed previously (see Chapter one and Chapter two), in the present study it is necessary to consider the theory and its relationship with response expectancy in greater depth.

Motivational concordance theory allows prediction of placebo outcome based on concordance between dispositions and placebo context. The particular disposition that predicts response will vary with the therapeutic context. Unlike response expectancy theory, according to motivational concordance theory (Hyland & Whalley, 2008) engaging in the *behaviour* associated with therapeutic procedure or placebo ritual will contribute to benefit experienced, and this may be independent from expectancy. Carrying out procedures and techniques that satisfy important higher order values should have therapeutic benefit through the positive affect generated by performing the technique (Carver & Scheier, 1990; Deci & Ryan, 1985; Ryan & Deci, 2000; Sheldon & Elliot, 1999). Subsequent positive affect can have a direct effect on symptoms (Pressman & Cohen, 2005), alternatively it may affect symptom reporting or somatic focus (Geers, Helfer, Kosbab, & Weiland, 2006). Intrinsic values or goals vary across individuals and will be reflected by dispositional traits (Carver & Scheier, 1998) enabling placebo outcome, and possibly outcome following the use of a psychological technique to be predicted from dispositional measures reflecting those intrinsic values.

Motivational concordance theory is not exclusive of expectancy. Expectancy and value, intrinsic or extrinsic, will both contribute to the motivation to engage in

therapy behaviour (as in expectancy x value theory, see Atkinson & Reitman, 1956). Therefore, rather than contributing directly to outcome, expectancy will contribute to the engagement in the therapy ritual. Figure 1 shows the two differing theories.

Expectancy theory explanation of disposition-outcome correlation (Geers et al., 2005; Geers et al., 2007)



Motivational concordance explanation of disposition-outcome correlation (Hyland et al., 2007; Hyland & Whalley, 2008)

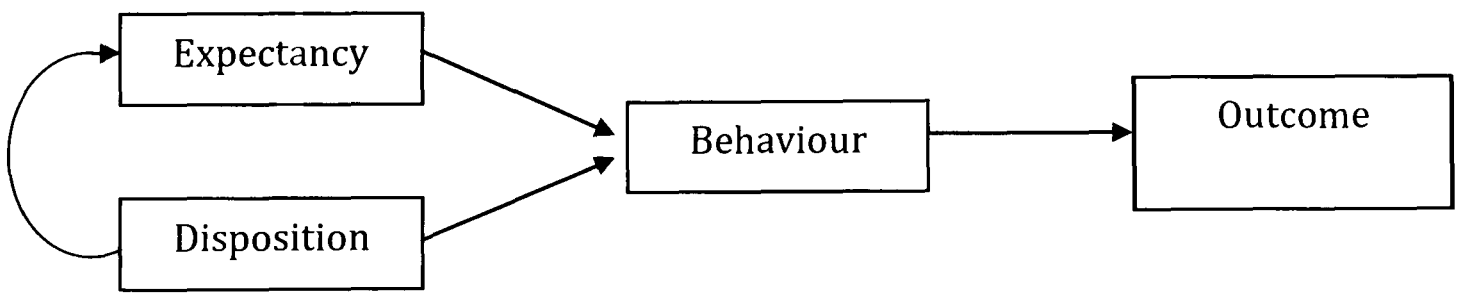


Figure 2. Models showing mechanism underlying dispositional prediction of placebo outcome.

Hyland et al. (2007) used a sleep context to investigate dispositional predictors of placebo response. They found that participants high in dispositional gratitude were more likely to perceive improved sleep after creating a gratitude list, than those with lower levels of dispositional gratitude. This positive relationship occurred

independently of participants expectations of outcome. Hyland et al. (2007) suggested this data demonstrated that motivational concordance was a more important mechanism than response expectancy in contributing to benefit after completing a gratitude diary.

There are a number of reasons why it is important to replicate and expand Hyland et al. 2007 gratitude study:

(1) No measure was taken that represented behaviour associated with the therapy

Hyland and Whalley (2008) showed that the reported ease in carrying out the therapy exercise mediated the relationship between disposition and placebo outcome. They reasoned that participants who engage in therapies that are motivationally concordant would find the tasks easier to do, more satisfying and gain more from them. Thus, measuring ease of behavioural engagement is important in testing motivational concordance theory. Measures of ease of task completion, like those used by Hyland and Whalley (2008) are surrogate measures of behaviour that give an indication of the level of difficulty encountered when participants attempt to engage in the therapy task. Although not a behavioural measure in the strictest sense, they provide a self-report measure of how easy the participants actually found 'doing' the technique. Study one in this thesis showed that ease of completion was not related to improvements in affect. Therefore, in the present study it was important to test whether ease of task completion mediated the relationship between dispositional gratitude and outcome in a sleep context, as Figure 1 would suggest.

(2) There was no comparison condition used

Hyland et al. (2007) did not test whether dispositional gratitude predicted response to different types of psychological technique. Without this test, the reported relationship between dispositional gratitude and outcome following a gratitude technique may not

reflect motivational concordance. Instead, dispositional gratitude could reflect a personality trait that is positively correlated with beneficial therapeutic responses from many different types of positive psychological technique. To test this possibility, a control technique was added in the present study, 'being nurtured therapy'. This technique had a positive orientation, but the focus was placed on recalling times an individual felt nurtured rather than things for which they were grateful. The 'being nurtured' control condition primarily allowed a test of the specificity dispositional gratitude as a predictor of gratitude therapy outcome. However, it also allowed a secondary test of motivational concordance. Succorance is one of Murray's 38 psychogenic needs (Murray, 1938), therefore, dispositional succorance may predict outcome for those who receive the being nurtured technique.

(3) Replicating the results increases reliability of the findings

If the results of present study replicated Hyland et al.'s (2007) gratitude study, this would confirm that motivational concordance theory had broader applications beyond placebo substances (such as flower essences) and may be a useful concept in understanding change resulting from more conventional self-directed therapy. The study also provides the opportunity to evaluate the role of response expectancy in outcome following gratitude techniques in a real-world setting.

The aim of this study was to further investigate the role of response expectancy and motivational concordance in predicting perceived sleep improvement following use of a gratitude diary. Identifying mechanism contributing to the perception of improved sleep will greatly add to the understanding of change process when self-help techniques are used without guidance. Both Hyland et al.'s (2007) and Geers et al.'s (2005, 2007) research on placebo mechanism has featured partially guided self-help; participants had

face-to-face contact with researchers. In the present study the techniques were used in a fully unguided context without face-to-face contact or guidance. Hyland et al. (2007) used a one-night period in line with previous research investigating contextual mechanisms in reported sleep improvement (Geers et al., 2007). In the present study, participants were asked to complete the techniques for three consecutive nights. It was hypothesised that dispositional gratitude would predict perceived sleep outcome following use of a gratitude technique, and that this relationship would be independent from expectancy and behaviourally mediated. Additionally, it was hypothesised that dispositional gratitude should be a specific significant predictor of outcome following the gratitude technique, and not the being nurtured technique. Finally, according to motivational concordance theory, dispositional succorance should predict perception of sleep for those who used the being nurtured technique.

3.2 Method

Participants and Recruitment

Advertisements in local newspapers were used to recruit members of the general public who wanted to try and improve their sleep quality. Four hundred and sixty eight people (164 males, 304 females) logged onto the study website and completed baseline questionnaires. Participants were informed that they would need to access a website, and after completing some questionnaires, they would be provided with a technique that may help improve sleep quality. Participants were not paid and were offered no incentive of any kind to complete the therapy other than benefit of the therapy itself. Participants were recruited from January 2007 to April 2007

Measures

Gratitude

The Gratitude Questionnaire (GQ-6) is a six-item scale developed to measure dispositional gratitude (McCullough, Tsang, & Emmons, 2002). The scale has four positive items and two negative items, including "I have so much in my life to be grateful for" and "I am grateful to a wide range of people." Participants respond to items on a 7-point scale and high scores indicate greater gratitude. Internal consistency for the six-item scale is reported as α =.72 (McCullough et al., 2002). The GQ-6 correlates with optimism and with spiritual transcendence (McCullough et al., 2002).

Nurturance

Murray's original 14-item succorance scale (Murray, 1938), was adapted by modernising the language of the items, and excluding six items that, on inspection, had high anxiety content. The eight-item scale included items such as "I am drawn to people who are sympathetic and understanding" and "I like being cared for when I am unwell". Participants rated items on a six point likert scale, with one representing 'strongly disagree' and six representing 'strongly agree'. Internal consistency based on the current sample was good, α = .78.

Expectancy

Expectancy was measured by a single-item indicating the extent to which participants believed that their sleep would be improved by the gratitude therapy or being nurtured therapy. The question was "At this point in time, do you expect the gratitude sleep therapy to help your sleep?" or "At this point in time, do you expect the

being nurtured sleep therapy to help your sleep". Participants were asked to "circle the number that describes your opinion" on an 8-point scale with end points labeled *I think it very unlikely it will help me* (1) and *Yes, I definitely expect it will help* (8).

Ease

Ease of task completion was measured by a single-item. The question was "how easy was it for you to think of items for you to be grateful for?" for the gratitude group and "how easy was it for you to think of times when you felt nurtured?" for the being nurtured group. Participants were asked to respond on a seven-point scale, with end points labeled *extremely difficult* (1) and *extremely easy* (7).

Sleep Quality

The sleep measure was a retrospective scale developed for a previous study (Hyland et al., 2007) and based on earlier research (Geers, Weiland, Kosbab, Landry, & Helfer, 2005). The scale includes five items that measure sleep quality including "How soundly did you sleep last night?" and "How would you rate the quality of your sleep last night?" The items were rated on a seven point scale labelled *much worse that usual,* 1, *much the same as usual*, 4, *much better than usual,* 7. These scores were totaled to create a sleep score. The study ran for three nights. Scale reliability from this sample was good, $\alpha = .96$.

Procedure

Participants visited a website where they provided informed consent if they met the inclusion criteria. The inclusion criteria required that participants were over 18, and not currently being treated for a psychological condition, or a sleep disorder.

Participants then completed pre-intervention questionnaire measures. Baseline measures were not randomised and were completed in the following order: Demographic information (age and gender), GQ-6, Succorance, and Expectancy. They were then randomised by the web system to receive either gratitude therapy or being nurtured therapy. Participants read a description of the technique they were about to receive and were asked to indicate the extent to which they expected their allocated treatment to improve their sleep. They then downloaded a copy of either a gratitude, or being nurtured sleep therapy booklet. The booklet contained a description of the therapy and a rationale explaining why the therapy could help improve sleep. Participants in the gratitude group were instructed to write down six things they were grateful for in the workbook before they went to sleep, for three consecutive nights. To help explain what these items might be, they were given examples: "for being healthy", "for wonderful parents". Each morning they were sent an automatic email asking them how easy they had found thinking of items to be grateful for, and to rate how they had slept that night on the sleep scale. Participants in the being nurtured group carried out the exact same procedure except they were asked to write down six times when they had felt nurtured before sleep, for three consecutive nights. They were given examples of when one might feel nurtured: "the feeling of being supported by a friend", "the feeling of being loved by a parent". On each of the three mornings participants in this group were sent an email asking them how easy they had found it to think of times when they felt nurtured or looked after, and to rate how they had slept that night on the sleep scale. They were debriefed by via email following their final response.

3.3 Results

Of the 468 participants that began the study, 222 completed all three nights of the study. Participants who completed the full study in the gratitude condition were significantly older ($M = 47$, $SD = 13$) compared with non-completers ($M = 41$, $SD = 16$), $t\ (240) = -2.68$, $p = <.01$. This was the only significant difference between those who completed and those who dropped out across conditions in this study.

All subsequent analyses were carried out on those completing all three nights of the study. This included 115 participants in the gratitude group and 107 in the being nurtured group. There was no significant difference in sleep outcome scores between those doing gratitude therapy ($M = 20.45$, $SD = 4.19$) and those doing being nurtured therapy ($M = 21.08$, $SD = 4.00$), $t\ (220) = -1.12$, $p = .26$. The mid-point on the sleep scale was four, representing 'same as usual'. Sleep scores were created by summing all five sleep questions. A daily sleep score of 20 represented generally sleeping the 'same as usual'. The mean of all three nights of the study was used as an overall sleep score. An overall sleep score of 20 or above represented that the individual, on average, reported sleep quality that was the same or better than usual after using the technique. A score below 20 represented that the individual, on average, reported sleeping worse that usual. After the use of gratitude technique, 49 (43%) participants reported improved sleep, 23 (20%) reported no change and 43 (37%) reported sleeping worse than usual. After using the being nurtured technique, 58 (54%) participants reported improved sleep, 12 (11%) reported no change and 37 (34%) reported sleeping worse than usual. Figure 3 shows box plots of post intervention sleep score distributions.

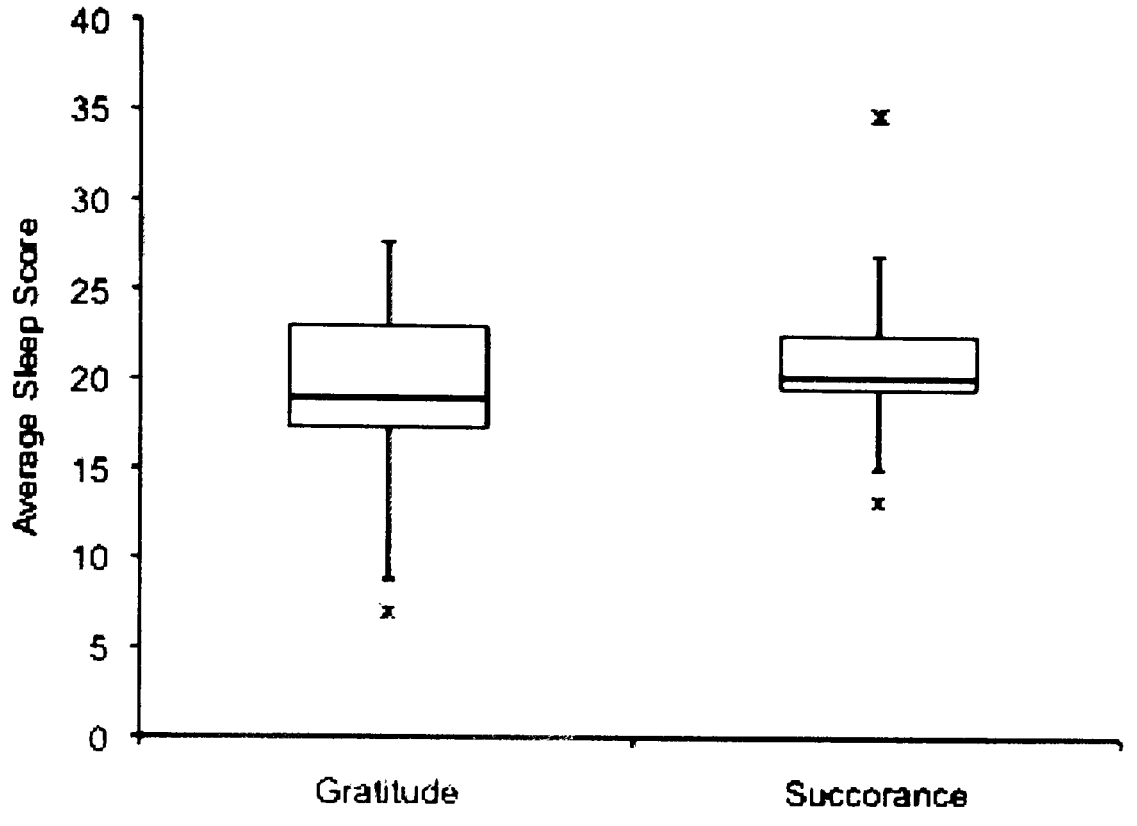


Figure 3. *Box plots showing average sleep score for the gratitude condition (n = 115) and the succorance condition (n = 107).*

In the gratitude condition, sleep outcome correlated significantly with dispositional gratitude, expectancy and ease of task completion. Expectancy correlated with both dispositional gratitude and ease of task completion (see Table 2.1). Neither dispositional gratitude nor disposition succorance significantly correlated with sleep outcome in the being nurtured condition. However, dispositional succorance was significantly correlated with expecting being nurtured therapy to work.

Table 2.1

Correlations between baseline measures, ease of task completion and outcome in the gratitude condition (n =115) and being nurtured condition (n =107).

Variable	Gratitude Condition				Being Nurtured Condition			
	1	2	3	4	1	2	3	4
1. Sleep Outcome	-					-		
2. Gratitude	.29**				.14			
3. Succorance	.08	.32**			-.03	.17*		
4. Expectancy	.25**	.24**	.06		.19*	.24**	.28**	
5. Ease of Completion	.47**	.48**	.12	.35**	.49**	.42**	.18	.30**

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

As dispositional succorance did not significantly correlate with outcome following being nurtured therapy, analyses regarding motivational concordance and expectancy were carried out primarily in the gratitude condition. A multiple regression was used in order to test whether baseline dispositional gratitude explained outcome variance independently of expectancy in the gratitude condition. Dispositional gratitude ($\beta = .24$, $p < .05$) independently predicted perceived sleep outcome following gratitude therapy. Expectancy did not significantly predict outcome independently from dispositional gratitude ($\beta = .17$, $p = .06$), although it did reach trend levels. To test whether dispositional gratitude may be a general predictor of therapeutic outcome following different techniques, the same analysis was conducted for the being nurtured

group. Dispositional gratitude did not significantly predict sleep outcome following the being nurtured technique ($\beta = .09$, $p = .33$).

To test whether the relationship between dispositional gratitude and sleep outcome in the gratitude condition was mediated by ease of task completion, the four-step approach suggested by Baron and Kenny (Baron & Kenny, 1986) was followed. To ensure that the mediation was independent of expectancy, expectancy was covaried as a predictor at each stage of the analysis. In step one it is necessary to test for a significant correlation between the predictor, dispositional gratitude, and perceived sleep outcome. In step two it is necessary to test for a significant correlation between the predictor, dispositional gratitude, and the mediator, ease of task completion. In step three it is necessary to test that the mediator, ease of task completion, affects the outcome variable, perceive sleep outcome, with the initial predictor variable, dispositional gratitude, controlled. In step four, ease of task completion satisfies the conditions for mediation if when controlled the correlation between dispositional gratitude and sleep outcome is not significant. All the conditions for mediation were met (see Table 2.2 for results of the analysis). A potential problem with the method suggested by Baron and Kenny (Baron & Kenny, 1986) is that it does not test the significance of the indirect pathway, from dispositional gratitude, through ease of task completion to sleep outcome. To test the significance of the indirect effect a Sobel test (Sobel, 1982) was used, and was significant ($z = 2.40$, $p = <.05$) showing that dispositional gratitude has a significant indirect effect, via ease of task completion on sleep outcome.

Table 2.2

Mediation analysis following for the dispositional gratitude-outcome correlation in the gratitude condition with expectancy controlled (n=115).

Mediation Step	Dependent Variable	Predictor Variable	*B*	*SE B*	β
1	Sleep Outcome	Gratitude	.16	.06	.24*
2	Ease of Task Completion	Gratitude	.11	.02	.42**
3	Sleep Outcome	Gratitude	.05	.06	.07
		Ease of Task completion	.989	.24	.40**

*$p < .05$ **$p < .01$

Expectancy significantly correlated with sleep outcome in the gratitude condition. A second mediation analysis was used to test whether the significant correlation between expectancy and technique outcome was mediated via behaviour, or whether there was a direct effect of expectancy on technique outcome. The same steps were followed as recommended by Baron and Kenny (1986) and the results can be seen in Table 2.3. Expectancy did not have a direct effect on technique outcome in the gratitude condition; instead the expectancy-outcome relationship was mediated by ease of task completion.

Table 2.3

Mediation analysis for the expectancy-outcome correlation in the gratitude condition (n=115).

Mediation Step	Dependent Variable	Predictor Variable	*B*	*SE B*	β
1	Sleep Outcome	Expectancy	.73	.27	.25**
2	Ease of Task Completion	Expectancy	.42	.11	.35**
3	Sleep Outcome	Expectancy	.84	.26	.09
		Ease of Task completion	1.07	.22	.43**

*$p < .05$ **$p < .01$

Dispositional gratitude did not significantly correlate with sleep outcome following being nurtured technique. However, expectancy did significantly correlate with sleep outcome in this condition. A mediation analysis was conducted to test whether expectancy affected outcome via ease of task completion as in the gratitude group (see Table 2.4). The relationship between expectancy and outcome was fully mediated by ease of task completion. To test the significance of the indirect effect, a Sobel test (Sobel, 1982) was used. In this case it was not significant ($z = 1.69$, $p = .09$). The p value showed a trend toward significance. When looking at Table 2.3, the reduction in standardised beta from step one to step two appears to suggest the same pattern as in Table 2.2, where expectancy does not directly affect sleep outcome. The Sobel test is very conservative. Therefore, in the being nurtured condition, expectancy again appears to influence the ease with which participants find doing the tasks.

Table 2.4

Mediation analysis for the expectancy-outcome correlation in the being nurtured condition (n=107).

Mediation Step	Dependent Variable	Predictor Variable	*B*	*SE B*	β
1	Sleep Outcome	Expectancy	.55	.28	.19*
2	Ease of Task Completion	Expectancy	.33	.10	.30**
3	Sleep Outcome	Expectancy	.16	.26	.06
		Ease of Task completion	1.21	.77	.46**

*$p < .05$ **$p < .01$

3.4 Discussion

This study examined the predictors of outcome following the use of a gratitude diary to improve sleep quality. Dispositional gratitude predicted outcome following the use of a gratitude technique. The dispositional gratitude-outcome relationship was independent of expectancy, replicating previous research (Hyland et al., 2007), and was fully mediated by ease of task completion. This suggests that motivational concordance contributes to benefit following the use of a gratitude diary in a real-world context. However, motivational concordance was not apparent in the succorance condition; dispositional succorance did not significantly correlate with sleep outcome following being nurtured therapy.

This study confirmed previous research suggesting that it is possible to predict therapeutic responses (or placebo response) based on a match between a particular

disposition (gratitude in this case) and therapy content (Geers et al., 2005; Hyland et al., 2006; Geers et al., 2007; Hyland et al., 2007; Hyland & Whalley, 2008). Despite response expectancy correlating with outcome in both conditions, the relationship between expectancy and outcome was not unmediated, as response expectancy theory would suggest (Kirsch, 2005). Rather expectation appeared to increase the ease with which participants engaged in the therapy. Additionally, in the gratitude condition dispositional gratitude significantly explained variance in sleep outcome, independently from expectancy. The present study also showed that dispositional gratitude did not significantly predict sleep outcome following the being nurtured technique, suggesting specificity of dispositional gratitude as a predictor of only gratitude based interventions. These results are consistent with motivational concordance theory, and suggest that motivational concordance may be a mechanism that contributes to perceived benefit following the completion of a gratitude dairy in a fully unguided context.

Despite those higher in dispositional succorance expecting 'being nurtured therapy' to work to a greater degree than gratitude therapy, dispositional succorance did not significantly correlate with sleep outcome in the being nurtured condition. Although this finding is inconsistent with motivational concordance theory, it may be due to the inadequacy of the 'fit' between the disposition and the being nurtured technique. Lack of concordance could have been caused by a number of factors. The scale used was modified version of Murray's (1938) version, therefore it did not have validated psychometric properties, and may have been unreliable. Additionally, listing times one felt nurtured or supported may have lead to a broad range of affective responses; increasing variability and further reducing any relationship between the scale and the task. Future research should address motivational concordance with validated scales and clear consistency with the therapeutic technique in question.

Thirty seven percent of participants reported sleeping worse than usual following the gratitude technique in the current study. This finding contrasts with previous research, using university students and staff, where only 16% reported worse sleep after applying gratitude therapy techniques (Hyland et al., 2007). This may be due to differences in population (the present study used the general public). This may also be the result of the absence of face-to-face contact with a researcher. Fully unguided self-help has been shown to be less effective than guided self-help with contact (Spek et al., 2007). Additionally, despite research suggesting gratitude can benefit sleep (Emmons & McCullough, 2003; Wood et al., 2009), it is also possible that creating a gratitude list may be difficult for some, and difficulty in completing the diary may have lead to frustration. Frustration and negative pre-sleep cognitions are known triggers of sleep onset insomnia (Lacks & Morin, 1992). The present study suggests that it is possible to predict who will benefit from a brief self-directed gratitude technique using motivational concordance theory. The present data also suggest caution in the interpretation of studies that suggest gratitude may have a uniquely positive influence on sleep (Wood et al., 2009).

This study contributes to the understanding of contextual mechanisms that underlie outcome following the use of a gratitude diary. The use of a real-world context, rather than a laboratory analogue, may be responsible for the reduced contribution of expectancy and the larger role of motivational concordance in predicting outcome variance. It is possible that different mechanisms operate depending on whether the research is carried out in an analogue setting or a in a real therapy environment. Placebo research in analogue settings (Geers et al., 2007) and Study one of this current thesis has shown that expectancy may be the primary mechanism that leads to significant disposition-outcome correlations. Additionally, self-report measures of task

completion have also been shown to be unrelated to outcome in analogue studies (Geers et al., 2007) and Study one in this thesis. By contrast, expectancy fails to independently predict outcome in real-life settings where participants take part solely for therapeutic benefit, and self-report measures of task completion do (Hyland et al., 2007). Expectancy may be a dominant mechanism in analogue studies, however, in real-life contexts other mechanisms such as motivational concordance may be increasingly important.

Why might the context of the study affect the mechanisms responsible for outcome following the completion of a gratitude diary? One possible explanation is that the motivational basis for placebo or therapy-based studies carried out in analogue settings differs from that of real therapy. In the case of undergraduates, the motivation to take part in the intervention, to a certain degree, comes from receiving course credit. By contrast, in real-life contexts there is no additional reward other than the benefit of the therapy itself. Therefore, in participants carrying out therapeutic techniques in real-life contexts, the influence of person-based motivational processes is likely to be stronger, and play a larger role in therapeutic effects. In analogue settings where there are alternative external motivators, behavioural engagement may be less important and outcome may be attributed to a greater extent to response expectancies and demand characteristics.

Motivational concordance may be an important mechanism underlying self-help techniques in real-world contexts. An important limitation is that motivational concordance has only been demonstrated using placebo substances (flower essences), and short-term gratitude techniques for sleep quality. Future research needs to address whether motivation concordance continues to predict outcome as the complexity of the

intervention, and the target symptom increase. It is possible that motivational concordance influence may be restricted to placebo-type contexts. It is also the case that it could be an important mechanism in all self-directed contexts where a gratitude diary is used.

This study has certain limitations. A retrospective measure of change was used so as to be able to compare the current data with earlier research (Hyland et al., 2007). Retrospective measures may be less valid than serial measures; participants may find it hard to remember their baseline symptoms and give a less accurate assessment of the benefits or harms following the technique. Nonetheless, retrospective measures have been found to be more sensitive to change than serial measurements and correlate to a higher degree with patient satisfaction (Fischer et al., 1999) as well as physical and biological indicators of change in rheumatoid arthritis than serial measurements (Ziebland, Fitzpatrick, Jenkinson, Mowat, & Mowat, 1992). Single item measures of expectancy and ease of task completion were used. Single item scales may be less reliable than scales with multiple items. However, Hyland et al. (2007) included four separate measures of expectancy in order to improve the properties of their expectancy measurements. From the four measures of expectancy included in their study, Hyland et al. (2007) found that the single item global expectancy measure had the largest correlation with outcome. A large proportion of participants dropped out of the study. High attrition is an unavoidable characteristic of internet interventions that has been widely reported (see Eysenbach, 2005). As the primary aim of this study was to investigate predictors of outcome for those who completed the gratitude technique, a high dropout rate does not invalidate the results. Additionally, use of the internet allows access to large numbers of the general population, allowing greater generalisability of results to real-word contexts. Reports of ease of task completion may be influenced

retrospectively by outcome, however, any post task measure of behavioural engagement will suffer from this deficit.

In conclusion, these results show that a motivational concordance framework may allow for the prediction of benefit following gratitude techniques. The present research confirms the specificity of dispositional gratitude to a gratitude technique for perceptions of sleep improvement, and showed that this relationship was mediated by self-reported ease of engagement with the technique. Motivational concordance may reflect an additional mechanism that can be used to predict response to gratitude techniques in real-life therapeutic contexts.

3.5 Implications for forthcoming study

Investigating the role of potential mechanisms underlying responses to gratitude techniques used in a laboratory context, and over three days for sleep improvement has demonstrated two things: (a) that response expectancy is important in understanding outcome following completion of a gratitude diary in a short term laboratory setting, and (b) motivational concordance may contribute to outcome to a greater extent in real-life contexts outside laboratory analogue settings.

An important finding from the present study was the high level of participant attrition. When self-help therapy is fully self-directed, that is with no guidance, or face-to-face instruction, attrition is very high (Eysenbach, 2005). Attrition is likely to be a critical factor in the process of unguided self-help (Christensen, Griffiths, Mackinnon, & Brittliffe, 2006). With high levels of access, and straightforward sign up procedures, participants who initially agree to take part, in any form of unguided self-help are likely to have largely varying degrees of motivation. With no incentive to take part in addition

to the prospect of therapeutic benefit, a large proportion of participants will discontinue. A next important step in current thesis is to address attrition directly. In the studies that follow, steps were not taken to deliberately try and reduce attrition, such as adding phone contact which has been shown to significantly reduce attrition in the past (Muñoz et al., 2006). This is likely to merely mask a process that it is critical to understand in order to discover how self-directed techniques may be used, or not used, by individuals in the real-world. To continue the exploration of self-directed gratitude techniques it is necessary to move beyond short placebo-type methodologies, and redirect toward more conventional designs for evaluating psychological techniques. Traditional experimental designs such as randomised controlled trials allow for the evaluation of the three key components; retention, outcome and mechanisms in self-help therapy using one overarching design.

Chapter 4

Gratitude as self-help for body dissatisfaction: exploring retention and outcome

Studies that have shown the benefits of cultivating gratitude (Emmons & McCullough, 2003; Watkins, Woodward, Stone, & Kolts, 2003; Lyubomirsky, Schkade, & Sheldon, 2005; Seligman, Steen, Park, & Peterson, 2005; Froh, Sefick, & Emmons, 2008) have a number of methodological flaws. These flaws are likely to obscure conclusions with regard to potential benefit and mechanisms associated with gratitude techniques. For instance, participants are often given incentives to complete gratitude techniques. This may increase completion rates, however it substantially reduces ecological validity of the results, and also adds motivators other than potential benefit inherent in the task. Any insights gained this way may be strongly affected by the context of the study. Finding an effect of a gratitude intervention in school children adhering for class progression, or undergraduate students participating for course credit may not be an accurate reflection of the effectiveness the technique in differing motivational contexts. A gratitude exercise may have different effects in those who are self-motivated and willing to help themselves in the absence of external motivators e.g. interpersonal pressure (persistent research assistants), or payment.

An additional flaw in the studies that have examined gratitude interventions is the choice of comparison group. Emmons and McCullough (2003) and Watkins et al. (2003) chose to compare gratitude techniques to a range of control groups including compiling lists of daily hassles, making downward social comparisons, completing a

daily journal, and writing about the layout of ones living room and a waitlist/no treatment control. Showing that gratitude is more effective than writing down daily hassles or writing about the layout of household furniture is of little benefit. There may be many psychological techniques that demonstrate greater benefits than listing daily hassles for example. A much more useful strategy is to compare gratitude techniques to techniques that have therapeutic value and that are already in use. This would demonstrate the comparative benefit of cultivating gratitude in an intervention context. This is a novel approach that has not been used to study gratitude previously.

The selection of a target for a gratitude intervention e.g. well-being, happiness, depressive symptoms, can inform in two key areas, (a) the potential uses for gratitude techniques and (b) mechanisms underlying self-help therapy in the broadest sense. Gratitude techniques may only be useful for improving well-being or happiness. Alternatively, a gratitude technique, delivered with the rationale that it will be effective in reducing a particular symptom, may be effective across a broad range of psychological problems. If the latter were the case it suggests that a psychological technique might not need a specific symptom focus to produce change.

Examining *use* of a gratitude technique is critical in order to understand process in fully self-directed therapy without human contact or active guidance (such as therapeutic communication via email). Study two confirmed the finding of many others (see Eysenbach, 2005), when techniques are offered without guidance or payment for completion, a large proportion of participants will discontinue and dropout. In study three, retention forms a central component of the investigation.

4.1 Study three

Self-directed interventions have the potential to substantially increase access to health improvement strategies (Bennett & Glasgow, 2009). Provision via the internet allows for a significant reduction in costs associated with intervention administration (Muñoz & Mendelson, 2005). Self-directed interventions have been evaluated and shown to be beneficial for a broad range of health challenges including smoking cessation, diabetes management, obesity, depression and body dissatisfaction (Muñoz et al., 2006; Christensen, Griffiths, Mackinnon, & Brittliffe, 2006; Hrabosky & Cash, 2007; Latner & Wilson, 2007; Wangberg, Bergmo, & Johnsen, 2008). However, when these interventions are fully self-directed, that is, without human contact or guidance, attrition is consistently high (Eysenbach, 2005; Christensen & Mackinnon, 2006). From a methodological perspective, attrition compromises trial validity. From a psychological perspective, attrition represents a behaviour that can be studied to increase understanding of psychological processes that are important to health outcome. Knowledge of the underlying processes of attrition may guide the creation of interventions that prevent dropout (Davis & Addis, 1999). In this study, predictors of attrition including allocated technique were modelled and both mechanism and outcome were investigated following a two-week intervention aiming to reduce body dissatisfaction.

In self-help trials without guidance and without face-to-face contact, a large proportion of participants discontinue. In a study of a web based behavior change program for healthy body weight and healthy lifestyle, Verheijden, Jans, Hildebrandt, and Hopman-Rock, (2007) reported that of the 9774 people who initiated to take part in

the study 90.4% of participants did not visit the site more than once. Verheijdens et al' (2007) results are not uncommon: High attrition is a well documented in unguided physical activity programs (Vandelanotte, Spathonis, Eakin, & Owen, 2007). Research with self-directed smoking cessation interventions also shows high attrition. Balmford, Borland, and Benda (2008) found that 73% of users did not return to the website to continue with the intervention and Rabius, Pike, Wiatrek, and McAlister (2008) found that 62% of users were unavailable for follow up, despite using telephone methods. Attrition from studies of fully self-directed therapy for depression and anxiety range from 99% to 79% (Farvolden, Denisoff, Selby, Bagby, & Rudy, 2005; Christensen et al., 2006). A study evaluating an unguided body image intervention found dropout rates of 53% (Strachan & Cash, 2002).

Despite high attrition rates, those participants who go on to complete fully self-directed interventions consistently report significant improvements across targeted outcomes (Christensen, Griffiths, Korten, Brittliffe, & Groves, 2004; Etter, 2005; Farvolden et al., 2005; Muñoz et al., 2006). In addition, interventions without face-to-face contact may widen participation to those who would reject or avoid health improvement interventions with high levels of social interaction (Carlbring, Furmark, Steczjo, Ekselius, & Andersson, 2006; Andersson, Carlbring, & Grimlund, 2008). Therefore, rather than abandon fully self-directed interventions (see Spek et al., 2007; Andersson, 2009), what is needed is increased study and management of the attrition process.

Predicting attrition

Identifying variables that predict attrition is critical (Bennett & Glasgow, 2009). With this information interventions can be manipulated, and individuals most at risk of

dropout can be targeted with enhanced interventions or guidance and therapist contact. Attempts to predict attrition from unguided self-help trials have produced inconsistent results (Glasgow et al., 2007; Wangberg et al., 2008). This inconsistency is found not only in self-help research but also in studies that include face-to-face contact (see Davis & Addis, 1999). The most consistent findings in self-directed therapy show age and gender as predictors, with being female and older associated with increased probability of completion (Buller, Woodall, & Zimmerman, 2008; Wangberg et al., 2008).

In a review of attrition research, Davis and Addis (1999) suggested the need to supplement demographic predictors of attrition with psychological variables. Health locus of control has been considered an important psychological factor in attrition from guided health interventions (Hart, 1982; Bennett & Jones, 1986; Funch & Gale, 1986). However, when measures are included, health locus of control often fails to predict attrition (Bennett & Jones, 1986; Funch & Gale, 1986). These inconsistencies are similar to those reported in the adherence literature; health locus of control has been associated with adherence in some studies (Balch & Ross, 1975; Kincey, 1981) but not in others (Wallston, 1978; Wallston, 1992). Mahalik and Kivlighan (1988) suggested that locus of control may be important in self-help behavior, "individuals who have an internal locus of control that is, see themselves as responsible for their own reinforcements, should do better in a self-help approach to treatment" (p.667). Fully self-directed interventions, without contact, call for individual initiative and perseverance as there is no external encouragement or guidance. Therefore, internal health locus of control may be particularly important in these treatment contexts. Health locus of control has been almost entirely ignored by self-help researchers, and the author believes the current study is the first to address the health locus of control construct in an unguided or 'pure' self-help setting.

Outcome expectancies are seen as important determinants of behaviour, and have been reported as critical in psychotherapy for both outcome and engagement in the process (Kirsch, 1999; Greenberg, Constantino, & Bruce, 2006; Price, Anderson, Henrich, & Rothbaum, 2008). As with locus of control, outcome expectancies have not been studied in relation to dropout in self-help contexts. Outcome expectancy may play a critical role in the decision to complete or disengage with a self-directed program, with low expectancies potentially leading to dropout. Assessing the role of expectancy in unguided self-help contexts is important, as research on outcome expectancies and attrition in guided interventions with face-to-face contact has again produced mixed results. Dew and Bickman (2005) reported no relationship between outcome expectancy and attrition, and Sears and Stanton (2001) reported that *higher* expectations lead to increased attrition. The predictive power of initial outcome expectancies may be undermined by contact and encouragement from researchers. However, expectancy may be particularly important in unguided contexts.

The relation between technique and dropout

What participants are required to do as part of the intervention may have a large effect on attrition. Despite this, technique factors are often overlooked, particularly with regard to increasing retention. Researchers instead choose to focus on cohort maintenance strategies such as phone contact, as a means to reduce dropout. In this study, in addition to psychological variables, the role technique plays in predicting attrition from a brief self-directed body dissatisfaction intervention was investigated.

Body dissatisfaction is a common cause of distress in women (Rosen, Cado, Silberg, Srebnik, & Wendt, 1990; Cash & Henry, 1995), and is growing among men (McCabe & Ricciardelli, 2004). Body dissatisfaction can have a large impact on quality

of life (Cash & Fleming, 2002) and lead to serious psychopathology such as body dysmorphic syndrome, bulimia, and anorexia (Stice Stice & Shaw, 2002; Stice & Shaw, 2002). As well as reductions in self-esteem, body dissatisfaction frequently results in restrained eating behaviors (Fett, Lattimore, Roefs, Geschwind, & Jansen, 2009). Techniques currently used in body dissatisfaction interventions are inherently pathology focused. Techniques such as thought monitoring and restructuring involve working to correct negative assumptions about physical appearance. Jarry and Berardi (2004) and Jarry and Ip (2005) conducted a systematic review and a meta-analysis on interventions designed to reduce body dissatisfaction. They concluded that current problem focused approaches were effective, however they noted a distinct lack of alternative approaches and encouraged the investigation of differing techniques.

In the present study, two techniques, gratitude diaries and a monitoring and restructuring technique were selected to offer participants dissatisfied with their appearance. Selecting two substantially different approaches allowed a test of whether allocated technique would determine dropout. Additionally, selecting two differing techniques also allowed a test of whether only problem-focused symptom specific techniques are useful in improving body dissatisfaction. Identifying activating situations, negative thoughts (Cash, 1997, refers to this as 'private body talk') and working to dispute and correct the problem thoughts are common techniques used in body image interventions (see Rosen, Reiter, & Orosan, 1995; Cash, 1997). Therefore, a thought monitoring and thought restructuring technique was selected to compare to a gratitude intervention.

Self-directed techniques based around gratitude, such as completing gratitude diaries, have been shown to seemingly reduce depression and increase well-being

(Emmons & McCullough, 2003; Seligman, Steen, Park, & Peterson, 2005). Keeping a gratitude diary, where daily gratitude events are recounted, may reflect a technique that is easy to sustain without guidance. Maintaining focus on problem solving and challenging negative body thoughts may be less reinforcing than reorienting to the positive through gratitude exercises.

Previous research that has utilised gratitude interventions has focused on increasing happiness and well-being. It remains unclear whether a simple gratitude technique may be useful for improving symptoms of psychological distress. Reducing body dissatisfaction represents a hard test for a gratitude intervention; body dissatisfaction may be specifically related to, and reinforced by, perception of physical appearance and media representations of attractiveness (Rosen, Cado, Silberg, Srebnik, & Wendt, 1990; Field et al., 1999). Nonetheless, the regular expression of gratitude could reduce body dissatisfaction through increasing positive affect and well-being; unhappiness has been found to invoke comparisons with a gender stereotype of physical attractiveness (Barber, 2001), and low mood has been shown to lead to body size overestimation and increases in body dysphoria (Baker, Williamson, & Sylve, 1995). Regularly reorienting to grateful experience may aid in the development of more functional positive schemas that may generalise to all aspects of experience, including body image.

The mechanisms and processes that relate to attrition may be synonymous with those that underlie outcome. Alternatively, attrition and outcome may reflect two distinct processes that have different predictors. To investigate this further, expectancy and health locus of control were examined as predictors of outcome for those who completed the intervention, as well as predictors of attrition. Measures of dispositional

gratitude were taken at baseline to investigate whether motivational concordance may be a useful predictor in the current study. Motivational concordance has only been shown previous in placebo contexts, either with substances, or psychological procedures over short periods of time. This study is the first to test whether motivational concordance is useful in predicting who will experience beneficial outcome in a more conventional self-help context.

This study examined whether person based psychological variables (locus of control and expectancy), and technique variables (gratitude versus restructuring) predict dropout from a two-week body dissatisfaction intervention. The present study was designed to model the self-help process rather than a full clinical efficacy trial, thus the intervention period was kept short. Additionally, a key focus of this study was attrition; attrition research consistently shows that the majority of dropout occurs in the very early stages of intervention (Eysenbach, 2005; Christensen et al., 2006; Wangberg et al., 2008). It is not known if gratitude techniques are useful for ameliorating psychological symptoms of distress, rather than increasing well-being or happiness. Therefore, it is important to establish whether the technique is effective over shorter periods of time, before longer interventions are considered. Waitlist conditions were included to test if the interventions provided benefit for those who complete the study. In a novel approach, two waitlists were included to test whether waiting for monitoring and restructuring, or waiting for gratitude diaries influenced dropout from the waitlist. As the study was automated and included no guidance, it was hypothesised that internal locus of control and outcome expectancy may predict attrition. It was also hypothesised that technique would significantly predict dropout, in the direction that allocation to the gratitude condition would increase probability of completion. With regard to outcome, two predictions stem from the two approaches outlined in the Chapter one. If a

'specific' approach is taken, directly attempting to correct negative body related thoughts may be more effective than focusing on what is good in life, as it directly address what is seen as the cause of body dissatisfaction (Cash, 2002). According a contextual model, both approaches may be equally effective. They provide functional explanation for symptoms and a rationale for the effective remediation of those symptoms, along with activities to carryout that align with the treatment rationale.

4.2 Method

Participants

Four hundred and seventy nine participants, including 458 females and 21 males volunteered for the study via the internet. The sample age ranged between 18 and 76 with a mean of 36 (SD = 10) with 37% aged from 18-30, 52% from 31-50 and 11% from 51-76. The study website was advertised in local newspapers in the South West of England, press releases were sent to national magazines and notices were placed on weight loss websites. Notices offered the chance to receive internet administered self-help exercises for body dissatisfaction free of charge. This was an open access study of spontaneous users, with the limitation that participants had to be over the age of 18 and not currently undergoing treatment for a psychological disorder. Participants were recruited into the study from May 2007 until November 2007.

Procedure

Participants visited a website where they were informed that they may only take part in the study if they were over 18, not currently being treated for a psychological condition, and had not taken part in the previous sleep study. Participants completed all baseline measures and were randomised to one of four conditions (see Figure 2).

Baseline measyres were not randomised and were completed in the following order: Demographics (age and gender) Appearance evaluation, Body Areas Satisfaction, Multidimentioal Health Locus of Control and Expectancy. Randomisation occurred automatically according to a computer generated true randomisation list. All participants read a description of the self-help techniques they had been allocated and rated how much they expected the techniques to help reduce their body dissatisfaction. Those participants in the intervention conditions then downloaded a workbook. The workbooks were brief, approximately 19 pages each, with four pages introducing ideas about body image and describing the technique, 2 pages of example sheets and then 14 clear worksheets. Participants were asked to complete exercises from the workbook each day. They were sent fully automated daily reminder emails that allowed them to return to a web system where they recorded how much time they had spent on their workbook, and after the first day, how difficult they found their allocated technique. Participants were not contacted personally via email by the researchers. After 14 days they were automatically sent an email containing a link to the final body image measures. When the participants had completed the final measures they read through a debriefing page. After they had completed all baseline measures, participants in the waitlist conditions were informed that they would be able to download their workbook in two weeks time. After 14 days these participants were sent an email asking them to complete the body image measures. They were then able to download a workbook. Waitlist participants were then given the opportunity to complete the study in the same way participants in the intervention conditions. The study was entirely without human contact, and participants were offered no incentives to complete the study other than the potential of therapeutic benefit.

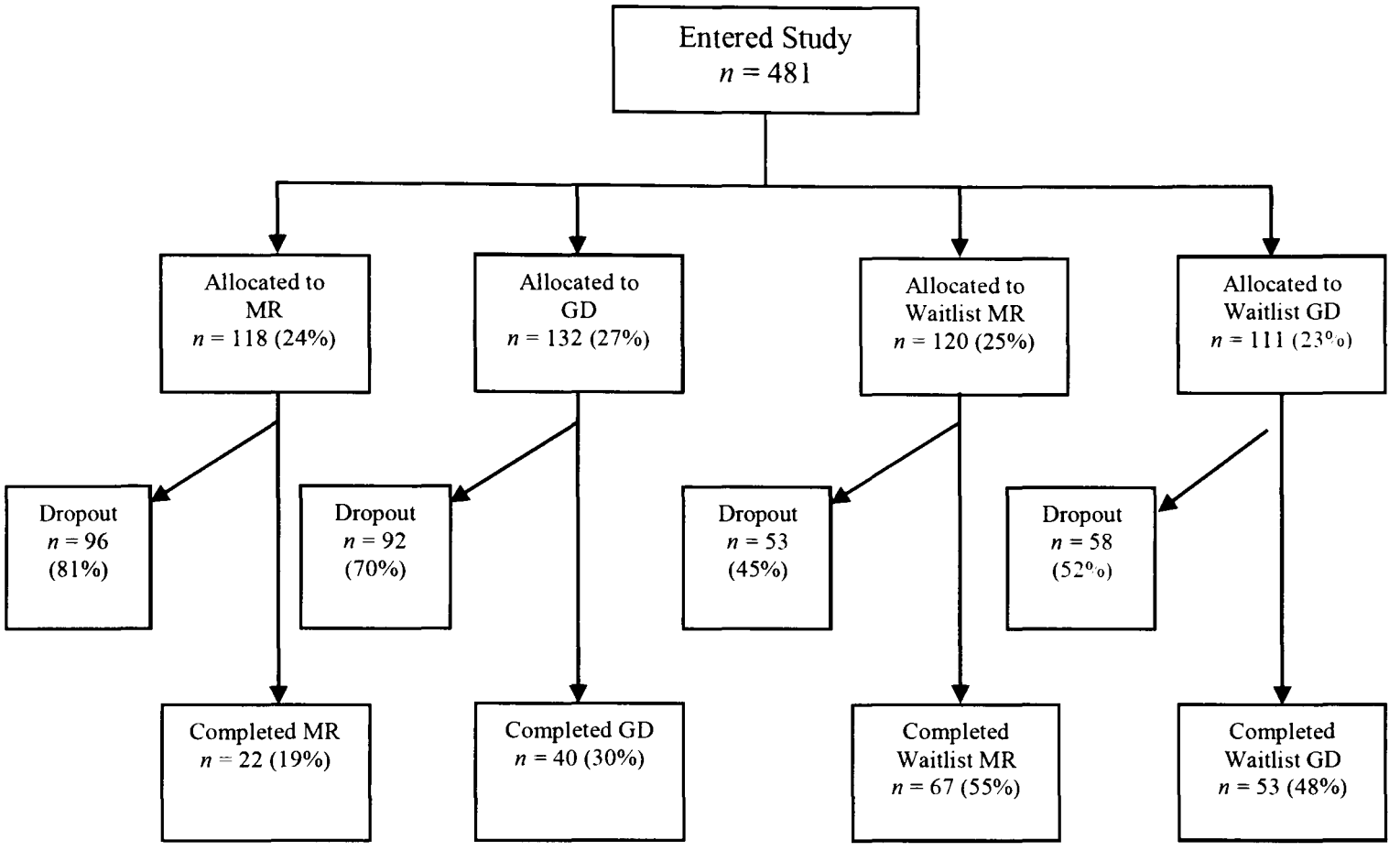


Figure 4. Diagram showing flow of participants through study.

Measures

Attrition

Attrition was defined as non-completion of post-intervention measures. All participants completed baseline measures in full, and were randomised to either intervention conditions or waitlist controls. Only participants who provided both pre and post intervention measures where classed as completers.

Body Dissatisfaction

Body dissatisfaction was measured using two subscales from the Multidimensional Body-Self Relations Questionnaire (MBSRQ-AS, Brown, Cash, & Mikulka, 1990; Cash, 2000). The Appearance Evaluation (AE) subscale consists of seven items that measure appraisals of appearance. Examples of items are "I dislike my physique" and "most people would consider me good looking". Items consisted of a 5-point likert scale, with 1 as "definitely disagree" and 5 as "definitely agree". Internal consistency of this subscale was $\alpha = .83$ in the current study. The AE scale is one of the most frequently used scales in the body image field (Herbozo & Thompson, 2006). The Body Areas Satisfaction scale (BAS) consists of nine items that measure specific dissatisfaction with certain areas of the body. Participants are asked to use a 5-point likert scale from *very dissatisfied* to *very satisfied,* and rate areas of their body such as "face" and "mid torso (waist, stomach)". Items consisted of a 5-point likert scale, with 1 as "very unsatisfied" and 5 as "very satisfied". Internal consistency for this sample was $\alpha = .77$. Both scales have good test re test reliability ranging from .77 - .91 (Huang & Liu, 2008). On both subscales a higher score indicates higher body satisfaction.

Expectancy

Expectancy was measured by a single-item scale indicating the extent to which participants believed that their body dissatisfaction would be improved by taking part in the study. The question was "At this point in time, do you expect the workbook to help improve your body dissatisfaction?" Participants were asked to "circle the number that describes your opinion" on an 8-point scale with end points labeled *I think it very unlikely it will help me* (1) and *Yes, I definitely expect it will help* (8).

Locus of Control

Locus of control was measured using form A of the Multidimensional Health Locus of Control scale (MHLC, (Wallston, Wallston, & DeVellis, 1978). The scale consists of 18 items classified into three subscales. Internal health locus of control (HLC), refers to the extent that an individual believes personal behavioral factors are responsible for their health. Chance HLC refers belief that health is determined by luck or chance. Powerful others HLC, refers to the extent that an individual believes their health to be determined by powerful others, such as physicians. Each subscale contains six items rated on a six-point scale ranging from "strongly disagree" to "strongly agree". Internal consistency is reported as ranging from α = .68 to .85 (Wallston et al., 1978), and test retest reliability has been reported as ranging from .65 - .75 (Wallston, 2005).

Dispositional Gratitude

The Gratitude Questionnaire (GQ-6) is a six-item scale developed by McCullough, Tsang, and Emmons (2002) (McCullough et al., 2002) to measure dispositional gratitude. A seven-point scale is used with higher scores indicating greater gratitude. The scale has four positive items and two negative items, including "I have so much in my life to be grateful for" and "I am grateful to a wide range of people." Internal consistency for the six-item scale is α =.72 (McCullough et al., 2002).

Adherence and Difficulty

Adherence was measured via a daily email. Participants logged in and indicated on a single item scale how much time they had spent on their workbook the previous day. The scale ranged from 1 to 6, with 1 indicating no time, 2 indicating 0-5 minutes, 3

indicating 5-10 minutes, 4 indicating 10-15 minutes, 5 indicating 15-20 minutes and 6 indicating over 20 minutes. After the first day with the workbooks, in the same adherence email, participants were asked to rate how difficult they found completing their allocated technique on a 7 point scale with 1 representing "very difficult" and 7, "very easy".

Techniques

Monitoring and Restructuring (MR)

The monitoring and restructuring workbook contained an account of the nature of body dissatisfaction and its potential causes, and a description as to why thought monitoring and thought restructuring exercises will help to reduce body dissatisfaction. The participants were asked to complete Automatic Thought Records (ATR) each day. The workbook contained a description of how to complete the ATRs, and then 14 ATRs with two examples of completed sheets. Participants recorded the situation they were in when they felt dissatisfied with their body and the negative thoughts they had at the time. They then practiced providing support for and against their negative thoughts, and finally thinking in a more neutral, balanced way. The ATRs provide both self-monitoring; participants become aware of their negative thoughts and beliefs regarding their body, and restructuring; participants practice thinking in alternative more balanced ways regarding their bodies. In this regard it is a problem-focused technique that is very common in self-help interventions for depression (Greenberger & Padesky, 1995), anxiety (Kennerley, 1997) and as body dissatisfaction (Jarry & Ip, 2005).

Gratitude Diaries (GD)

The gratitude workbook contained the same account of the nature of body dissatisfaction and its potential causes as the MR workbook, but a different rationale was described for how gratitude would reduce body dissatisfaction. The workbook informed participants of the benefits of practicing daily gratitude, including the positive effects that expressing gratitude could have on well-being. They were informed that as their general well-being increased they would begin to feel more satisfied with their body. Orienting attention to all they have, and that is good in their life, would lead to increased body satisfaction. Participants were asked to complete gratitude diaries, lists of up to 6 things they felt grateful for, daily for two weeks. Examples were given such as "I am grateful for having loving parents" and "I am grateful for an interesting job". Gratitude diaries were shown by Emmons and McCullough (2003) to significantly improve well-being over a two week period.

Waitlist conditions (WL)

Participants in the waitlist conditions completed all baseline measures and were informed that they had been randomized to either the MR condition or the GD condition. They were then told they would be asked to start in two weeks time. After the two week wait period, participants who completed the wait period had the opportunity to complete the workbooks in the same way as participant in the intervention conditions.

4.3 Results

At baseline the sample mean on the body dissatisfaction subscale Appearance Evaluation was 2.2 (*SD* = .78, female norm = 3.36; (Cash, 2000) with a z-deviation

score of -1.33 that put the sample mean at the 9th percentile of the norms presented by Cash (2000). The baseline sample mean on the body dissatisfaction subscale Body Areas Satisfaction was 2.38 (*SD* =.61, female norm = 3.23; (Cash, 2000) with a z-deviation score of -1.12 this placed the sample mean at the 12th percentile of the sample norms presented by Cash (2000). Previous studies on body dissatisfaction have reported pre-intervention Appearance Evaluation means scores of 2.12 and Body Areas Satisfaction mean scores of 2.38 (Strachan & Cash, 2002).

Attrition

From the 481 participants who completed baseline measures 299 dropped out. In the workbook conditions, of the 250 participants allocated a workbook 188 dropped out and 62 completed outcome measures. In the waitlist conditions 111 dropped out and 120 completed outcome measures (see Figure 1).

To test whether reported difficulty of task was related to dropout, a logistic regression model was carried out with completion (dropout = 0 and completion = 1) as the dependent variable and difficulty, and an interaction term 'difficulty x group' as predictor variables. One hundred and forty participants in the intervention groups provided difficultly data. Difficulty was not significantly related to dropout (Wald (1)= .39, Exp(B) .88 CI = .59 – 1.32, p = .54), and neither was an interaction between group and difficulty (Wald(1) = .32, Exp(B) 1.05, CI = .89 – 1.24, p = .57). In those who reported difficulty data, finding the task difficult was not significantly related to completion status. Additionally, the non-significant interaction between difficulty and group, suggests that higher difficulty ratings were not associated with greater attrition in one group and not the other.

Logistic regression models were used to predict attrition including all 250 participants allocated to the workbook conditions. Backward elimination allowed all variables of interest, along with interactions to be entered into an initial model. Backward elimination is an analytic strategy commonly used to determine variables with the strongest association with attrition and adherence (see Nevid, Javier, & Moulton, 1996; Gonzalez, Williams, Noel, & Lee, 2005). With a criterion of $p < .05$, interaction terms and variables were removed in iterations until only significant predictors remained. With attrition as the dependent variable (0 = dropout, 1 = complete) variables; allocated group (MR = 0, GD = 1), expectancy, internal HLOC, chance HLOC, powerful others HLOC, age, sex, baseline appearance evaluation, baseline body areas satisfaction, along with interaction terms with all variables by group (in order to test the possibility that specific predictors would interact with allocated technique) were entered into the initial model. All continuous variables standardised to create z-scores.

None of the interaction terms were significant and were subsequently removed. Age, sex, symptom severity and powerful other and chance health locus of control did not remain significant predictors through the elimination stages. This left a reduced model where technique (Wald(1) = 5.84, $p < .05$, Exp(B) = 2.13, CI = 1.15-3.92), expectancy (Wald(1) = 4.14, $p < .05$, Exp(B) = 1.38, CI = 1.01-1.41) and internal health locus of control (Wald(1) = 5.15, $p < .05$, Exp(B) = 1.48, CI = 1.01-1.46) remained as significant predictors of attrition ($R^2 = .06$ (Cox &Snell). Model $\chi^2(5) = 15.90$, $p < .001$). Thus, being allocated to a gratitude condition, having higher expectation of positive outcome and a more internal health locus of control were all independently associated with a significantly higher chance of completion.

In a second model the same steps were followed for the waitlist conditions. All predictor variables and interactions were entered into a model simultaneously. Variables were eliminated manually according to their significance level. However, in the waitlist condition none of the variables or interactions predicted outcome at any stage of the elimination process (initial model χ^2 (17) = 11, p = .83). Waiting for a particular technique did not predict waitlist dropout.

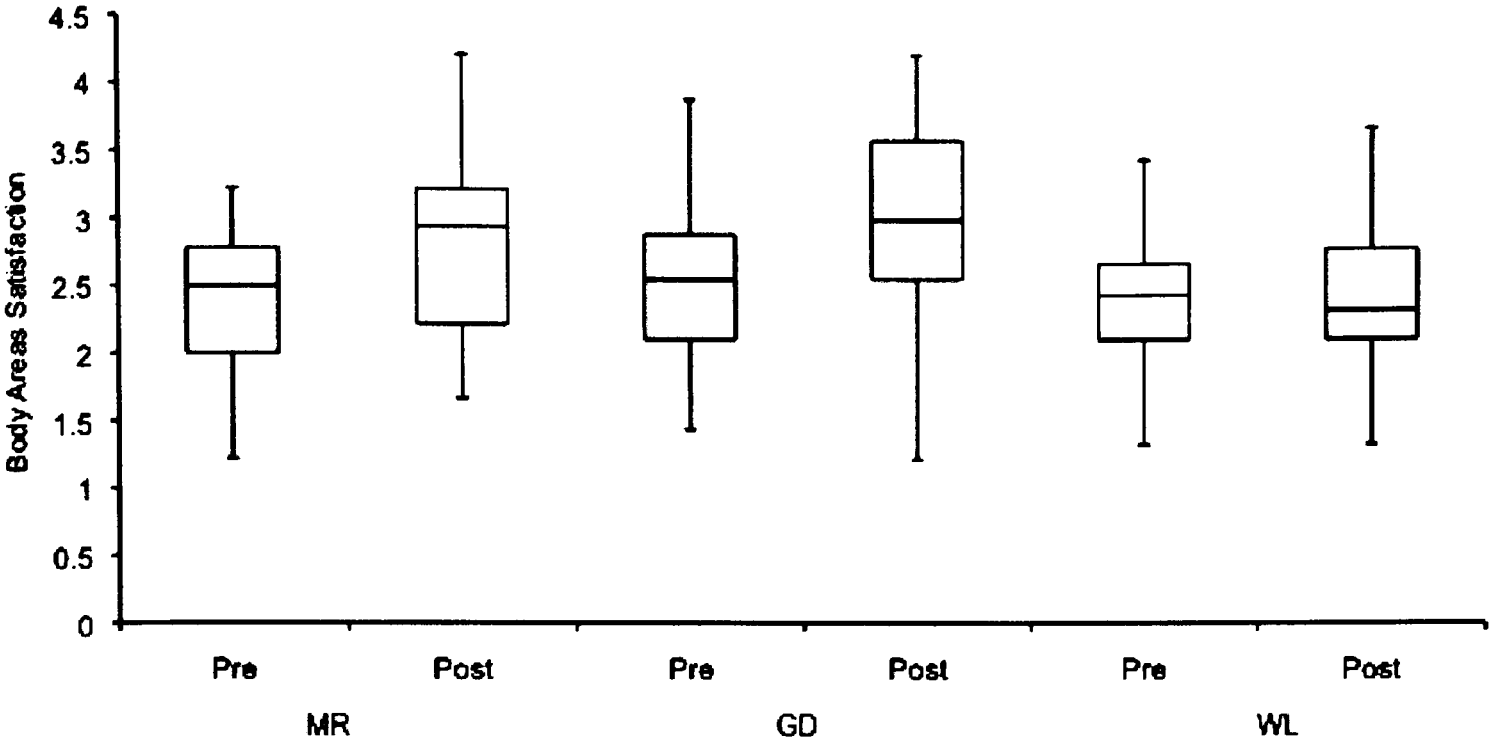
Outcome

Initially, whether waiting for different interventions had an effect on body dissatisfaction outcome was tested. The effect of waiting for either GD or MR on Appearance Evaluation was analyzed using an ANCOVA. Time one Appearance Evaluation was entered as a covariate, time two Appearance Evaluation as dependant variable, with waitlist group as the fixed factor. There were no significant differences between the two waitlists, waiting for MR or waiting for GD, F (1,117) = 2.66, p = .11, effect size (Cohen's d) = -.02. This analysis was repeated for Body Area Satisfaction, with Body Area Satisfaction at time one entered as a covariate, Body Area Satisfaction at time two as the dependant variable with waitlist group as the fixed factor. The ANCOVA showed no significant differences between waiting for MR or GD, F (1,116) = 1.5, p = .210, effect size (Cohen's d) = -.08. As no significant differences were found, all subsequent analysis were conducted with one large pooled waitlist.

Compliance measures for those who completed the technique in each intervention condition showed that there were no significant differences in number of login days for either GD (M = 11.6 , SD = 3.1) or MR (M = 10.5, SD = 4.0) t(60)= -1.21, p = .23, out of a possible 14. There were no significant differences in the amount of time participants reported spending on their workbook, GD (M = 2.7 SD = .84) or

MR (M =2.8, SD .68) t (60) = .59, p = .56 indicating that participants in both conditions on average spent around 5-10 minutes on their workbook each day they recorded data. Neither days logged in nor reported amount of time spent on the workbook had a significant relationship with either body dissatisfaction measure for those completing the study.

A multivariate analysis of covariance (MANCOVA) was used to test for group differences on an observed case basis; those participants who completed self-help techniques after the two-week intervention period. Baseline body dissatisfaction measures were entered as covariates. The MANCOVA revealed significant group differences on both Appearance Evaluation, $F(2,176) = 20.68, p < .001$; and Body Areas Satisfaction, $F(2,176) = 21.49, p < .001$. To test the robustness of completer analysis and additional Intent-to-treat analysis was conducted (ITT). Intent-to-treat is a standard analytic strategy used to account for dropout, and includes all participants who entered the study in the final analysis (Mazumdar, Liu, Houck, & Reynolds, 1999). Various strategies can be used for data imputation for participants who dropped out, however one of the most common is 'Last Observed Case Forward' where participants baseline scores are inputted as outcome scores. Last Observed Case Forward assumes no change, and therefore provides an *extremely* conservative test of intervention effects when there is high dropout. The ITT MANCOVA confirmed the findings of the completer analysis, significant group differences were found for both Appearance Evaluation, $F(2,475) = 9.59, p < .001$; and Body Areas Satisfaction, $F(2,475) = 7.25, p < .01$). Post hoc ANCOVAs were used to determine the differences between groups using both completer and ITT analytic strategy. Table 3.1 shows the F tests and significance levels for both body dissatisfaction measures. Figure 5 shows box plots for pre and post measures.



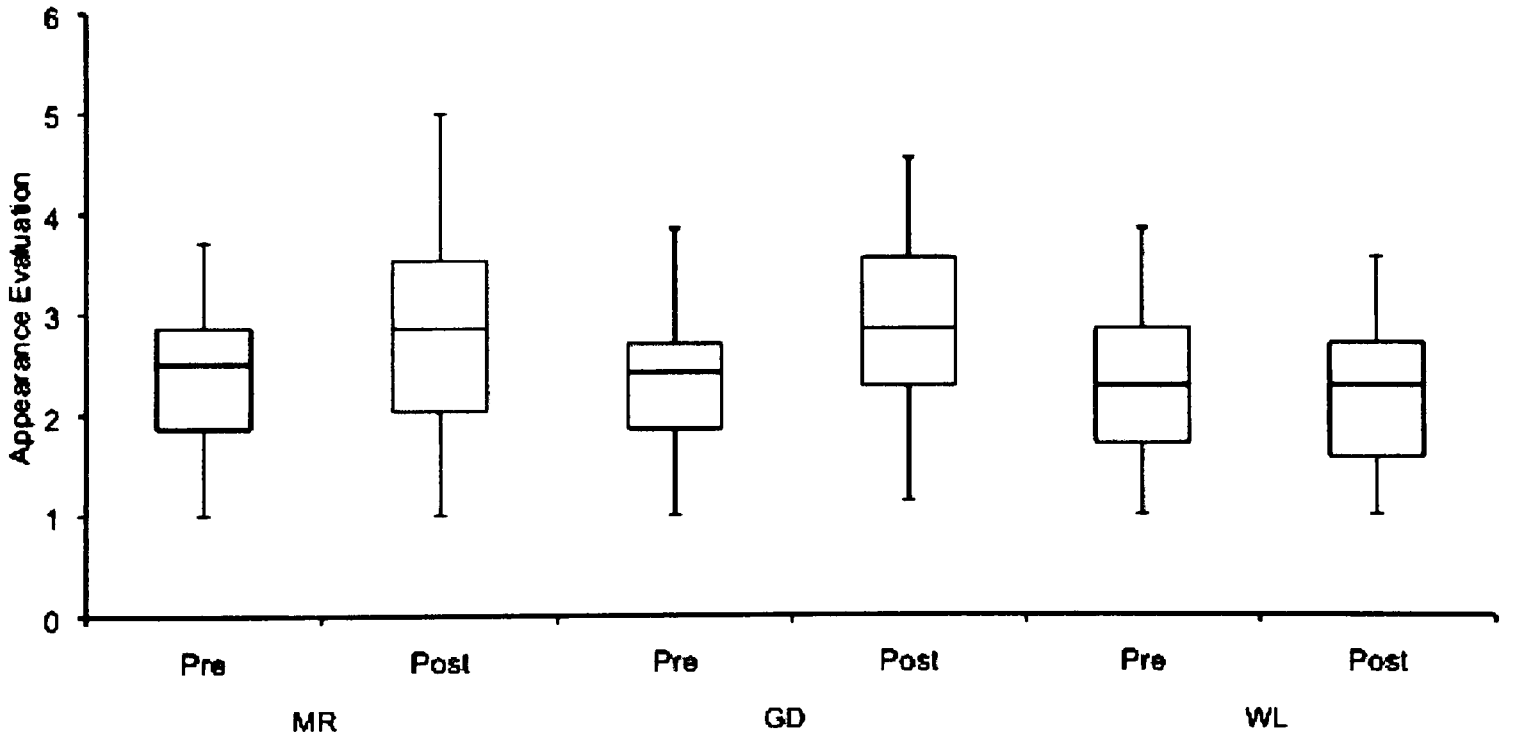


Figure 5. *Box-plots for body dissatisfaction measures Body Areas Satisfaction and Appearance Evaluation. Plots show pre and post distributions for conditions MR (n = 22), GD (n = 40), WL (120).*

Table 3. 1

F-tests, degrees of freedom (df) and significance levels for all comparisons using ANCOVA's with baseline scores as covariates for all measures.

	Completer		*Intent-to-treat*	
Comparison	*F(df)*	*p*	*F(df)*	*p*
AE				
GD vs. WL	41.60(1,157)	$p < .001$	18.39(1,360)	$p < .001$
MR vs WL	15.48(1,139)	$p < .001$	5.68(1,346)	$p < .05$
GD vs MR	.65(1,59)	$p = .42$	3.73(1,247)	$p = .06$
BAS				
GD vs. WL	34.76(1,157)	$p < .001$	*14.28(1,360)*	$p < .001$
MR vs WL	25.18(1,139)	$p < .001$	*7.25(1,346)*	$p < .001$
GD vs MR	.09(1,59)	$p = .49$	*.52(1,247)*	$p = .47$

Note. AE = Appearance Evaluation; BAS; Body Areas Satisfaction; GD = Gratitude Diaries; MR = Monitoring and Restructuring; WL = Waitlist

Participants completing the GD and MR conditions reported significant reductions in body dissatisfaction, compared to those completing the waitlist. There were no significant differences between the two techniques for those who completed the workbooks. Thus, both expressing gratitude and monitoring and restructuring negative body thoughts were equally effective in reducing body dissatisfaction. The ITT analysis confirmed the results, of the completer analysis. Means, standard deviations and effects sizes for baseline and outcome measures can be seen in for both analytic strategies can be seen in Table 3.2. For those who completed the interventions, the effect sizes for pre and post body dissatisfaction ranged from medium to large using Cohen's

classifications (Cohen, 1988) that suggest .2 as a small effect .5 as a medium effect and .8 as a large effect. The largest pre-post effect size occurred in the gratitude condition for improvements in Appearance Evaluation and in the monitoring and restructuring condition for increases in Body Areas Satisfaction (see Figures 6 and 7). The ITT analysis can also be seen in table 3.2. Effect sizes are much smaller. This is to be expected when 60-70% of the data is imputed as no change.

Table 3.2

Means, standard deviations (SD) and effects sizes (Cohen's d) for all conditions on all measures.

Measure	Group	Pre *(SD)*	Post *(SD)*	*d*	Pre *(SD)*	Post *(SD)*	*d*
AE	GD	2.34 (.70)	2.90 (.87)	.71	2.18(.74)	2.35(.86)	.21
	MR	2.39 (.71)	2.81 (1.02)	.48	2.29(.86)	2.37(.94)	.09
	WL	2.19 (.75)	2.17 (.75)	.03	2.20(.77)	2.15(.75)	.07
BAS	GD	2.57 (.60)	2.98 (.71)	.62	2.37(.66)	2.50(.75)	.18
	MR	2.38 (.57)	2.87 (.75)	.74	2.49(.64)	2.58(.69)	.14
	WL	2.35 (.57)	2.37 (.54)	.03	2.33(.61)	2.34(.59)	.02

Note. AE = Appearance Evaluation; BAS; Body Areas Satisfaction; GD = Gratitude Diaries; MR = Monitoring and Restructuring; WL = Waitlist

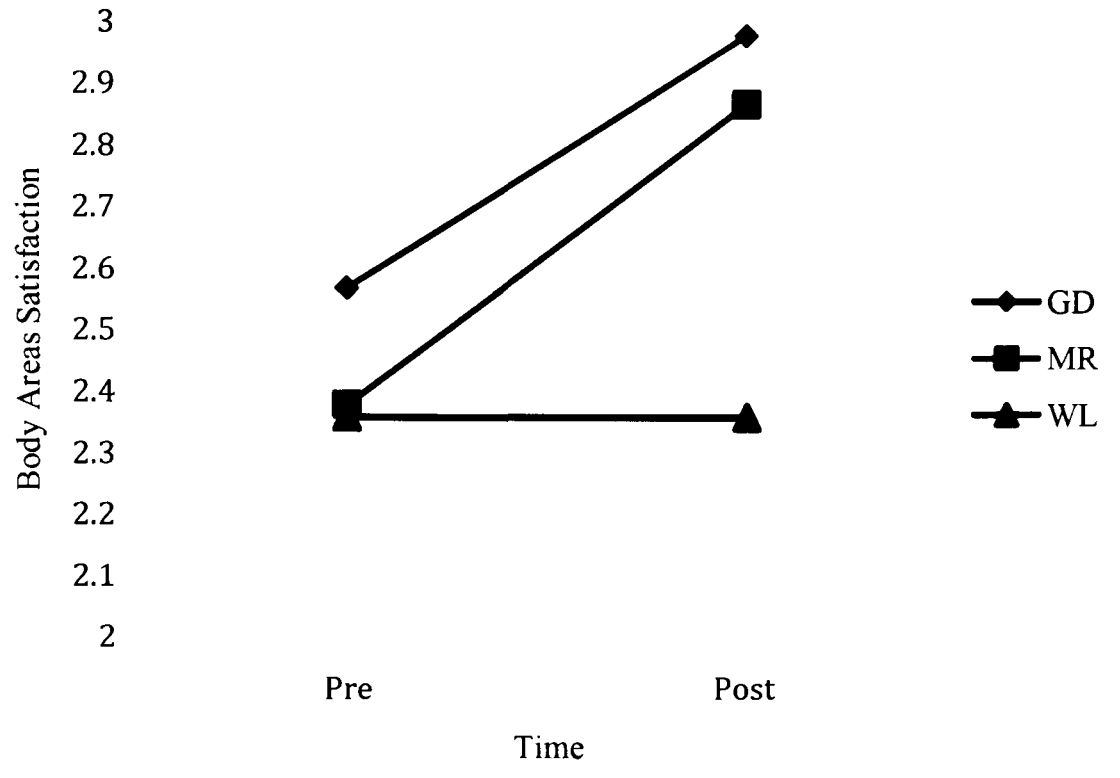


Figure 6. Chart showing mean Body Areas Satisfaction scores before and after intervention for participants who completed all assessment measures (n = 182) , GD = Gratitude Diaries, MR = Monitoring and Restructuring, WL = Waitlist.

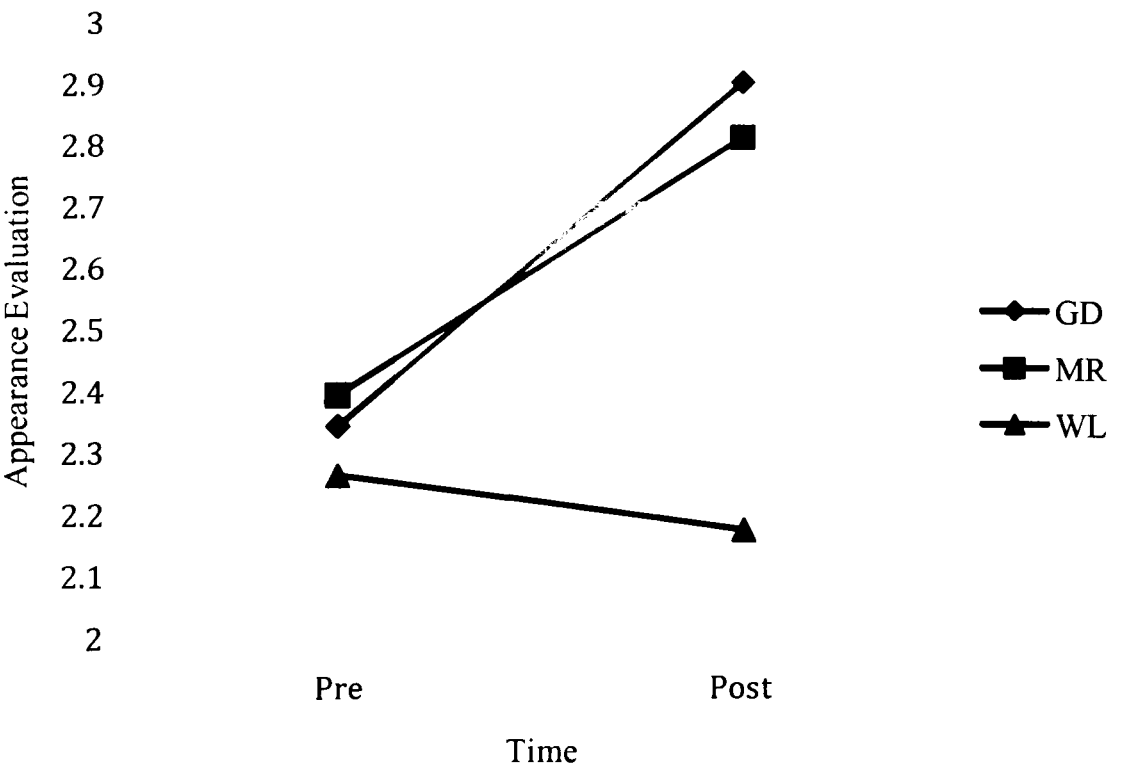


Figure 7. Chart showing mean Appearance Evaluation scores before and after intervention for participants who completed all assessment measures (n = 182) , GD = Gratitude Diaries, MR = Monitoring and Restructuring, WL = Waitlist.

To test if any of the baseline measures significantly predicted outcome in those who completed the interventions, either the gratitude diary or the automatic thought record, two linear regression models were conducted on each of the outcome measures, appearance evaluation and body areas satisfaction. In the first model (See Table 3.3) expectancy and Powerful Others and Chance health locus of control did not predict outcome. Internal health locus of control did significantly predict outcome across both conditions, as did time one appearance evaluation. In the second model (see Table 3.4) the same predictors were entered, however in this case body areas satisfaction at time one was entered with psychological predictors, and body areas satisfaction at time two was used as the dependent variable. In this model, body areas satisfaction at time one significantly predicted outcome, and internal locus of control and expectancy predicted body areas satisfaction at time two at trend level ($p = .06$ in both cases). P values for Powerful Others and Chance LOC did not reach either trend or significance. Internal locus of control predicted outcome on both measures of body dissatisfaction, expectancy was inconsistent. To test whether there were interactions with group, and importantly to test if baseline dispositional gratitude interacted with group to predict outcome (consistent with motivational concordance theory), both regression models were re run interacting with group including dispositional gratitude, for both dependent variables. However, none of the interactions significantly predicted outcome or came close to trend level significance. Therefore, internal health locus of control is not dependent on group as a predictor of beneficial outcome. Being higher in dispositional gratitude did not predict outcome following the gratitude technique, motivational concordance theory may not be useful theory in predicting outcome following longer-term self-help psychological interventions.

Table 3.3

A linear regression model including appearance evaluation at time one, expectancy and health locus of control. Body Areas Satisfaction at time one is the dependent variable.

Variable	B	SE	β
BAS T1	.71	.12	.58**
Expectancy	.07	.04	$.19_1$
Internal LOC	.04	.02	$.21_2$
Powerful	-.02	.02	-.10
Others LOC			
Chance LOC	.02	.02	.17

Note. $_1$ = .06, $_2$ =.06. * = p <.05 ** = p <.01

Table 3.4

A linear regression model including appearance evaluation at time one, expectancy and health locus of control. Appearance evaluation at time one is the dependent variable.

Variable	B	SE	β
AE T1	.94	.13	.71**
Expectancy	.02	.05	.05
Internal LOC	.05	.02	.23*
Powerful	-.03	.03	-.13
Others LOC			
Chance LOC	.02	.02	.12

Note * = p <.05 ** = p <.01

4.4 Discussion

Attrition occurs in all interventions and is not well understood (Davis & Addis, 1999; Eysenbach, 2005; Bennett & Glasgow, 2009). In this study, unguided self-help processes, including retention, outcome and mechanisms were investigated in the context of a brief body dissatisfaction intervention. Logistic regression modelling revealed a model where assigned technique, expectancy and internal health locus of control significantly predicted attrition. Perceived technique difficulty, symptom severity and demographic predictors, age and gender did not predict attrition. Both gratitude diaries and monitoring and restructuring exercises significantly reduced body dissatisfaction for those who completed the intervention compared to waitlist controls. Predictors of outcome change were inconsistent.

The strongest predictor of attrition in the current study was allocated technique. When compared to a problem-focused technique, common in body image interventions (Jarry & Ip, 2005), being allocated to a gratitude technique significantly improved retention. This is an important finding. This study shows that it is possible to increase retention by manipulating the intervention technique alone. Contact was not increased; phone calls were not included, neither were monetary incentives, and participants were not chased for responses. Reorienting toward the positive may be more sustainable than repeatedly returning to exercises where correcting the negative is the primary goal. Cultivating gratitude each day has been shown to increase positive affect and well-being (Emmons & McCullough, 2003). Additionally, gratitude is reported by 60% of people as making them feel 'very happy'(Gallop, 1999). Therefore, carrying out gratitude techniques may more readily reinforce the required self-help behaviour, increasing the likelihood that individuals will complete the intervention. This study is not the first to suggest that positive techniques may have 'self-maintaining' properties. Seligman et al.

(2005) reported that many participants who were asked to take part in a one-week intervention, were still completing positive psychology techniques six months later.

Despite mixed findings on outcome expectancy and attrition in the literature (Sears & Stanton, 2001; Dew & Bickman, 2005) a significant association occurred between expectancy and attrition in the present study. Those participants with higher initial expectancies were significantly more likely to complete the intervention. In self-help health programmes with contact and guidance, initial expectancies may not predict outcome as they are subject to change by the researcher or therapist guiding the intervention (Kirsch, 1990). However, when unguided, initial expectancies are particularly important. The current research suggests that when administering unguided interventions, close attention should be paid to enhancing expectation of beneficial outcome in the early or introductory stages of the intervention.

Internal health locus of control was significantly associated with intervention completion. This research supports the theoretical association made by Mahalik and Kivlighan (1988) that those with more internally oriented locus of control should do better with self-help therapy. Wallston (2005) has suggested that health locus of control is a reflection of situationally determined beliefs and is not a dispositional measure. Therefore, in future research, if locus of control is found to consistently predict attrition in unguided contexts, interventions could feature components that enhance internal locus of control, as well as treat the target outcome. This study demonstrates that technique, expectancy and internal locus of control predict attrition; all are psychological factors that have the potential to inform intervention design.

Previous research has shown that people who complete fully self-directed interventions report significant improvements in targeted symptoms (Christensen,

Griffiths, Korten, Brittliffe, & Groves, 2004). This study replicates this general finding. Both techniques significantly reduced body dissatisfaction compared to a waitlist. This is encouraging as it suggests technique can be manipulated and retention increased, without compromising outcome. These findings suggest that two very different self-help techniques can bring equivalent improvements in body dissatisfaction.

Equivalence could be explained in two different ways. The different approaches may have had different mechanisms. Completing gratitude diaries may have caused reductions in body dissatisfaction through increases in daily gratitude. Gratitude is associated with increased positive interpretive biases; practicing daily gratitude may have lead to more positive benefit appraisals (Wood, Maltby, Stewart, Linley, & Joseph, 2008). Completing monitoring and restructuring techniques may lead to reductions in dissatisfaction by decreased negative body-related thought biases (Cash, 2002). An alternative explanation for equivalence between the two techniques is that different self-help interventions may bring about comparable changes through the same mechanisms. Frank and Frank (1991), Wampold (2001) and Snyder (2002) suggest that the most important factors that lead to beneficial change following interventions are the provision of a functional explanation for the participants distress and a planned course of action to ameliorate that distress; both of which act to reinstate hope. These common factors occur in all bone fide psychological interventions and are held responsible for the consistent finding that when two different therapeutic approaches are compared they are equally effective (Luborsky et al., 2002; Cuijpers, van Straten, Andersson, & van Oppen, 2008). The 'equivalence paradox' is also common in body dissatisfaction research, intervention studies consistently demonstrate equivalence in body image outcomes when two different therapies are compared (see Fisher & Thompson, 1994; Grant & Cash, 1995; Strachan & Cash, 2002; Hilbert & Tuschen-Caffier, 2004). In

addition, research on body dissatisfaction shows that 'non-specific' approaches can be effective; O'Dea (2004) reported significant improvements in body image following an intervention designed to increase self-esteem.

Internal locus of control was the only baseline predictor, other than baseline symptoms, to consistently predict outcome across both body image measures. Internal locus of control has been suggested as a potential predictor of self-help therapy outcome for depression (Mahalik & Kivlighan, 1988). The findings from the present study suggest that internal locus of control may be important for both attrition and outcome, following the use of gratitude techniques as well as more standard cognitive techniques such as restructuring. Expectancy was inconsistent, however, there was a trend toward expectancy predicting outcome based on the body area satisfaction measure. These results need to be taken with caution; relatively few participants completed the study, which may limit the extent to which multiple regression is useful. Dispositional gratitude did not predict outcome following gratitude therapy suggesting that motivational concordance theory may not be applicable to longer psychological self-help interventions. Whether motivational concordance occurs only in more traditional placebo contexts, (substances, very short term therapeutic interventions), or whether motivational concordance has limited validity as proposed mechanisms underlying change is unclear.

This study has limitations. A workbook methodology was used, making the methods less interactive than purely web-based interventions. Interactivity is seen as key to engagement in self-directed health promoting activities (Hurling, Fairley, & Dias, 2006). Future research creating interactive health interventions with a positive orientation may increase retention further. However, it should be noted that Marks et al.

(2006) compared identical content for physical activity intervention presented in an online format, and in a printed workbook. Marks et al. (2006) reported that despite expecting the opposite, a printed workbook was significantly more effective in increasing physical activity intentions and self-reported behavior among the sample of middle school girls. Marks et al.'s (2006) research also supports the findings of Marshall, Leslie, Bauman, Marcus, and Owen (2003) who found greater improvements in physical activity in a printed workbook condition, than a web based program. These findings suggest caution in abandoning more traditional methods as technologies improve. Any failure to find a significant difference in outcome between the two techniques needs be interpreted with caution at this stage, small sample size through high attrition can bias results in favor of equivalence. The sample in the current study was self-selected from spontaneous web users, and participants were largely female. As such these results cannot be generalized to a male population. The gender orientation of our sample reflects the gender bias in the prevalence of body dissatisfaction (McCabe & Ricciardelli, 2004), as well as the consistently documented finding that females are more likely to self-select for self-help programs (Neil, Batterham, Christensen, Bennett, & Griffiths, 2009).

In conclusion, this study suggests that enhancing outcome expectation and including techniques with a positive orientation may increase retention in self-directed interventions. Additionally, self-help approach may be a critical factor in attrition.

Chapter 5

Gratitude as unguided self-help for depressive symptoms: the contribution of specific mechanisms

Study three showed that if a gratitude diary was used, it led to reports of significant decreases in body dissatisfaction. Additionally, attrition without guidance or contact was very high. It is possible that the key findings, i.e. improved outcome and greater retention following a gratitude diary, may be tied to the nature of the psychological symptoms volunteers aimed to reduce - body dissatisfaction. In order to test whether these findings represent an accurate reflection of processes that may occur across symptom focus, depressive symptoms were used as the primary outcome measure in study four.

5.1 Study four

Depression and depressive symptoms have received the greatest amount of research attention with regard to self-help treatment modalities. Many studies have shown that depression can be significantly reduced following the use of self-help therapy (Mahalik & Kivlighan, 1988; Marks et al., 2003; Andersson et al., 2005; Jorm & Griffiths, 2006; Gellatly et al., 2007). Level of contact associated with treatment varies. Nonetheless, even in investigations of fully unguided self-help, those who complete the studies report significant decreases in depressive symptoms (Christensen, Griffiths, Mackinnon, & Brittliffe, 2006). When fully unguided, attrition from

depression interventions can be very high (Christensen, Griffiths, & Farrer, 2009), and research discussing potential outcome mechanism following self-help treatment is almost entirely absent (Richardson & Richards, 2006). This study was designed to test whether findings from study three, with regard to retention and outcome would generalise across to a sample volunteering to reduce low mood and depressive symptoms. The secondary aims of this study were to examine both predictors and potential mediators of benefit following use of a fully self-directed self-help technique over a two-week period. Gratitude diaries and Automatic Thought Records (ATR) were the techniques selected. Importantly, change in gratitude, change in positive affect and change in negative automatic thoughts, were identified and tested as potential technique specific mechanisms that may lead to reductions in depressive symptoms following completion of the study.

Mediators of change following self-help therapy have received little empirical attention. This reflects two things, both the early stage of development of self-help interventions, and the general neglect for study of the mechanisms of change following psychotherapy in general (Kazdin, 2005; Kazdin, 2007). Potential self-help mechanisms have been discussed in detail in chapter one, however, essentially, they can be grouped into contextual mechanisms (such as hope, expectancy, motivational concordance, provision of functional explanations for symptoms) that occur across all interventions and 'symptom specific' mechanisms that may be directly related to the technique used and the symptoms focus (for instance size perception training for body image, or direct challenging of negative thoughts for depression). There is much debate with regard to which group of mechanisms are responsible for greatest variation in outcome change (Wampold, 2001; DeRubeis, Brotman, & Gibbons, 2005). Nonetheless, due to the

absence of relationship factors in unguided self-help, technique specific mechanisms may have an elevated position with regard to the change process.

Automatic thought records are often used in self-help materials and in homework assignments (Greenberger & Padesky, 1995; Bennett-Levy, 2003), and as a technique are guided by the cognitive model of depression (Beck, 1967). Cognitive models of depression critically attribute primacy to cognition in both the development and maintenance of depressive symptoms. The technique allows individuals to practice identifying and testing negative thoughts that underlie depressed mood. Through completing automatic thought records individuals have the chance to reality-test particular negative thoughts that lead to the lowest moods they experience. Individuals balance evidence for and against negative thoughts and develop more objective, functional alternatives. By increasing awareness of how dysfunctional thoughts lead to depressed moods, and offering a practical straightforward technique for generating more balanced thoughts, automatic thought records may foster the development of new more adaptive cognitions and reduce depression (Beck, Rush, Shaw, & Emery, 1979). Due to the specific focus on correcting negative cognitions, change in negative automatic thoughts may mediate the relationship between use of ATR technique and depression to a greater extent than use of gratitude diary and depression. Although essentially a cognitive technique, it is possible that changes in depression following use of a gratitude diary may be mediated to a greater extent by changes in gratitude and positive affect; the proposition that cultivating gratitude may be useful is based on the strong association between gratitude, well-being, positive affect and satisfaction with life (McCullough, Tsang, & Emmons, 2002; McCullough, Emmons, & Tsang, 2004; Wood, Joseph, & Maltby, 2008; Wood, Joseph, & Maltby, 2009).

This study compared gratitude diaries to automatic thought records as self-directed therapy over a two-week period for reducing depressive symptoms. A waitlist control was utilised in order to test whether both gratitude techniques and the ATR were effective in reducing depressive symptoms compared with no treatment - researchers continue to suggest that unguided techniques may be substantially less effective than when guided (Andersson & Cuijpers, 2008). Additionally, a gratitude diary has not been offered before as a technique for individuals to improve mood and depressive symptoms. Previous research has focused only on happiness and well-being (Lyubomirsky, Schkade, & Sheldon, 2005), thus it is possible that ATRs, which have a history in the treatment of depression, may be more effective in reducing symptoms than cultivating gratitude. This study provides a test of whether greater retention in the gratitude condition is replicable in a sample selecting for low mood. It was hypothesised, on the basis of Study three that allocation to the gratitude condition may result in greater retention. With regard to mechanism and mediators of change, this question has not been addressed in unguided self-help. If specific techniques address specific processes, completing automatic thought records may result in larger changes in negative automatic thoughts, than keeping a gratitude diary. Alternatively, if common factors are critical in benefit following self-help therapy, both techniques may equally affect change in specific processes i.e. positive affect and negative automatic thoughts to the same degree.

5.2 Method

Participants and Recruitment.

Four hundred and forty seven people, including 364 females and 83 males volunteered to take part in a study via the internet. Ages ranged from 18 to 70, with a

mean age of 37 (*SD* = 11.8), with 27% aged between 18-30, 57.4% aged between 31-50 and 15.6% aged between 51-70. A press release was sent out to local newspapers and radio stations in the South West of England offering participants the chance to receive free internet administered self-help therapy for low mood. Interventions were made freely available to the public, in an open access study with the limitation that participants were not currently undergoing treatment for a psychological disorder and had to be over the age of 18 to be eligible to take part. Participants were recruited into the study from April 2008 to September 2008. There were no incentives offered for completion.

Procedure

Participants responded to publicity by visiting the study website. Participants did not come to the University for initial assessments or to collect their workbook. The study was designed to be completely unguided, internet-administered and without any face-to-face contact. Participants were informed that they could take part only if they were over 18, not currently being treated for a psychological condition and had not taken part in the any of the previous studies. After reading study information, participants were asked to complete all baseline measures online. Baseline measures were not randomised and were completed in the following order: Demographics (including age and gender), PANAS, PHQ-9, SWLQ, GQ-6 MHLC, ATQ and Expectancy. Participants were randomised to complete gratitude diaries, automatic thought records or to wait two weeks to start the self-help therapy (see Figure 8). Participants in the intervention conditions read a description of the therapy they were about to receive on the study website and rated the extent to which they expected the therapy to help them feel less depressed. After which they were able to download the

workbooks. Participants were asked to complete either ATRs or gratitude diaries every day for two weeks. Participants were sent an email every other day with a link that allowed them to return to a web system where they recorded how much time they had spent on their workbook, and after the first day, how difficult they found their allocated technique. Participants were sent a personalised email welcoming them to the study on the day they signed up, and a personalised reminder email on the day they were due to finish. Personalisation was achieved by including their names in the email. On day 14 participants completed all follow up measures online and were debriefed automatically. Apart from the treatment rationale and the exercises presented in the workbooks, the procedure and presentation of the two conditions was designed to be equivalent. Those in the waitlist completed measures after two weeks and then had the opportunity to download the workbooks and complete the study in the same way those in the intervention group.

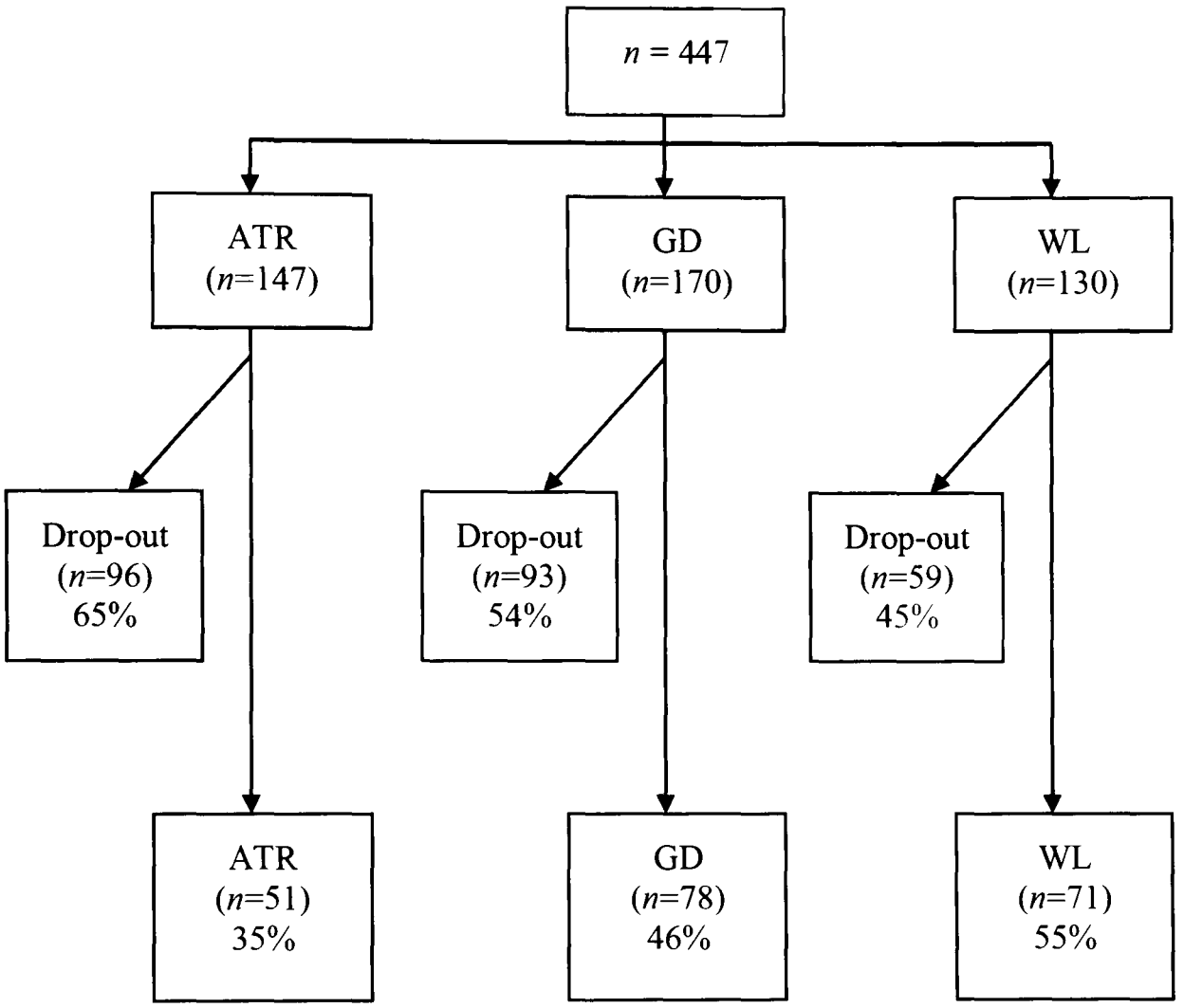


Figure 8. Diagram representing participant flow through the study.

Randomisation

Randomisation occurred automatically, in accordance with a true random computer generated number list, as such differences between group sizes were expected. Schulz and Grimes (2002) report infrequent use of simple random assignment. Researchers instead prefer fixed-block randomisation, which forces equality by departing from simple randomisation. This can lead to bias for an effect that is cosmetic, rather than statistically important. Differences in group size reflects the 'randomness' of the assignment process (Schulz & Grimes, 2002).

Interventions

Automatic Thought Records (ATR)

Participants downloaded a workbook that gave a cognitive explanation for the development of frequent low moods and depression. Participants were instructed to complete the ATR as near to when they experience the negative mood as possible. Participants rated the mood they were feeling at the time, noted the situation they were in when they were feeling low and identified the automatic thoughts that occurred. Participants then identified evidence that supported the negative thoughts, and the evidence that did not support the thought. Finally, they were asked to report a balanced thought, and re-rate their initial mood. The workbook described that with practice, completing ATRs regularly would help participants to challenge their automatic negative thoughts more often, reduce the amount of time they spend feeling low, and help them deal with their thoughts in a balanced, objective manner.

Gratitude Diaries (GD)

The gratitude intervention contained a "counting blessings" technique (Emmons & McCullough, 2003). Participants downloaded a workbook that gave an explanation for low mood, however, in this case participants were informed that low mood could be improved by acknowledging all that is positive in life. Participants were instructed to complete gratitude diaries, lists of items, experiences or people they felt grateful for. Participants were informed:

> "There are many things in our lives, both large and small, that we might be grateful for. We would like you to think back over your life, be it the past month or years ago and write down up to 6 things in your life that you are grateful or thankful for once a day for two weeks"

Participants were instructed to complete their gratitude diaries in the evening before they went to sleep.

Waitlist (WL)

Participants in the waitlist condition completed all baseline measures and were informed that they would be starting the study in 14 days. After 14 days participants completed all outcome measures and were given the chance to complete the trial in the same way as those in the intervention conditions.

Measures

Attrition

Attrition was defined as non-completion of post-intervention measures. All participants completed baseline measures in full, and were randomised to either

intervention conditions or waitlist controls. Only participants who provided both pre and post intervention measures where classed as completers.

Depression

The Patient Health Questionnaire 9 (PHQ-9) is a nine-item depression measure designed by Kroenke, Spitzer and Williams (2001) to detect and assess the severity of depression, based on the DSM IV diagnosis. Participants are asked, "Over the last two weeks, how often have you been bothered by any of the following problems?" Examples given include "Little interest or pleasure in doing things" and "Feeling bad about yourself - or that you are a failure or have let yourself or your family down". Participants rate their scores on a four-point scale from zero "not at all" to three "nearly everyday". The scale has strong reliability ratings ranging from $\alpha = .86$ to .89 (Kroenke et al., 2001). The PHQ-9 was chosen over the Beck Depression Inventory II (Beck, Steer, Ball, & Ranieri, 1996) as it the first questionnaire that efficiently establishes DSM IV criteria-based depression diagnosis (Adewuya, Ola, & Afolabi, 2006), and is brief making it particularly suitable for online studies where no incentives are offered for questionnaire completion. The PHQ-9 correlates with the Beck Depression Inventory II, $r = .84$ (Dum, Pickren, Sobell, & Sobell, 2008).

Automatic thoughts

The Automatic Thought Questionnaire (ATQ) is a thirty-item scale designed to measure the occurrence of automatic negative thoughts. Hollon and Kendall (1980) devised the scale to measure cognitive content and process as a function of treatment. The questionnaire consists of 30 thoughts and participants are required to indicate how often the thought occurred to them over, in this case, the past two weeks. Example of

thoughts listed include "I'm no good" and "why can't I ever succeed". Participants respond on a five-point scale from zero, "the thought never occurs" to four, "the though occurs all the time". The ATQ has a high internal consistency, $\alpha = .96$ (Hollon & Kendall, 1980).

Satisfaction with life

Satisfaction with life was measured using the Satisfaction with Life Scale (SWLS, Diener, Emmons, Larsen, & Griffin, 1985). The SWLS was included as a positive measure to compliment the PHQ-9 and ATQ. The SWLS was designed to measure global life satisfaction and is a five-item scale, with items including " In most ways my life is close to ideal" and "If I could have my life over, I would change almost nothing". Scores range from one "strongly disagree" to seven "strongly agree". Internal consistency from the current sample was $\alpha = .91$ and test-retest have been reported with coefficients equal to .82 (Diener et al., 1985).

Mood

To measure changes in affective state we used the Positive and Negative Affect Scales (PANAS, Watson, Clark, & Tellegen, 1988). PANAS consists of two 10-item measures measuring positive affect and negative affect. Positive items include "Interested" and "Alert", Negative items include "Upset" and "Disinterested". Participants rate items from 1, "very slightly or not at all" to 5 "extremely". Participants were asked to rate how they had been feeling 'over the past few weeks'. (Watson, Clark, & Tellegen, 1988) report high internal consistency for both subscales with the instructions as 'over the past few weeks' with PA $\alpha = .87$ and NA $\alpha = .87$.

Locus of Control

Locus of control was measured using form A of the Multidimensional Health Locus of Control scale (MHLC, (Wallston & Wallston, 1978). The scale consists of 18 items classified into three subscales. Internal health locus of control (HLC), refers to the extent that an individual believes personal behavioral factors are responsible for their health. Chance HLC refers belief that health is determined by luck or chance. Powerful others HLC, refers to the extent that an individual believes their health to be determined by powerful others, such as physicians. Each subscale contains six items rated on a six-point scale ranging from "strongly disagree" to "strongly agree". Internal consistency is reported as ranging from α = .68 to .85 (Wallston & Wallston, 1978), and test rest reliability has been reported as ranging from .65 - .75 (Wallston, 2005).

Adherence and difficulty

Adherence was measured using an automatic email sent every other day for two weeks.. Participants logged in and indicated on a single item scale how much time they had spent on their workbook the previous day. The scale ranged from 1 to 6, with 1 indicating no time, 2 indicating 0-5 minutes, 3 indicating 5-10 minutes, 4 indicating 10-15 minutes, 5 indicating 15-20 minutes and 6 indicating over 20 minutes. After the first day with the workbooks, in the same adherence email, participants were asked to rate how difficult they found completing their allocated technique on a 7 point scale with 1 representing "very difficult" and 7, "very easy".

Expectancy

Expectancy was measured using a single item expectancy measure. Participants were asked, to what extent do you expect the therapy to help you? Participants rated

expectation for change on an 8 point scale with 1 as "I don't expect the therapy to improve my mood" and 8 "I definitely think the therapy will help improve my mood". To test whether Expectancy taken after reading description of the therapy correlated with expectancy following completion of the technique, participants rated expectancy again, on the same scale, following the first day of the study after they had downloaded the workbooks.

5.3 Results

The mean score on the PHQ-9 for the current sample was 10.90 (SD = 6.17), representing moderate depressive symptoms. Simple randomization led to moderate differences in group sizes. As a percentage of the total sample, allocations were 33% ATR, 38% GD and 29% WL (see Figure 5).

Participants who dropped out (n = 247) not did not differ significantly on any of the baseline measures compared to those that completed the interventions (n = 200). The largest non-significant baseline difference was in automatic negative thoughts; participants who dropped out (M = 47.54, SD = 29.92) tended to have higher levels of automatic negative thoughts, than those who completed (M = 44.14, SD = 28.24) $t(445) = 1.22, p = .22$ *ns.* To test if dropout differed between participants allocated to complete gratitude diaries (GD) and those allocated to complete automatic thought records (ATR) a chi squared analysis was used. Participants were significantly more likely to complete the treatment if allocated to the GD group (46%) than the ATR group (35%), $\chi^2(1, N = 317) = 4.09, p < .05$.

To test whether reported difficulty of task was related to dropout, a logistic regression model was carried out with completion (dropout = 0 and completion = 1) as

the dependent variable and difficulty, and an interaction term 'difficulty x group' as predictor variables. One hundred and seventy eight participants in the intervention groups provided difficulty data. Difficulty was not significantly related to dropout (Wald = .63, Exp(B) .86 CI = .59 – 1.24, p = .43), and neither was an interaction between group and difficulty (Wald = .94, Exp(B) 1.08, CI = .92 – 1.27, p = .33). In those who reported difficulty data, finding the task difficult was not significantly related to completion status. Additionally, the non-significant interaction between difficulty and group, suggests that higher difficulty ratings were not associated with greater attrition in one group and not the other.

To identify possible predictors of attrition in all 300 of those participants allocated to the technique conditions, variables including age, gender group and baseline symptom severity, along with health locus of control and baseline expectancy were entered simultaneously into a logistic regression model. Each variable interacting with group was also entered into the regression model. All continuous variables were standardised. In order to determine a model that most successfully predicted attrition from the selected variables, a backward elimination procedure was used. In this procedure, variables and interactions are removed in iterative steps leaving only variables that are significant at p = <.05. Demographics, age and gender, and symptom severity along with variable interaction terms with group did not significantly predict attrition. Despite remaining until the final iterations, expectancy (Wald(1) = 2.57, Exp (B) 1.22, CI = .96 – 1.56, p = .11), and internal locus of control were not significant predictors of attrition (Wald (1)= 2.97, Exp (B) .80, CI = .62 – 1.03, p =.08). The model that best predicted attrition, can be seen in Table 4.1.

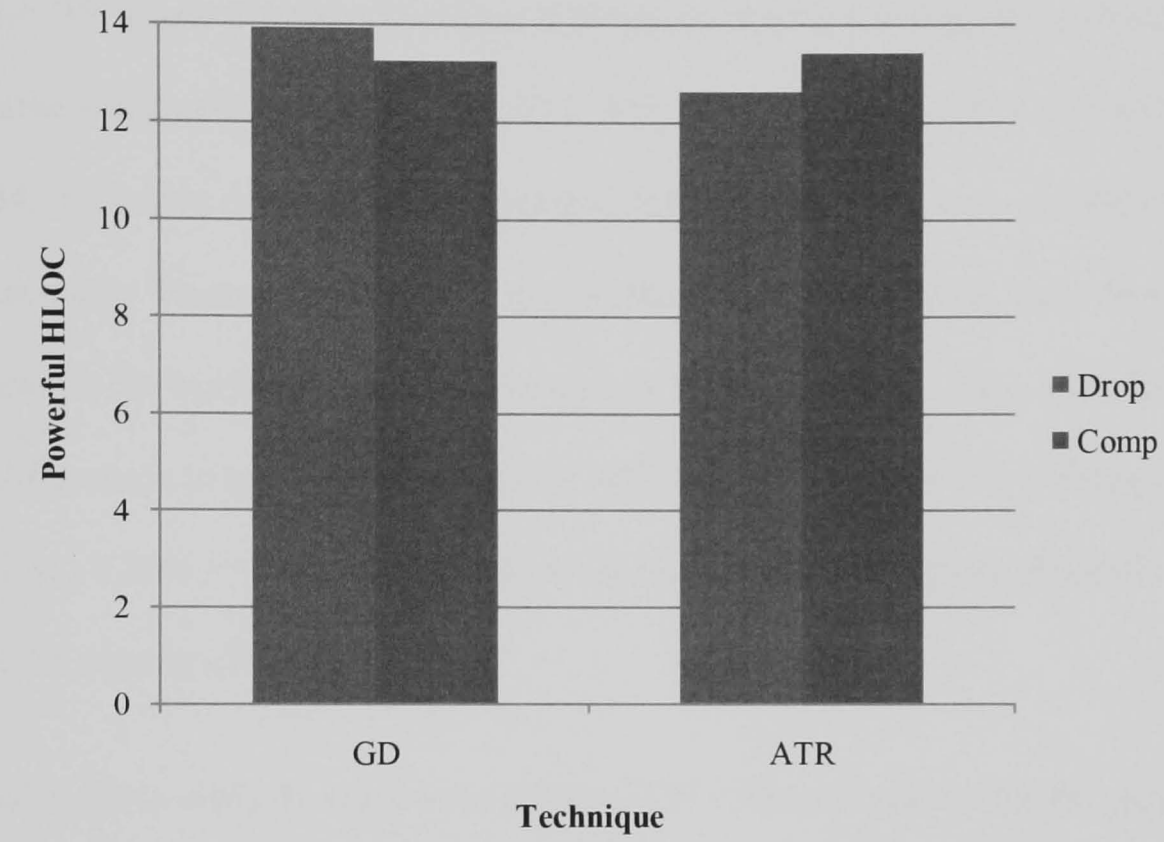
Table 4.1

Logistic regression model predicting attrition (dropout = 0, completion = 1).

Variable	Wald (df=1)	Exp(B)	95% CI
Chance HLOC	4.99	.41*	.19 - .90
Powerful Others HLOC	3.38	2.19	.95 - 5.05
Group	4.15	1.62*	1.01 – 2.56
Chance HLOC by Group	6.81	1.93*	1.18 - 3.16
Powerful Others HLOC by group	4.24	.59*	.36-.98

Note. * $p<.05$, HLOC = Health Locus of Control.

In order to interpret the significant interactions in the model, charts were created and can be seen in Figure 9. Being higher on Powerful Others HLOC, and allocated to the ATR condition, was associated with greater probability of completion, whereas being higher on Powerful Others HLC and allocated to the gratitude condition was associated with increased probability of dropout. High levels of Chance HLOC were associated increased probability of dropout from the ATR condition, and increased probability of completion in the gratitude condition.



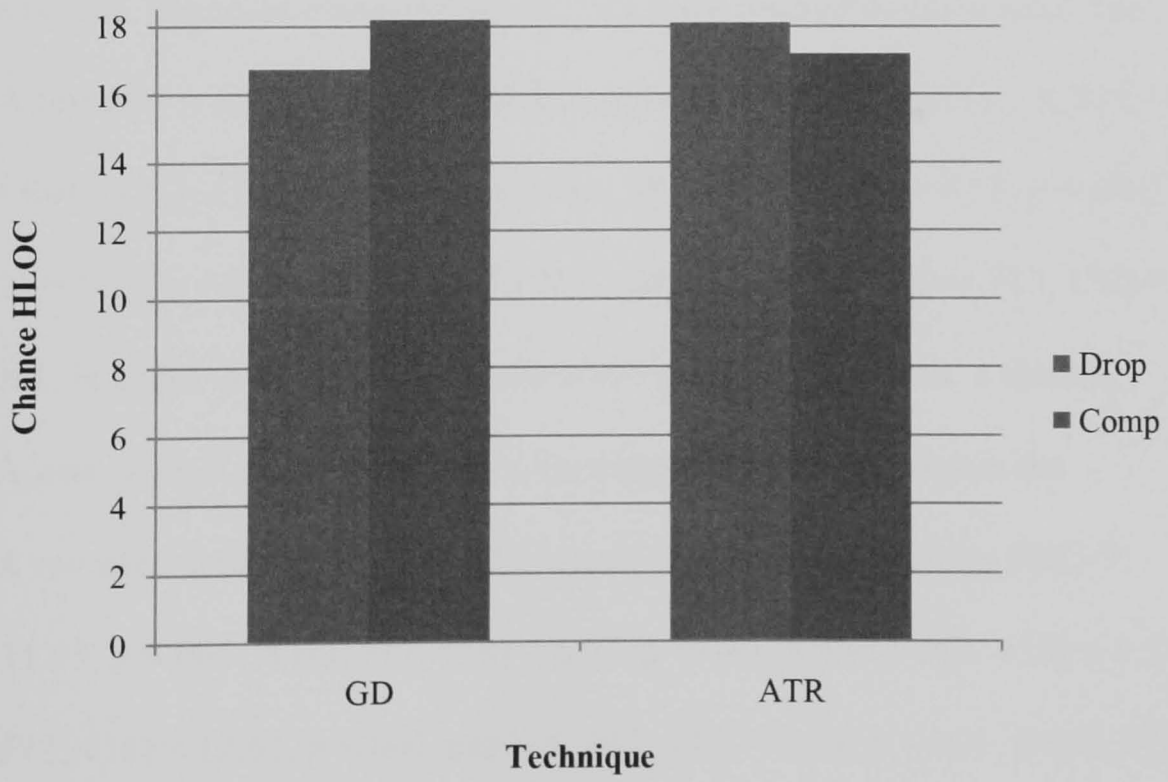
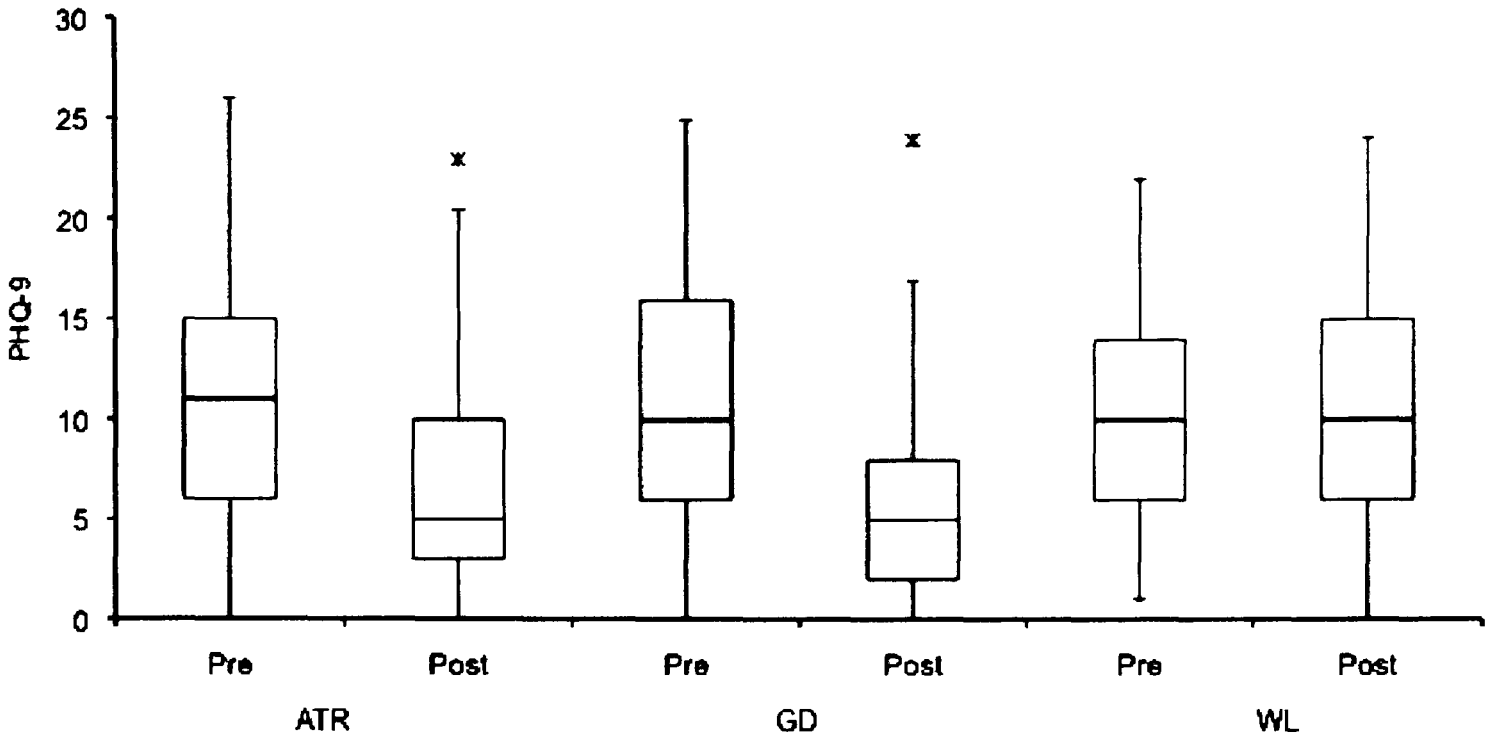


Figure 9. Charts showing graphical representation of significant interaction from logistic regression model in Table 1. Note. Drop = Dropout, Comp = Complete, GD = Gratitude Diary, ATR = Automatic Thought Record.

Adherence measures for those who completed the therapy showed that participants in the GD group (M = 4.93, SD = 1.8) logged in significantly more times than those in the ATR group (M = 4.25, SD = 1.9), $t(127) = -2.04$, $p < .05$, effect size (Cohen's d) = .38. There were no significant differences in time participants reported spending on the workbooks, GD (M = 2.9, SD = .93), ATR (M = 2.94, SD = 1.1) $t(127) = .20$, $p = .84$, indicating that participants reported spending 5 to 10 minutes on their workbook each day. There were no significant relationships between both login days and time spent on the workbook and outcome on any of the measures. There were no significant differences in expectancy ratings for ATR (M = 5.25, SD = 1.7) or GD (M = 5.55, SD = 1.82) $t(308) = -1.48$, $p = .14$, indicating that participants expected both forms of therapy to be equally effective.

A multivariate analysis of covariance (MANCOVA) was used to test for group differences for those participants who completed therapy after the two-week intervention period. Outcome measures at time one were entered as covariates. The MANCOVA revealed a significant group differences on all variables, PHQ-9, $F(2,192) = 21.03$, $p < .001$; ATQ, $F(2,192) = 9.81$, $p < .001$, SWLQ, $F(2,192) = 8.18$, $p < .001$; PA, $F(2,192) = 16.1$, $p < .001$ and NA, $F(2,192) = 24.46$, $p < .001$, GQ-6, $F(2, 192) = 20.60$, $p < .001$. In order to test the robustness of the completer analysis, a further MANCOVA was carried out using an intent-to-treat (ITT) strategy. Again the MANCOVA revealed significant group differences on all group variables PHQ-9, $F(2,438) = 11.95$, $p < .001$; ATQ, $F(2, 438) = 6.93$, $p < .001$, SWLQ, $F(2, 438) = 5.24$, $p < .001$; PA, $F(2, 438) = 12.61$, $p < .001$ and NA, $F(2, 438) = 8.28$, $p < .001$, GQ-6, $F(2, 438) = 7.91$, $p < .001$. Post hoc ANCOVAs were used to determine the differences between groups using both a completer strategy and an ITT strategy. In each case the baseline score for the measure was entered as a covariate in the analysis. In the

completer analysis, on all measures, completing GD and ATR led to significant improvements compared to participants who waited, and there were no significant difference on outcome measures between GD and ATR groups. ANCOVA results can be seen in Table 4.2. Means, standard deviations and effect sizes (Cohen's *d*) can be seen in Table 4.3. Effect sizes from pre to post ranged from medium to large to following GD and ATR interventions, with the largest effect found in reductions in negative affect for both GD and ATR, and decreases in depression as measured by the PHQ-9 for the GD group. Cohen (1998) defines effect sizes of $d = .2$ as small, $d = .5$ as medium and $d = .8$ as large. The ITT ANCOVAs confirm the results of the completer analysis, although effect sizes are substantially reduced. Figure 10 shows box plots for all pre-post measures. Figure 11 shows all completer analysis charts.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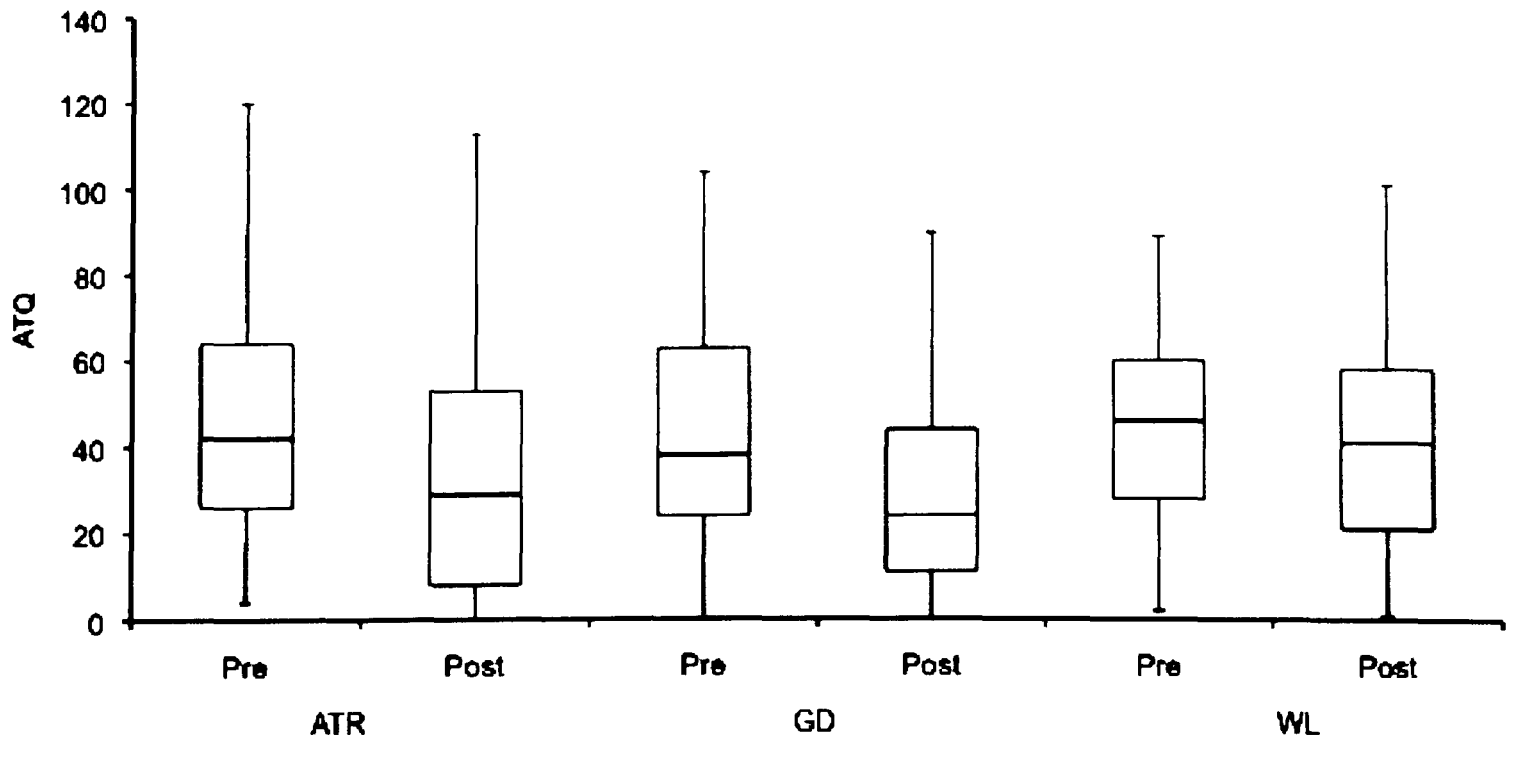
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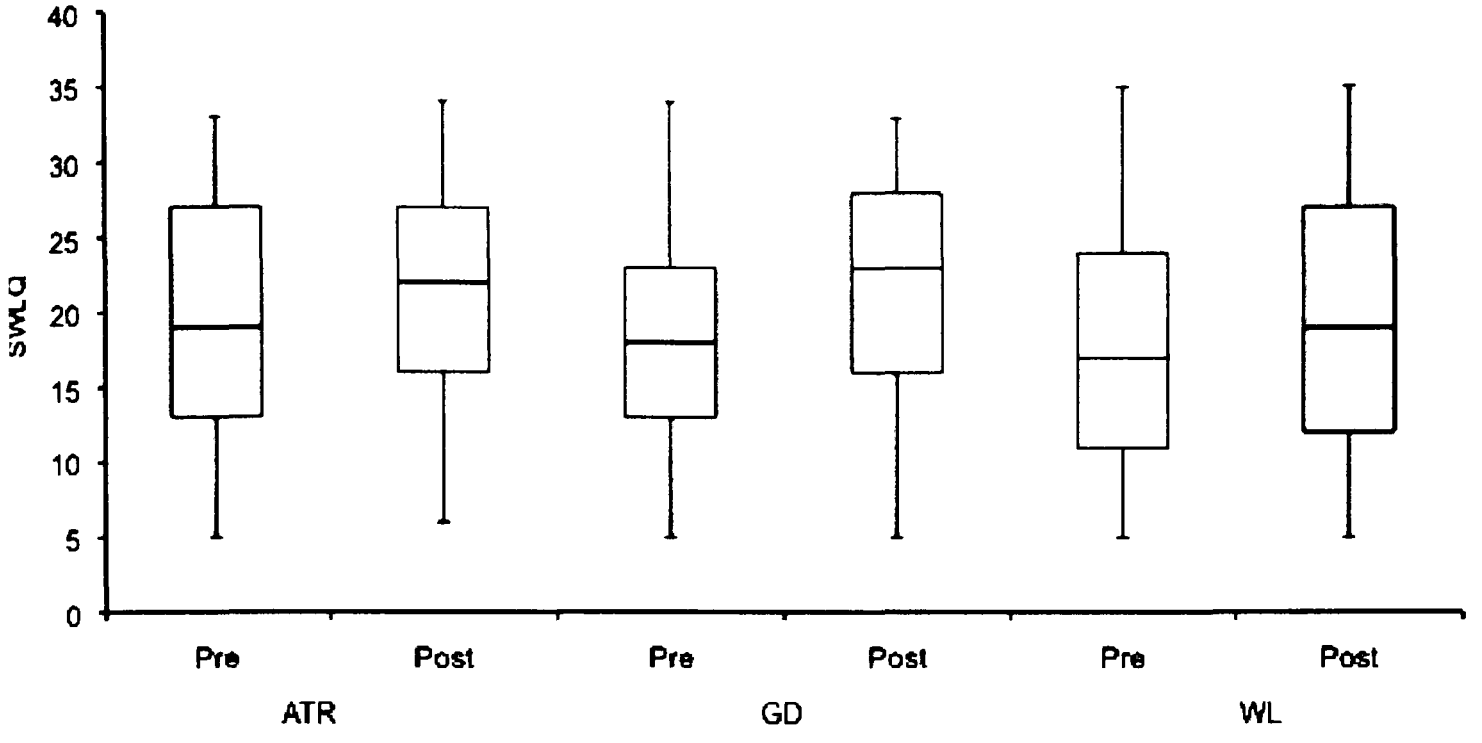
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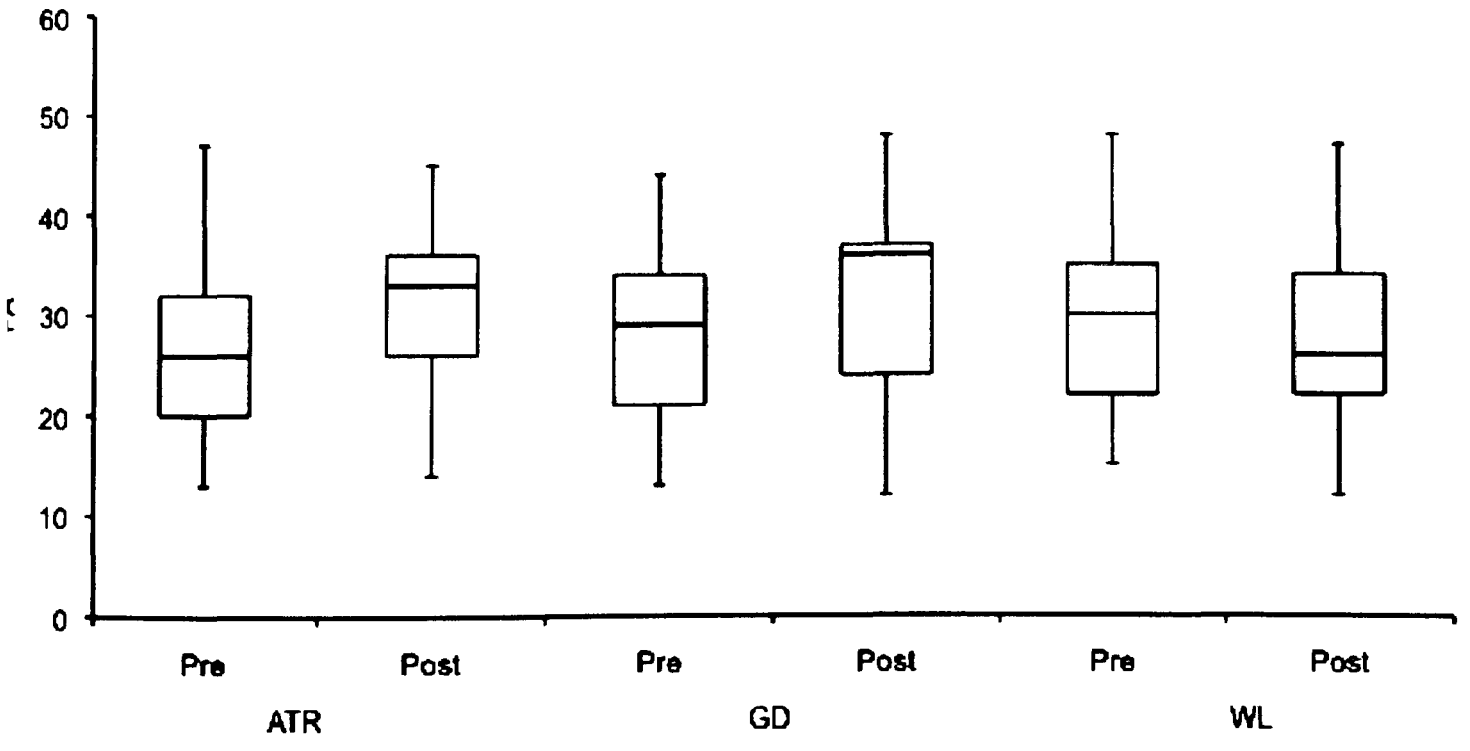
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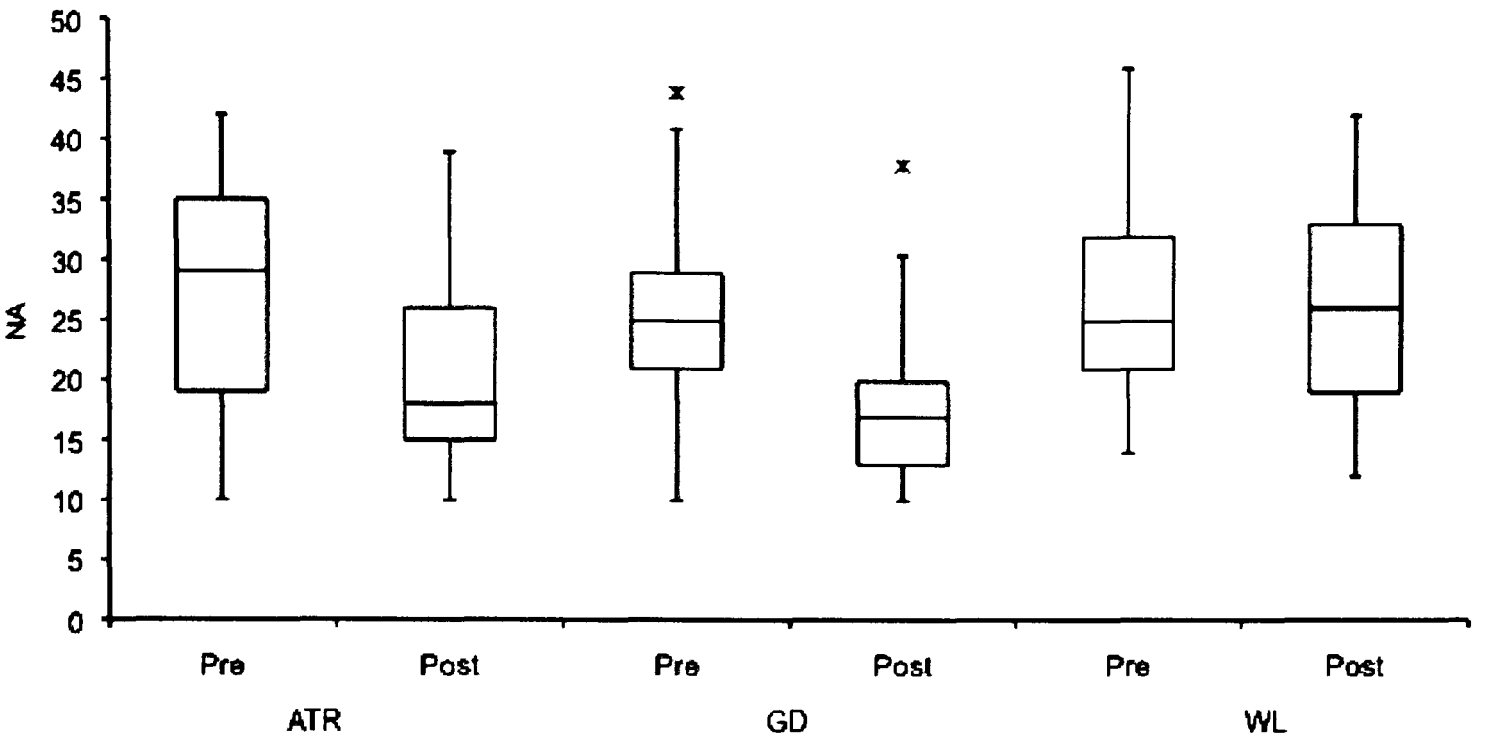


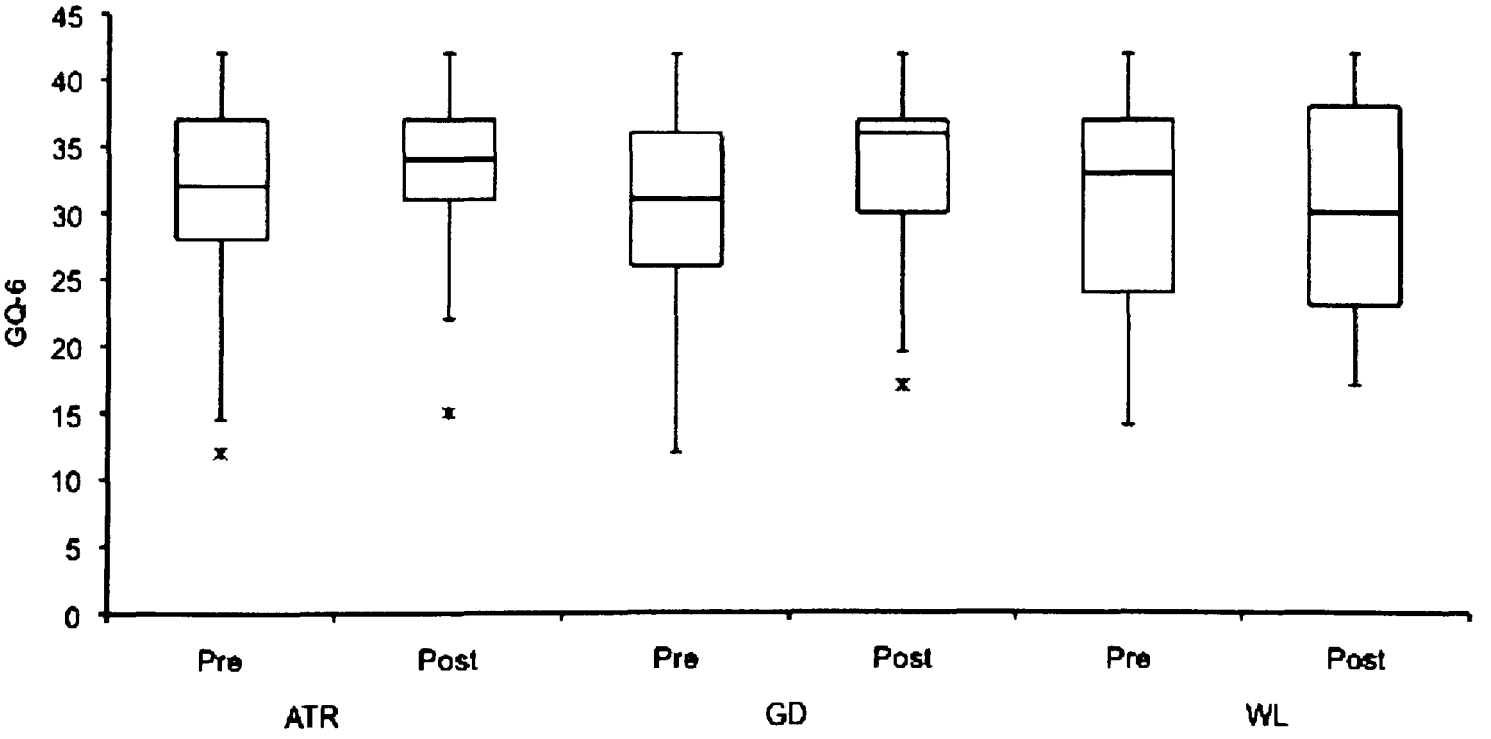


Figure 10. *Box plots for all pre-post measures. GD = Gratitude Diaries (n = 78) , ATR = Automatic thought Records (n = 51), WL = Waitlist (n = 71), PHQ-9 = Patient Health Questionnaire -9, ATQ = Automatic Thoughts Questionnaire, SWLS, Satisfaction with Life Scale, PA = Positive Affect, NA = Negative Affect, GQ-6 = Dispositional Gratitude*

Table 4.2

F-tests, degrees of freedom (df) and significance levels for all comparisons using ANCOVA's with baseline scores as covariates for all measures.

	Completer			*Intent to treat*		
Comparison	*df*	*F*	*p*	*df*	*F*	*p*
PHQ-9						
GD vs. WL	1, 146	40.70	*p* <.001	1,297	21.04	p<.001
ATR vs WL	1, 119	26.95	*p* <.001	1,274	12.73	p<.001
GD vs ATR	1, 126	1.79	*p* = .18	1,314	2.71	p =.10
ATQ						
GD vs. WL	1, 146	21.83	*p* <.001	1,297	12.29	p<.01
ATR vs WL	1, 119	20.33	*p* <.001	1,274	11.40	p<.01
GD vs ATR	1, 126	.47	*p* = .49	1,314	.52	p = .46
SWLQ						
GD vs. WL	1, 146	15.12	*p* <.001	1,279	9.53	p<.01
ATR vs WL	1, 119	11.74	*p* <.001	1,274	5.25	p<.05
GD vs ATR	1, 126	.57	p = .45	1,314	1.78	p =.18
PA						
GD vs. WL	1, 146	32.59	*p* <.001	1,279	22.62	p<.001
ATR vs WL	1, 119	15.65	*p* <.001	1,274	14.92	p<.001
GD vs ATR	1, 126	2.44	*p* = .12	1,314	2.19	p = .14
NA						
GD vs. WL	1, 146	41.80	*p* <.001	1,279	16.25	p<.001
ATR vs WL	1, 119	27.20	*p* <.001	1,274	10.02	p<.01
GD vs ATR	1, 126	.60	*p* = .44	1,314	.79	p =.37
GQ-6						
GD vs. WL	1, 146	22.64	*p* <.001	1,279	14.12	p<.001
ATR vs WL	1, 119	6.74	*p =.012*	1,274	3.62	p = .06
GD vs ATR	1, 126	4.05	*P =.046*	1,314	5.71	p <.05

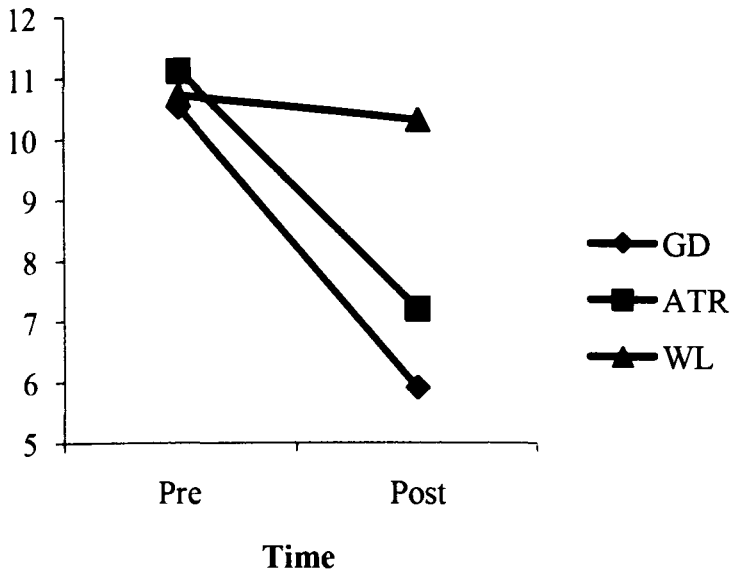
Note. GD = Gratitude Diaries, ATR = Automatic thought Records, WL = Waitlist, PHQ-9 = Patient Health Questionnaire -9, ATQ = Automatic Thoughts Questionnaire, SWLS, Satisfaction with Life Scale, PA = Positive Affect, NA = Negative Affect, GQ-6 = Dispositional Gratitude

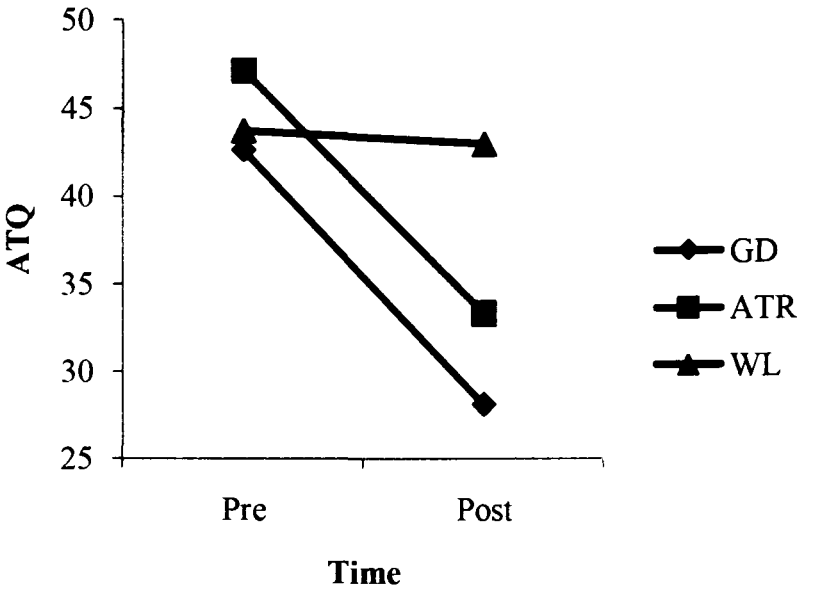
Table 4.3

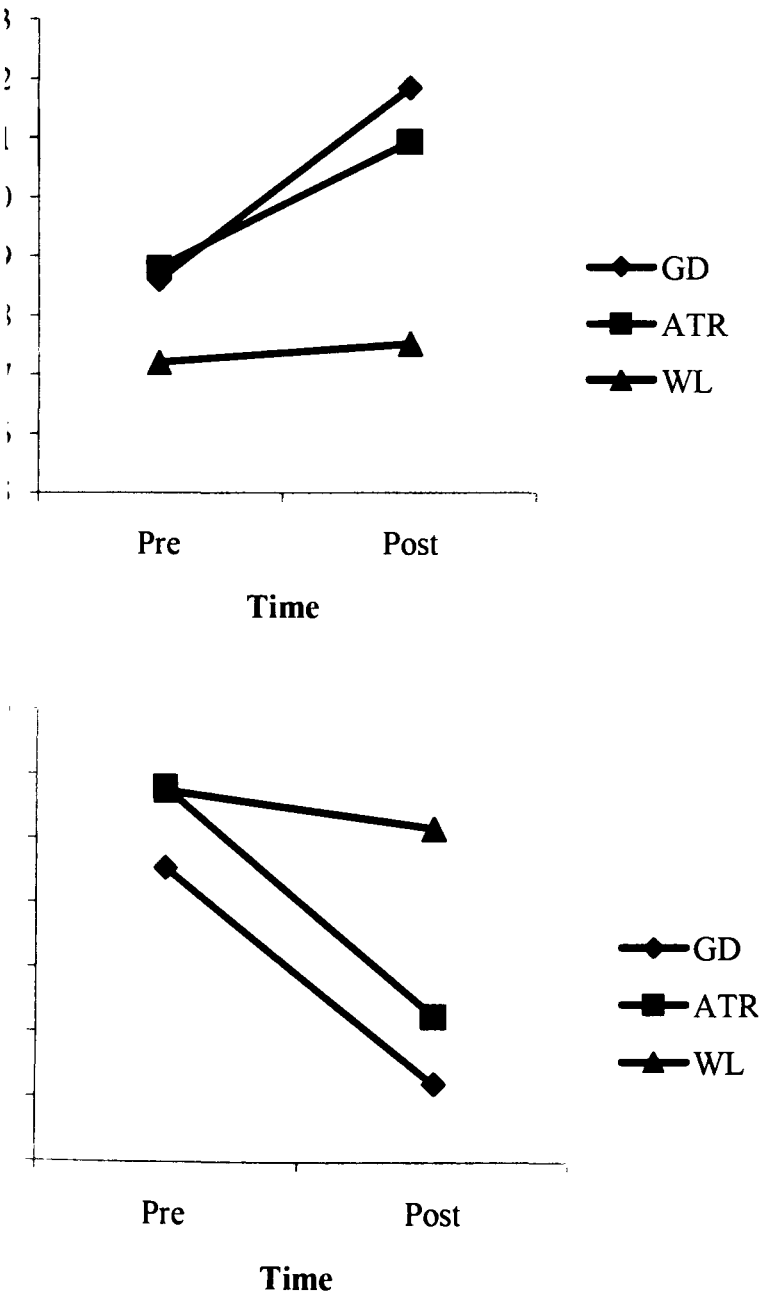
Means, standard deviations (*SD*) and effects sizes (Cohen's *d*) for all conditions on all measures.

	Completer			*Intent to Treat*		
Measure	Pre (*SD*)	Post (*SD*)	Effect size (*d*)	Pre (*SD*)	Post (*SD*)	Effect size (*d*)
PHQ-9						
GD	10.5 (6.5)	5.9(5.2)	.78	11.2 (6.5)	9.1 (6.6)	.32
ATR	11.1(6.7)	7.2(5.7)	.62	10.6 (6.1)	9.3 (6.1)	.21
WL	10.7(5.4)	10.33(5.9)	.07	11.2 (5.8)	11.0 (6.1)	.03
ATQ						
GD	42.6(30.2)	28.1(25.9)	.52	47.7 (31.4)	41.1 (31.6)	.21
ATR	47.1(29.0)	33.3(27.0)	.49	43.7 (31.5)	38.9 (27.7)	.16
WL	43.7(25.6)	42.9(27.3)	.03	46.3 (27.2)	45.8 (28.3)	.02
SWLQ						
GD	18.6(7.3)	21.8(7.9)	.42	17.6 (7.3)	19.1 (7.9)	.18
ATR	18.8(8.3)	20.9(7.4)	.26	17.7 (7.9)	18.6 (7.7)	.12
WL	17.2(8.4)	17.5(8.7)	.04	17.6 (8.1)	17.6 (8.2)	.00
PA						
GD	27.6(9.8)	32.9(8.5)	.58	27.5 (9.3)	30.0 (9.2)	.27
ATR	26.1(8.3)	30.5(7.7)	.55	27.7 (8.7)	29.2 (8.5)	.17
WL	28.7(7.8)	26.9(7.5)	.24	27.9 (8.5)	27.1 (8.4)	.09
NA						
GD	25.1(7.9)	18.4(7.2)	.89	26.7 (8.8)	23.7 (9.6)	.33
ATR	27.6(8.7)	20.5(7.9)	.85	26.6 (8.2)	24.2 (8.3)	.29
WL	27.5(8.4)	26.3(8.5)	.14	27.0 (8.7)	26.4 (8.7)	.07
GQ-6						
GD	31.0(7.5)	34.1(6.6)	.44	30.4 (7.5)	31.9 (7.2)	..20
ATR	30.3(7.9)	31.9(6.9)	.13	29.7 (7.6)	30.3 (7.4)	.08
WL	30.6(6.9)	30.1(6.9)	.07	30.3 (7.0)	30.2 (7.1)	.01

Note. GD = Gratitude Diaries, ATR = Automatic thought Records, WL = Waitlist, PHQ-9 = Patient Health Questionnaire -9, ATQ = Automatic Thoughts Questionnaire, SWLS, Satisfaction with Life Scale, PA = Positive Affect, NA = Negative Affect, GQ-6 = Dispositional Gratitude







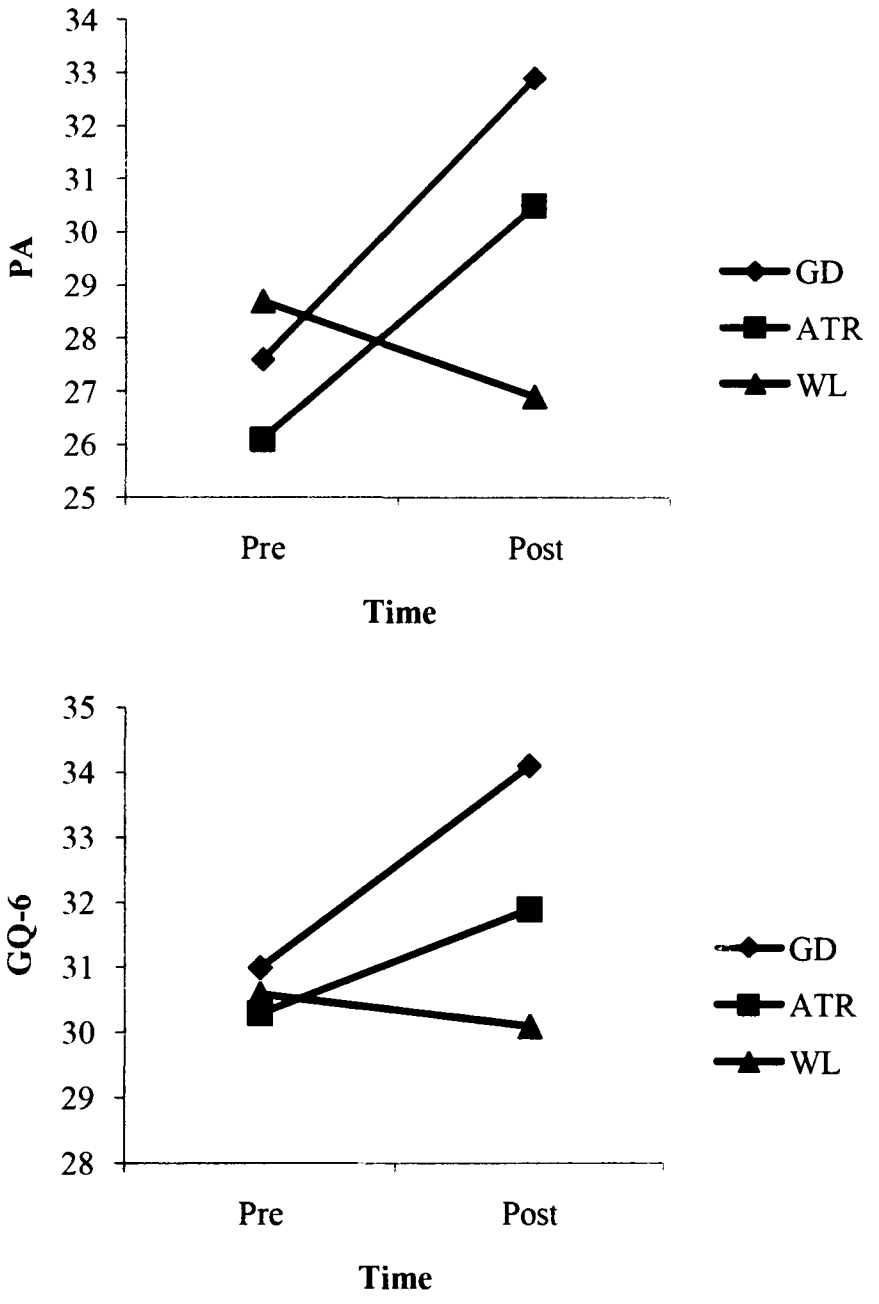
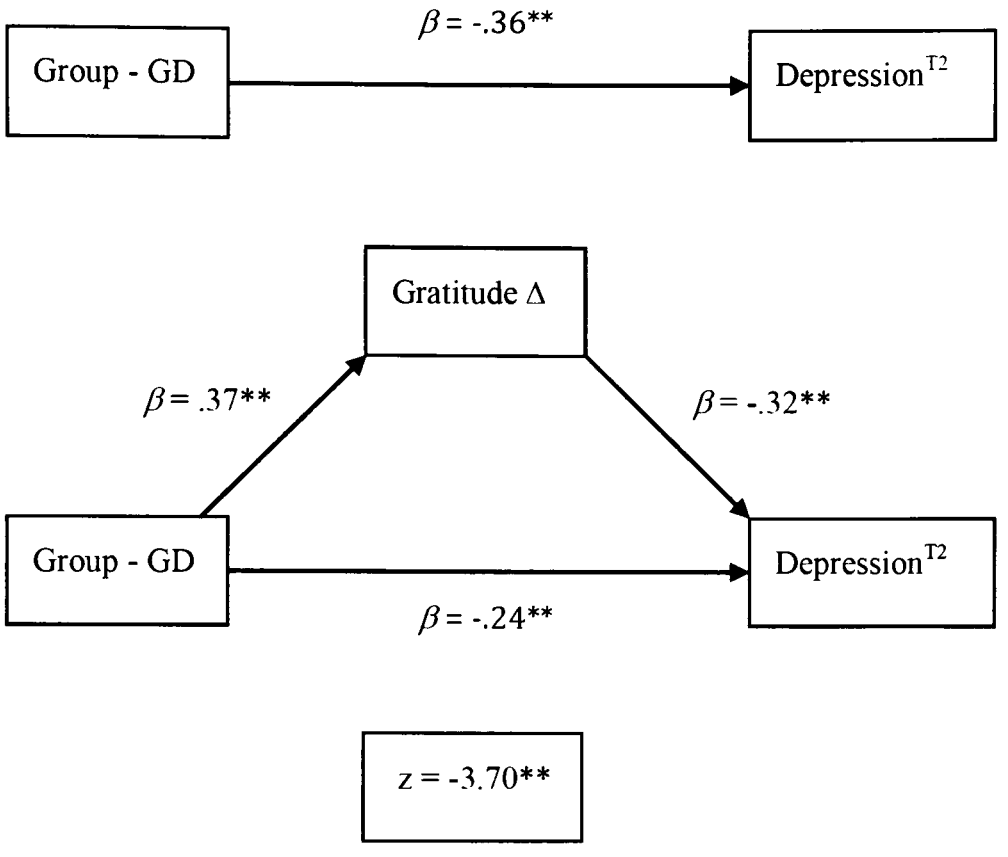


Figure 11. Charts with means from all intervention conditions on all measures *Note.* GD Gratitude Diaries, ATR = Automatic thought Records, WL = Waitlist, PHQ-9 = Patient Health Questionnaire -9, ATQ = Automatic Thoughts Questionnaire, SWLS, Satisfaction with Life Scale, PA = Positive Affect, NA = Negative Affect, GQ-6 = Dispositional Gratitude.

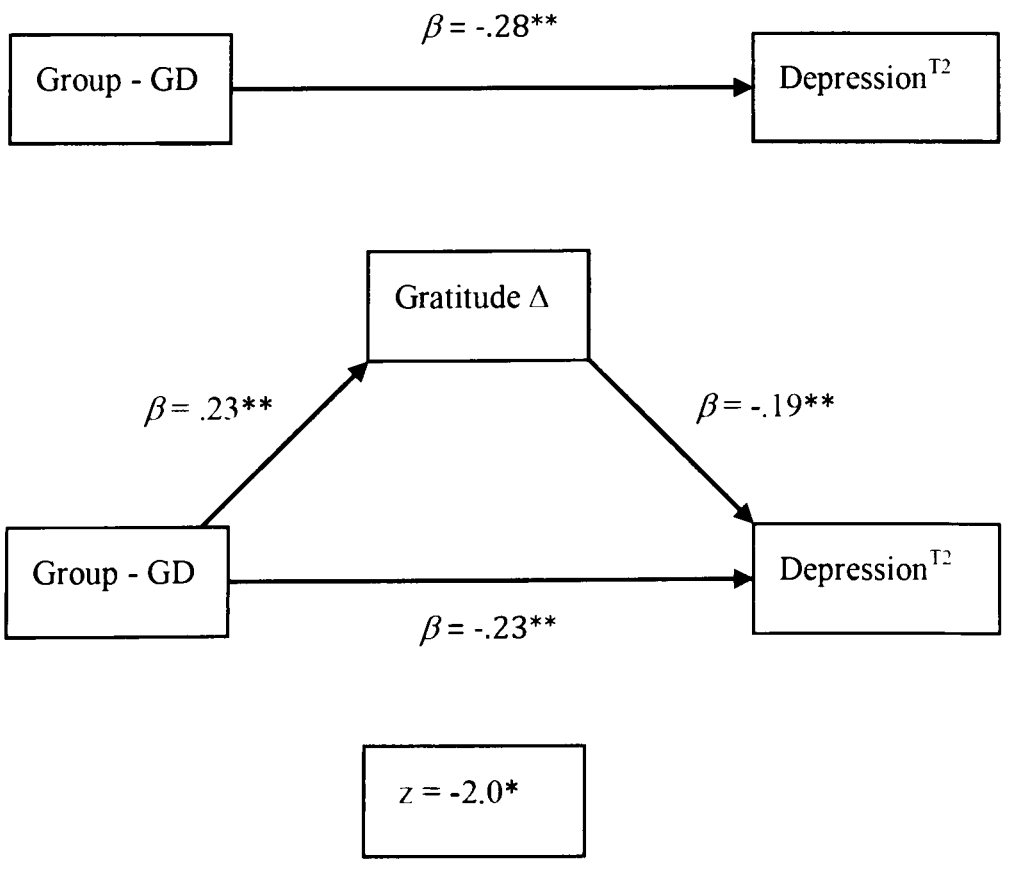
To investigate potential mediators of the relationship between group allocation (technique vs waitlist) and depressive symptoms at time two (with depressive symptoms at time one as a covariate) mediation analyses were conducted (see Figure 4). The purpose of the analyses were to investigate the role of changes in gratitude, changes in negative automatic thoughts and changes in positive affect in improvement in depressive symptoms following allocation to either the gratitude diary, or the automatic thought records. Change variables were obtained by creating residualised change scores. Residuals were obtained by using a linear regression where time two scores were entered as outcomes and time one scores were entered as predictors and residuals were saved. These residuals were then used as change variables. Twisk and Proper, (2004) recommend using residualised change scores, rather than absolute change scores, as absolute change scores can be biased by the regression to the mean due to the effect of the baseline measure. Figure 12 demonstrates that changes in gratitude, changes in automatic thoughts and changes in positive affect partially mediated the relationship between group (either GD vs. WL or ATR vs. WL) and depression at time two with time one depression covaried. In model one, change in gratitude accounted for 33.3% of the variance in the effect of group on depression at time two, when group represented GD vs WL. In model two, change in gratitude accounted for 17.8% of the variance in the effect of group on depression at time two, when group represented the ATR vs. WL. In model three, change in negative automatic thoughts accounted for 50% of the variance in the effect of group on depression at time two, when group represented GD vs. WL. In model four, change in negative automatic thoughts accounted for 42.8% of the variance in the effect of group on depression at time two, when group represented ATR vs. WL. In model five, change in positive affect accounted for 45% of the variance

in the effect of group on depression at time two, when group represented GD vs WL. In model six, change in positive affect accounted for 39% of the variance in the effect of group on depression at time two, when group represented ATR vs. WL. Thus, change in gratitude was responsible for a larger proportion of the effect of GD, compared to ATR, on depression. However, change in negative automatic thoughts and positive affect were very similar following both GD and ATR.

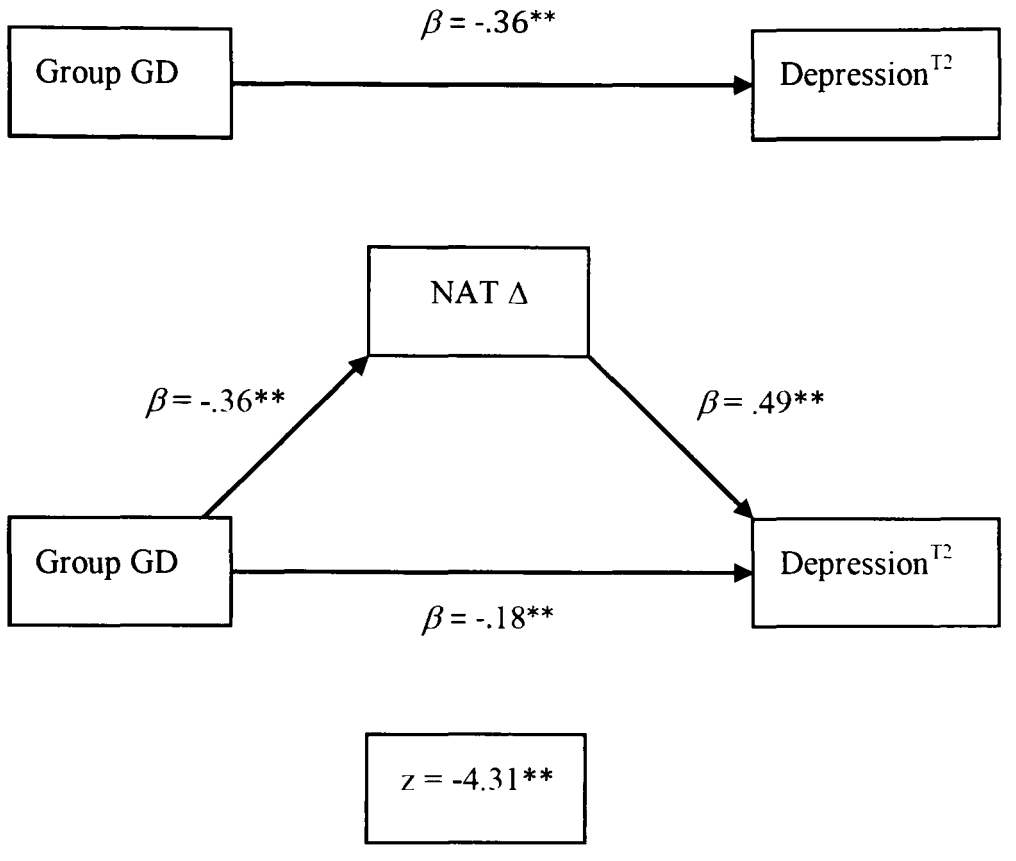
Changes in Gratitude and Depressive Symptoms Following Gratitude Diary (GD)



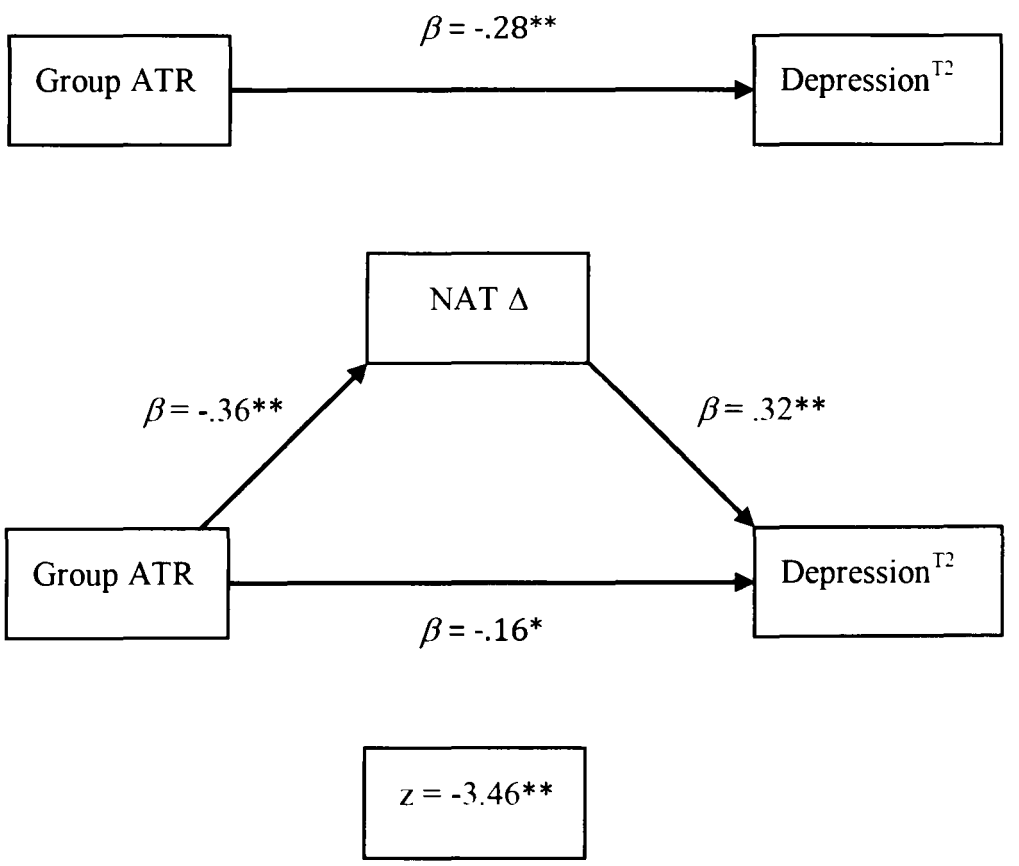
Changes in Gratitude and Depressive Symptoms Following Automatic Thought Record (ATR)



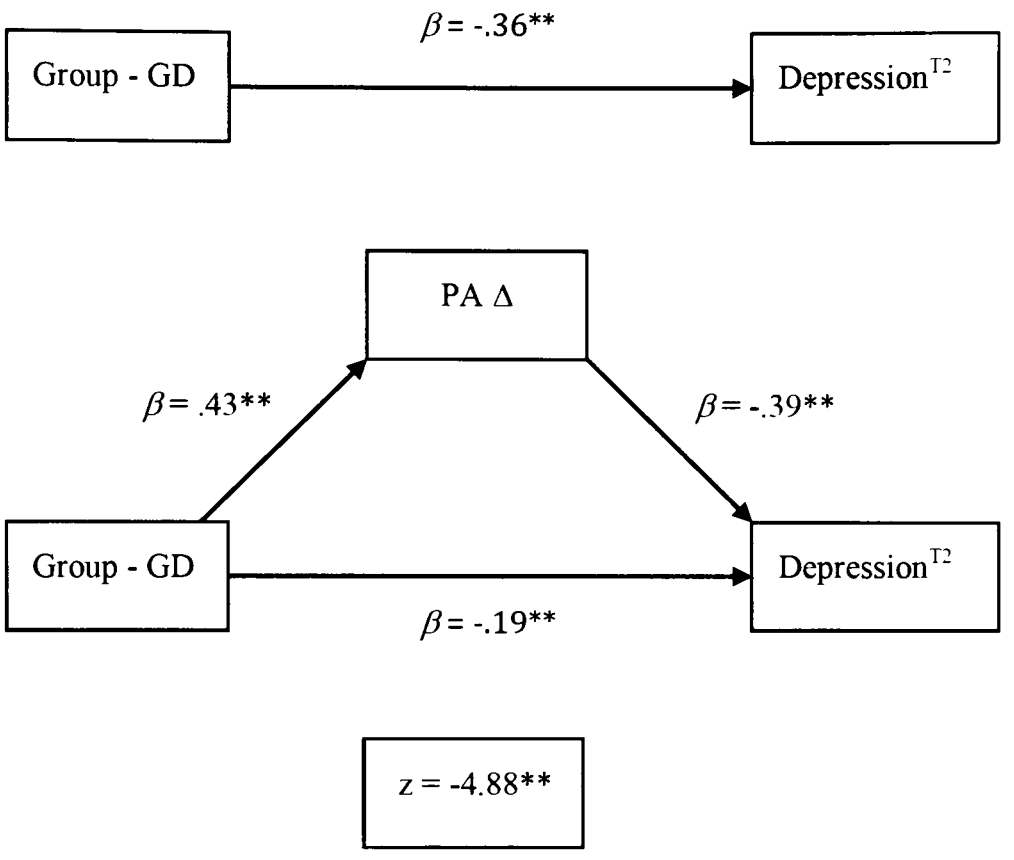
Changes in Negative Automatic Thoughts (NAT) and Depressive Symptoms Following Gratitude Diary (GD)



Changes in Negative Automatic Thoughts (NAT) and Depressive Symptoms Following Automatic Thought Record (ATR)



Changes in Positive Affect (PA) and Depressive Symptoms Following Gratitude Diary (GD)



Changes in Positive Affect (PA) and Depressive Symptoms Following Automatic Thought Record (ATR)

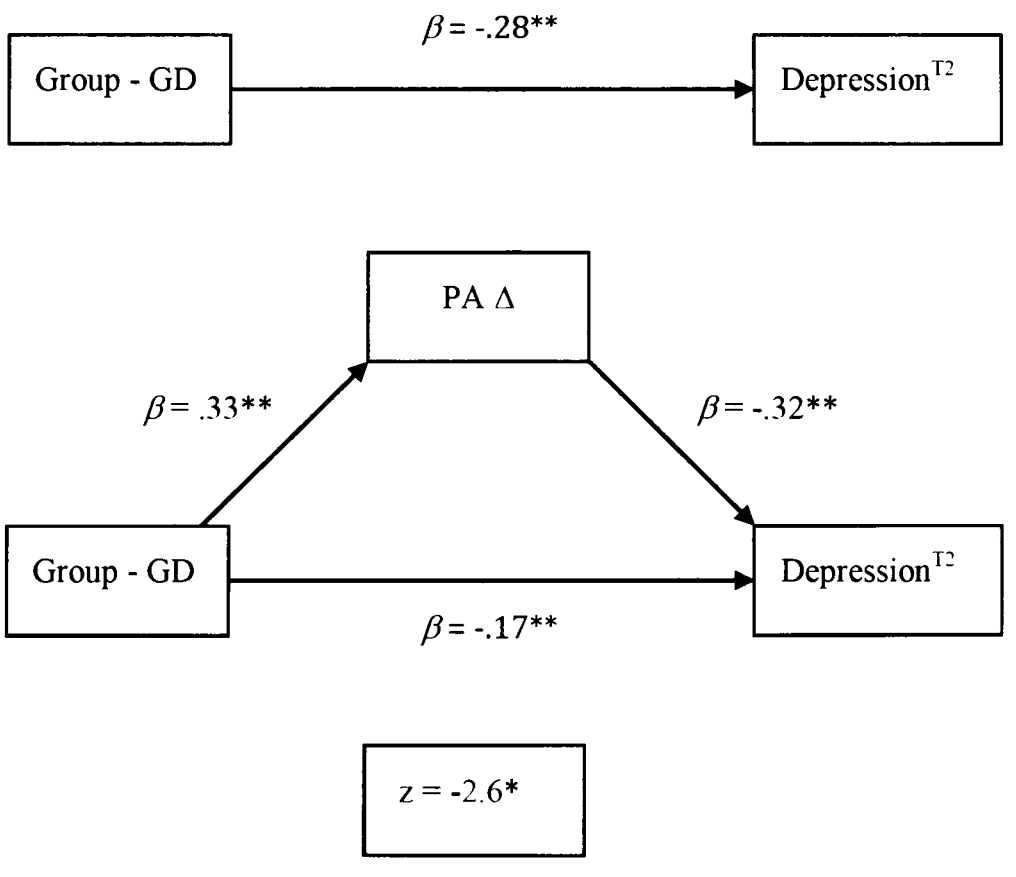


Figure 12. Mediation models for depression at time two, with time one covaried. Note. β = Standardised beta, Δ = change, z = Sobel z test, * = <.01 ** = <.001.

To investigate predictors of overall intervention outcome for those who completed the techniques, a six linear regression models were conducted with each dependent measure. The predictors used in the models were expectancy and internal locus of control. Each model also included interactions with group and additionally a group by dispositional gratitude interaction to test whether motivation concordance would predict significant variance on any of the outcome measures. Baseline scores on measure of interest were also included in each model (e.g. if PHQ-9 at time two in the dependent in the model, PHQ-9 at time one will always be added as a predictor).

Models contained only data from those that completed the treatment arms of the study; those in the control condition were excluded. Continuous variables were standardised. Model one examined predictors of outcome for PHQ-9 scores at time two. The only variable to reach trend level with regard to p value was expectancy, $\beta = -.14$, $p = .06$. None of the interaction variables predicted outcome on the PHQ-9. Model two examined predictors of outcome for ATQ scores. The only significant predictors in the model were interaction terms 'internal locus of control by group', $\beta = -.76$, $p < .001$, and 'expectancy by group', $\beta = .83$, $p < .001$. Exploratory linear regressions split by group revealed that higher expectancy only significantly predicted decreases in automatic negative thoughts in the ATR group ($\beta = -.29$, $p < .01$), not the gratitude condition ($\beta = -.01$, $p = .94$), and that internal locus of control predicted outcome in the gratitude group ($\beta = -.19$, $p < .05$) but not in the ATR group ($\beta = .13$, $p = .12$). Model three examined predictors of outcome for SWLS scores, there were no significant predictors of SWLS at time two other than SWLS at time 1. Model four examined predictors of outcome for PA scores. Expectancy significantly predicted positive affect at time two $\beta = .26$, $p < .001$, as did a motivational concordance variable consisting of an

interaction between baseline dispositional gratitude and group, $\beta = .22$, $p = .01$, such that being higher in dispositional gratitude and allocated to the gratitude condition lead to significantly greater time two affect with time one affect controlled. Model five examined predictors of outcome for NA scores. The only variable, excluding NA at time one, to near significance in this model was expectancy, $\beta = -.15$, $p = .08$. Model six examined predictors of outcome for GQ-6 scores. Expectancy was the only significant predictor of GQ-6 score at time two, with time one controlled, $\beta = .20$, $p = .004$. Overall, results from these models suggest that the predictors of outcome vary depending on measure used, however, the most consistent predictor taken at baseline was outcome expectancy.

5.4 Discussion

In this study participants volunteered to try one of two unguided self-help techniques for two weeks, gratitude diaries or automatic thought records. Overall, the gratitude diary technique retained significantly more participants than the automatic thought record exercise. Both techniques were equally effective for those completing the study. Participants in both conditions reported significantly less depression, significantly fewer negative automatic thoughts, significantly higher satisfaction with life, significantly more positive affect and significantly lower negative affect compared to those on a waitlist. Changes in gratitude, changes negative automatic thoughts and changes in positive affect partially mediated the effect of both the gratitude diary and the automatic thought records on the primary measure of depressive symptoms.

The results from the present study add to previous research showing that attrition is high in unguided internet administered interventions (Eysenbach, 2005; Christensen et al., 2006) as well as the results of study two and three in this thesis. It is

notable that attrition rates reported in the current study do not differ greatly from face-to-face therapy outside of trial settings, where attrition ranges from 30% to 60% (Wierzbicki & Perkarik, 1993). It is important to note that open access studies, with few exclusion criteria that recruit participants from the general population, are more likely to reflect the actual use of self-help techniques beyond guided fully monitored randomised controlled trials using active follow up methods (such as phone contact, see Muñoz et al., 2006). Consequently, they provide useful insight as to how self-help approaches may be used and work in the real world (Christensen et al., 2009). Observed case outcomes (not ITT) from unguided self-help studies with large dropout may be representative of a particular sample of those 'suited' to self-help – that is, individuals that have the motivation to complete the interventions without external guidance. Therefore, it may not be possible to generalise the findings following a completer analysis to all with depressive symptoms. Nonetheless, investigating outcome for those who complete unguided studies is critical in order to understand how self-help therapy works beyond experimental trials. If results are considered within the constraints of the design, analysis of those who complete unguided self-help techniques may provide key insights as to mechanisms involved in outcome change in ecologically valid contexts.

Allocation to the gratitude technique resulted in significantly greater retention than being allocated to the automatic thought record technique. This confirms the reliability of the findings in study three. A gratitude technique may be self-maintaining and in particular, more sustainable than problem focused techniques in the absence of guidance and contact. The regression models tell a more complex story with regard to *predicting* attrition. In the current study, despite showing a trend ($p = .11$), baseline expectancy was not a significant predictor of attrition and internal health locus on control was also not a significant predictor of attrition. This finding questions the

stability of these predictions in study three. The multidimensional health locus of control scale did feature in a logistical regression model that best explained the attrition data. Powerful others HLOC and chance HLOC, interacted with group and predicted dropout. Those higher in powerful other HLOC allocated to the ATR were less likely to drop out than those with higher powerful other HLOC allocated to the gratitude group. Powerful others HLOC is a subfacet of external health locus of control (Wallston, Wallston, & DeVellis, 1978). There are no obvious explanations as to these interactions with HLOC. One possibility is that the problem focused automatic thought records may be perceived as more directive than completing gratitude lists, therefore, those who believe their is health externally directed by powerful others to a greater extent, may have found a 'match' in the more specific directive technique and been less likely to dropout. Those higher in chance HLOC were more likely to complete in the gratitude group and less likely to complete in the automatic thought record group. This was a novel, unpredicted finding. It is unclear why thinking ones health is determined by chance events increases the possibility of dropout from the automatic thought record group and decreases the possibility of dropout from the gratitude group.

Compared to a waitlist, those who completed the study reported significant differences in depressive symptoms in both conditions, this was confirmed by a highly conservative intent-to-treat analysis. This suggests that, at least in the short term, fully unguided self-help can be useful. The gratitude technique was beneficial to the same degree as the automatic thought record, demonstrating that simple gratitude technique can be as effective a cognitive technique often recommended for depressive symptoms. The fairly weak findings reported by Sheldon and Lyubomirsky (2006) and Froh, Sefick, and Emmons (2008) following the use of a gratitude diary, may be a result of

their choice of student sample and attempt to increase well-being in samples presenting without levels of dysfunction.

Results of the mediation analysis suggest that following both techniques, changes in negative automatic thoughts were responsible for a large proportion of the effect of group on the primary depression measure. Importantly, changes in negative automatic thoughts were not responsible for larger amounts of variance in depressive symptoms at time two following use of ATRs, as compared to gratitude diaries. In fact, changes in negative automatic thoughts were responsible for slightly *larger* proportion of variance in time two depression following the gratitude diary relative to the ATR technique. This finding supports the conclusions of a number of reviews that have investigated the role of cognitive change in depression following cognitive therapy. Whisman (1993) and Garratt, Ingram, Rand and Sawalani (2007) found that cognitive change was an important prerequisite of improvement in depressive symptoms. Importantly, both Whisman (1993) and Garratt et al. (2007) failed to find evidence of specificity of cognitive change to cognitive therapy, when compared to other approaches to psychotherapy. All psychotherapeutic encounters are likely to lead to changes in cognitions to some degree, and Garratt et al. (2007) reported that cognitive therapy did not appear to produce substantially more cognitive change than other forms of therapy. These findings were also supported by a review conducted by Longmore and Worrell (2007). Longmore and Worrell (2007) reviewed whether logico-rational questioning of thoughts was necessary to produce cognitive change, and reductions in depression. They concluded that there was not enough evidence to support the claim that cognitive restructuring was necessary; a range of treatments produced equivalent outcomes to cognitive therapy. In addition, Longmore and Worrell (2007) also cited a number of studies where cognitive change seemingly failed to mediate changes in

depression (see Oei & Free, 1995; Burns & Spangler, 2001). Thus, with regard to reducing negative automatic thoughts, and the subsequent effect on depressive symptoms, in a self-help format, the current study showed that directly addressing negative thoughts was not more effective than orienting toward to the positive through a gratitude diary.

The gratitude diary did to lead to greater changes in gratitude compared with the automatic thought records, and subsequently, changes gratitude were responsible for a greater proportion of depression variance at time two following the gratitude diary, compared to the automatic thought records. This does suggest that gratitude diary may have had specific effect on gratitude levels, which is interesting. However, change in gratitude only mediated a relatively small proportion of the variance in depression at time two (33%) and only 15% more than the automatic thought records. Both techniques appear to have a very similar influence on change in positive affect. The results from the mediation analysis suggest that both techniques appeared to have an effect on depressive symptoms through very similar mechanisms despite having different approaches. They also appeared to have almost equivalent effects on a broad range of outcome measure ranging from negative automatic thoughts to satisfaction with life.

Different patterns of results occurred with regard to outcome prediction depending on the dependent measure that was used. Expectancy at baseline was the more consistent predictor across the outcome measures, and a strong predictor of increases in positive affect, decreases in negative affect and increases in gratitude. Initial outcome expectancies may be an important influence on the therapy process (Price, Anderson, Henrich, & Rothbaum, 2008). More research specifically on

expectancy is needed in order to explain the inconsistency, where it did occur, across measures. Motivational concordance did predict increases in positive affect, such that those higher in dispositional gratitude, allocated to gratitude diaries reported greater increases in positive affect, and this was independent from expectancy. That motivational concordance only occurred on measures of positive affect, rather than depression (PHQ-9) or automatic negative thoughts or satisfaction with life, appears to support the proposition from Hyland, Whalley and Geraghty (2007) and Hyland & Whalley (2008), that motivational concordance is an affective mechanism. Nonetheless, as motivational concordance only predicted outcome on one of the six dependent measures, this suggests that the theories application in self-help contexts is limited.

This study has some limitations. With regard to the mediation findings, the relationship between the mediators and depression cannot be assumed to be fully causal, due to the temporal positioning of the measures. To fully determine causality in mediation, the mediator should be measured in advance of the outcome. The reported results may reflect overlapping variance in the constructs of interest. Even if this were the case, the results would continue to be of theoretical interest. The reduced association between group and depression when changes in negative automatic thoughts and changes in gratitude are considered remains an important result irrespective of whether causality is clearly demonstrated. Additionally, the ATQ and the PHQ-9 (Kroenke, Spitzer, & Williams, 2001) may overlap to a lesser degree than the ATQ and, for instance, the Beck Depression Inventory (BDI) (Beck, Steer, Ball, & Ranieri, 1996). The PHQ-9 features a high degree of somatic questions (such as "feeling tired or with little energy"), therefore, the relations observed between changes in cognitive phenomena and depressive symptoms are unlikely to be entirely due to artifacts such as shared method variance.

In conclusion, this study showed that that mediators of change in depressive symptoms for the participants who completed a brief unguided self-help study are similar, despite large differences in focus and orientation of the task. Additionally, higher completion rates in the gratitude intervention demonstrate that it may be possible to achieve equivalent degrees of cognitive change and reductions in depressive symptoms using a technique that does not focus specifically on correcting symptoms, and may be more acceptable to self-help users without guidance.

Chapter 6

Gratitude as self-help for worry: Using self-regulatory variables to predict attrition

In study four, being allocated the gratitude diary resulted in significantly higher completion rates than being allocated to automatic thought records. Additionally, for those that completed the intervention, both techniques significantly reduced depressive symptoms in comparison to a waitlist. This suggests that the general findings demonstrated in study three with a sample selecting to reduce body dissatisfaction also generalised to those selecting to reduce depression. In study five the focus was placed primarily on attrition. Baseline person-based predictors of attrition used thus far in this thesis have varied. Study five attempted to identify a stronger person-based predictor of attrition by drawing on theories of motivation. A secondary aim of the study was to identify if the general findings of study three and four would replicate in a sample presenting with general anxiety, with a specific focus on worry.

6.1 Study five

In order to fully understand processes that underlie unguided self-help, it is necessary to delineate the psychological antecedents of attrition. Currently, attrition research primarily consists of post-hoc reanalysis of baseline measures following randomised controlled trials. There is a need for research with a specific focus on attrition, which is lacking in both self-help and non-self-help therapy domains (Davis & Addis, 1999; Christensen & Mackinnon, 2006). To move attrition research forward, it may be necessary to identify a theoretical framework to guide the a priori selection of

psychological predictors of attrition. In this study, self-regulatory theory was used to select potential psychological predictors of dropout from a two-week unguided, internet administered self-help trial for reducing worry. Continuing the series in the thesis, gratitude diaries were compared to a self-monitoring cognitive technique, and a waitlist control.

The unique feature of unguided self-help is that the help seeker has the sole responsibly for regulating their own therapy behavior. Self-regulatory theory may therefore provide a well-suited framework from which to study attrition from psychological interventions. Self-regulation is a broad term used to describe the regulation of behavior toward desired, or away from undesired goals (Vohs & Baumeister, 2004), and as a theoretical framework, is extensively used in the design of health behaviour interventions (Schwarzer, 1999). Although some researchers have drawn on self-regulatory concepts with regard to the design of the content of self-help interventions (Febbraro & Clum, 2008), there has been little application of self-regulatory theories to the process i.e. use, maintenance and retention in self-directed therapies.

Outcome expectancies are proposed as critical with regard to regulation and maintenance of behaviour toward goals (Carver & Scheier, 1990). Carver and Scheier (1990) suggest that behaviour occurs smoothly toward goals until difficultly or interruptions occur. At this point the individual will evaluate the likelihood the desired outcome will occur, given further effort. If there are positive expectations that the outcome will be obtained, behavior will be maintained, if there are negative expectations, then disengagement may occur. The role of specific initial outcome expectancy in the present thesis has varied with regard to the strength of the predictive

power. However, in studies three and four, expectancy predicted attrition at $p<.05$ and a trend at $p=.1$ respectively, demonstrating that it is a construct that may be relevant in examining attrition from unguided self-help. As the intervention proceeds, new experience may limit the accuracy and relation of initial outcome expectancies to dropout behavior. This may account for the variable strength of outcome expectancy currently reported. An alternative approach that may result in more reliable predictions of attrition behaviour, would be to assess personality traits that may predict expectancy across situations.

There are two trait variables closely related to expectations and self-regulation; dispositional optimism (Scheier & Carver, 1985) and dispositional hope (Snyder et al., 1991). Dispositional optimism refers to generalised positive outcome expectancies (Scheier & Carver, 1985); optimists expect the best. Those high in dispositional optimism may be less likely to disengage from their selected goals (Scheier & Carver, 1985). Although it has not been examined with specific regard to self-help attrition, dispositional optimism has been reported as unrelated to adherence (Fontaine & Shaw, 1995). Despite seeming highly theoretically relevant, in application, the relation between dispositional optimism and disengagement may be complex. Nonetheless, there is a need for dispositional optimism to be examined in relation to self-help attrition specifically.

Snyder et al.'s (1991) conceptualisation of hope is a distinctly goal related construct (Vohs & Schmeichel, 2002) that may be particularly useful in predicting attrition. Hope is defined as a cognitive set determined by the reciprocal interplay of two components, Agency: 'goal directed determination' and Pathways: 'planning ways to meet goals' (Snyder et al., 1991). Agency represents the motivational component of

hope theory, and provides the mental energy to start and maintain the use of a particular pathway through all stages of goal pursuit (Snyder, 2002). The Pathways component of hope provides a measure of an individual's ability to be flexible in the face of obstacles, and their ability to see and produce alternative routes to desired goals (Snyder, 2002). Factor analysis on the adult hope scale, developed by Snyder et al. (1991) to measure trait hope, consistently reveals a two-factor solution where the factors are correlated, suggesting that Pathways and Agency are distinct but interconnected (Bryant & Cvengros, 2004). The hope construct may be principle predictor of attrition as it is a trait measure with a distinct focus on the *process* of obtaining goals. Despite agency and pathways being considered additive and reciprocal, when applied to dropout, it is possible these two constructs could dissociate. Agency may reflect determination to meet set goals, for instance completing a self-help intervention. Pathways, seeing multiple paths to goals, could possibly be associated with more ready disengagement from self-help interventions, in order to pursue alternative pathways.

Additional variables that may predict attrition and/or serve as important covariates based on a self-regulatory framework are self-control (Tangney, Baumeister, & Boone, 2004) and depression. Self-control is seen by some as tantamount to self-regulation, and refers to the ability to override or change inner responses as well as interrupt undesired behavioral tendencies (Vohs & Schmeichel, 2002; Tangney et al., 2004). Self-control may be useful in maintaining effortful behavior required by interventions. Depression has been characterised by some as a disorder *of* self-regulation (Jones, Papadakis, Hogan, & Strauman, 2009), and has been shown to predict attrition from health interventions (Clark, Niaura, King, & Pera, 1996). All above variables may be implicated to some degree with the motivation to continue with a psychological intervention.

The symptoms focus in this study was worry. Excessive worry characterizes general anxiety disorder and has been associated with low quality of life, poor perceived health, greater unexplained medical symptoms such as chest pain and Irritable Bowel Syndrome (IBS) and overuse of health care systems (Roy-Byrne, 1996). Despite prevalence in society, quality of life reductions and medical implications, there have been very few studies of self-help specifically targeting worry (Hirai & Clum, 2008). Self-help material available for worry primarily suggests self-monitoring, and problem solving as useful self-help strategies (White, 1999). Therefore, in this study traditional automatic thought records were adapted to create a technique were self-monitoring was the dominant component, based on a technique suggested by Meares and Freeston (2008). Despite challenging thoughts being suggested as effective for worry by Ost and Breitholtz, (2000), Meares and Freeston (2008) explicitly state that challenging thoughts will not be effective in reducing worry because "worry is a chain of thoughts that shift and change, once one is challenged another will take its place" (p.73). There is an almost complete absence of dismantling studies in a self-help domain, so it is not clear whether one technique is more effective than another. In order to have a symptom specific problem-focused technique to compare to a gratitude diary in this study, the technique offered to participants focused primary on self-monitoring, and suggested challenging and problem solving as a secondary tool. By contrast, a gratitude diary may also be useful for reducing worry. Focusing on gratitude encourages positive interpretive biases in thinking (Wood, Maltby, Stewart, Linley, & Joseph, 2008). This may act to reduce negative appraisals that maintain worry and rumination (Watkins, 2003).

This study investigated the role self-regulatory constructs including trait hope (Agency and Pathways), dispositional optimism, self-control and depression as

predictors of attrition from a two-week worry intervention. Waitlist conditions were used to observe whether the techniques had a beneficial effect on worry symptoms in participants who completed the study. It was hypothesised that trait hope would predict attrition, in particular, Agency may positively predict retention, whereas Pathways may predict increased attrition. Other self-regulatory variables included, such as dispositional optimism and self-control, may also predict retention. It was also hypothesised that the allocated technique would be significantly related to attrition, such that allocation to the gratitude condition may increase probability of completion. On the basis of the preceding research in this thesis, and the contextual model of psychotherapy (Wampold, 2007), it was hypothesised that both techniques would be equally effective for those who complete the study.

6.2 Method

Participants

A press release was sent out to local newspapers in the South West of England, as well as national magazines offering the chance to try self-help techniques for reducing worry, free of charge. Two hundred and forty seven participants, including 213 females and 34 males volunteered to take part in the study via the internet. The age of participants ranged from 18-72 with a mean of 37, with 43.3% of participants aged between 18-31, 40.4% from 31-50, and 15.8% from 51-72. The majority of the sample classed themselves as 'White British' (227), however, other classifications included 'Irish' (2), 'any other white background' (4), 'White and Black Caribbean'(1), 'White and Asian' (2), 'any other Asian background' (1), Caribbean (5), African (1), Chinese (1) 'any other' (3) and four participants chose not to answer. The study was an open access study of spontaneous web users. This method of recruitment was chosen to give

the study the closest approximation to self-help take up and use in real world interventions. Participants with self-reported symptoms of anxiety and worry signed up to take part with the limitation that they had to be over the age of 18 and not currently undergoing treatment for a psychological disorder to be eligible. Participants were recruited into the study from December 2008 until April 2009. Participants were offered no incentives to complete the study other than the potential of therapeutic benefit.

Procedure

Participants visited the study website where they were required to read information about what would be expected from them if they chose to take part. Participants were informed that that could take part only if they were over 18, not currently being treated for a psychological condition and had not taken part in the any of the previous studies. Participants gave consent, and proceeded to complete all baseline questionnaire measures. Baseline measures were not randomised and were completed in the following order: Demographics (including age, gender and ethnicity), PSWQ-PW, GAD-7, AHS, GQ-6, LOT-R, SCS and Expectancy. After baseline questionnaires participants were randomised to one of two technique conditions or a waitlist condition in accordance with an automated computer generated random number set (see Figure 13). Participants in the technique conditions then read a description of the technique they were to receive, and how it would help reduce worry. After reading the description, participants rated the extent to which they expected the technique to help reduce their worrying. They were then able to download a workbook containing worksheets for each day of the 14-day intervention period. Workbooks were brief, with around four pages information and then 14 daily worksheets. Participants were sent an email every other day with a link allowed them to return to a web system where they recorded how much

time they had spent on their workbook, and after the first day, how difficult they found their allocated technique. After 14 days they were sent an automatic email with a link back to the study web system. They were then required to complete symptom related outcome measures. Those in the waitlist condition were informed that they would be able to start the intervention after two weeks. When participants in the waitlist had completed the two-week wait period and completed measures, they were given the chance to take part in the study as those did in the techniques conditions.

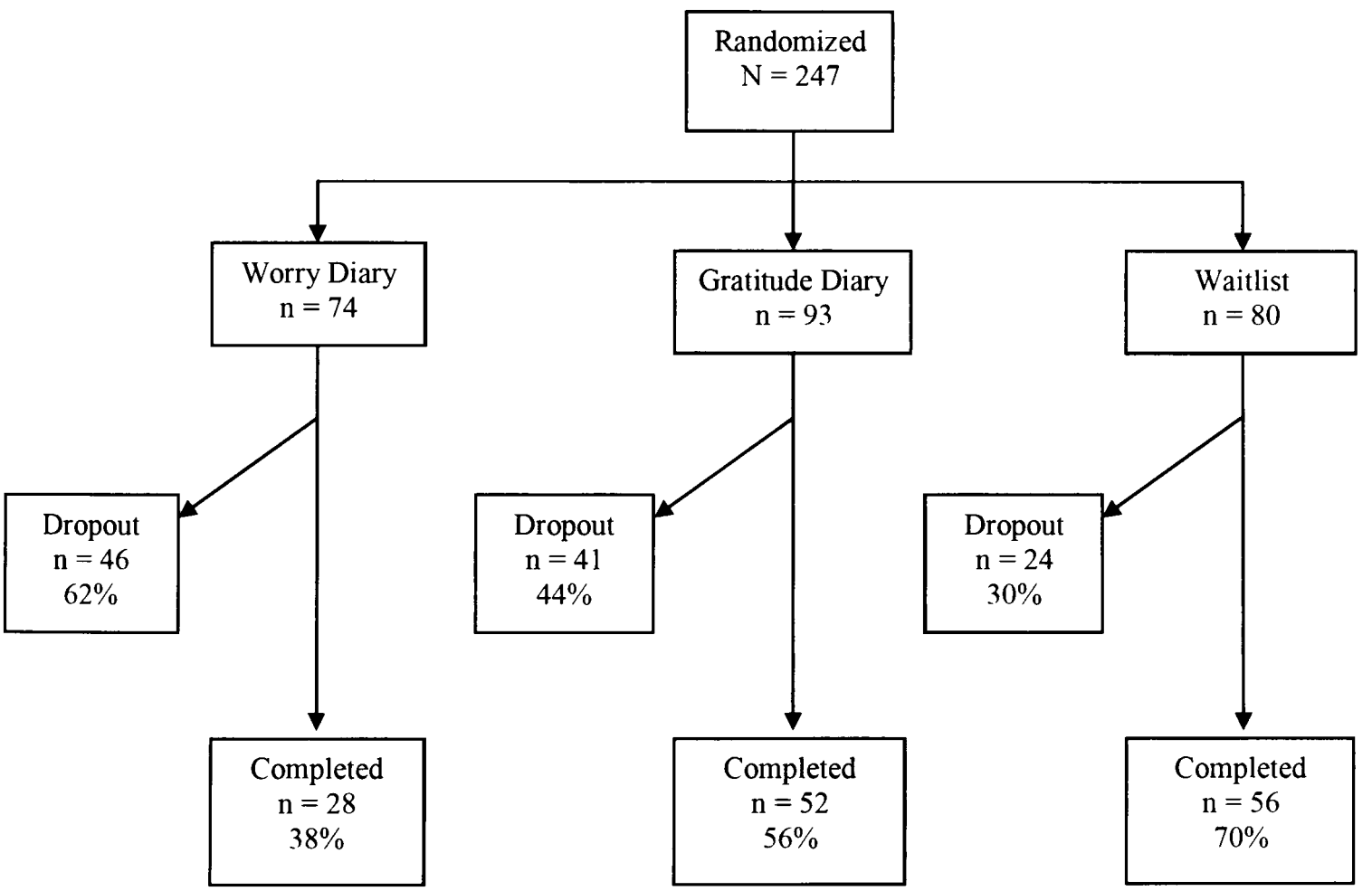


Figure 13. Diagram showing participant flow through the study.

Measures

Attrition

Attrition was defined as non-completion of post-intervention measures. All participants completed baseline measures in full, and were randomised to either intervention conditions or waitlist controls. Only participants who provided both pre and post intervention measures where classed as completers.

Worry and anxiety

Worry was measured using the Penn State Worry Questionnaire – Past Week (PSWQ-PW; Stober & Bittencourt, 1998). The PSWQ-PW is a modification of the Penn State Worry Questionnaire (Meyer, Miller, Metzger, & Borkovec, 1990) designed to be able to detect changes in worry symptoms over relatively short periods of time. The PSWQ-PW contains 15 items. Example items include "I was always worrying about something", "As soon as I had finished one task I started to worry about everything else I had to do" and "I didn't tend to worry about things". Participants were asked to respond regarding how they had been feeling over the past week, using a seven-point likert scale with zero as "never" and six as "almost always". The scale has good internal consistency $\alpha = .91$ (Stober & Bittencourt, 1998).

Symptoms of anxiety were measured using the brief Generalized Anxiety Disorder Scale (GAD-7; Spitzer, Kroenke, Williams, & Lowe, 2006). The GAD-7 is a scale designed to measure anxiety with items based directly symptom criteria for generalized anxiety disorder from the *Diagnostic and Statistical Manual of Mental disorders, Forth Edition* (DSM-IV). The GAD-7 features seven items. Participants are asked to rate how often have they had been bothered by seven problems including "Not

being able to stop or control worrying", "Trouble relaxing" and "Worrying too much about different things". Participants respond using a four-point likert scale with zero representing "never" and three, "nearly all the days". The scale has high internal consistency, $\alpha = 92$, good test-retest reliability $r = .83$ and convergent validity with the Beck Anxiety Inventory, $r = .72$ (Spitzer et al., 2006).

Depression

The Patient Health Questionnaire - Nine (PHQ-9) is a nine-item depression measure designed by Kroenke, Spitzer and Williams (2001) to detect and assess the severity of depression, based on the DSM IV diagnosis. Participants are asked how often they have been bothered by nine problems. Examples items include "Little interest or pleasure in doing things" and "Feeling bad about yourself - or that you are a failure or have let yourself or your family down". Participants rate their scores on a four-point scale from zero "not at all" to three "nearly everyday". The scale has strong internal consistency ratings ranging from $\alpha = .86$ to .89, and a test-retest correlation after 48 hours of $r = .84$ (Kroenke et al., 2001). The PHQ-9 correlates with the Beck Depression Inventory II, $r = .84$ (Dum, Pickren, Sobell, & Sobell, 2008).

Hope

Hope was measured using the Adult Hope Scale (AHS; Snyder et al., 1991). The AHS comprises 12 items; four agency items, four pathways items and four filler items. Participants are asked to rate how much each statement describes them. Examples of agency items include "I energetically pursue my goals" and "I meet the goals that I set for myself". Examples of pathways items include "I can think of many ways to get out of a jam" and " I can think of many ways to get the things in life that are important to

me". Participants use a four point likert scale with one representing "definitely false" and four "definitely true". Internal consistency has been reported as ranging from α = .74 to .78 and a test-retest correlation over a 10 week period of r =.82 (Snyder et al., 1991).

Dispositional Optimism

Dispositional optimism was measured using the Life Orientation Test – Revised (LOT-R; Scheier, Carver, & Bridges, 1994). The LOT-R is a ten item scale, with six items measuring optimism-pessimism and four filler items. Participants are asked to rate the extent to which they agree or disagree with statements such as "In uncertain times, I usually expect the best" and "If something can go wrong for me, it will" using a five point likert scales with zero as strongly disagree and four as strongly agree. Higher scores reflect greater optimism in the current paper. Internal consistency is reported as α =.78, and a test-retest correlation at four months is reported as r = .68 (Scheier et al., 1994).

Expectancy

A single-item scale measured expectancy. The participants were asked, after reading the technique description, to rate the extent to which they expected the workbook technique to lessen their worrying and anxiety. Participants were asked to "select the number that best reflects your opinion" on an 8-point scale with end points labeled "I think it very unlikely it will help me" (one) and "Yes, I definitely expect it will help" (eight).

Self-Control

Self-Control was measured using the brief version of the Self-Control Scale (SCS; Tangney et al., 2004). The brief SCS is a 13-item measure in which participants respond to how much they typically are like the statements. Items include "I am good at resisting temptation" and "I refuse things that are bad for me" Participants respond on a 5-point scale with one as "not at all" and five as "very much". Tangney et al. (2004) report that the scale has high internal consistency $\alpha = .85$ and test-retest correlation over a three week period of $r = .87$.

Adherence and Difficulty

Adherence was measured using an email sent to participants every other day over the duration of the study. Participants were required to use the email to connect to the study web system and indicate on a single item scale how much time they had spent on their workbook the previous days. The scale ranged from 1 to 6, with 1 indicating no time, 2 indicating 0-5 minutes, 3 indicating 5-10 minutes, 4 indicating 10-15 minutes, 5 indicating 15-20 minutes and 6 indicating over 20 minutes. After the first day with the workbooks, in the same adherence email, participants were asked to rate how difficult they found completing their allocated technique on a seven point scale with one representing "very difficult" and seven, "very easy".

Techniques

Gratitude Diary

The gratitude diary workbook provided participants with an explanation of worry suggesting that it was necessary psychological function, however, excessive worrying could be problematic and limiting. The workbooks described how gratitude, and in particular counting blessings, could be used to reduce worry. Gratitude was

described as technique that could be useful to help reduce worrying by broadening attention to all that is good in ones life. Participants were asked to complete a gratitude diary, lists of up to six things for which they felt grateful for, every day for 14 days. Gratitude diaries, or gratitude lists have been shown by Emmons and McCullough (2003) to significantly improve well-being.

Worry Diary

The worry diary workbook provided the same explanation for worry as the gratitude workbook. The workbook described that is was important to become aware of worries, and the worry diary could be used to do this. Participants were to complete a self-monitoring technique, recording their worries once a day in their diary and attempting to identify which worries were real, objective and which were hypothetical and based on imagined future events. Challenging unhelpful worries was described as useful and workbooks provided examples how to do this; thinking of evidence for and against a worry, and then providing an alternative thought that was more neutral and balanced. Participants were also informed that planning how to address a particular worry may also be useful. Space was provided, and participants were required to practice challenging worries each day. In this respect the worry diary featured a technique with monitoring, restructuring and problem solving components, very common features in cognitive self-directed material for anxiety and worry (see Kennerly, 1997; Meares & Freeston, 2008).

Waitlist

Those on the waitlist completed all baseline measures, were informed which technique they had been allocated, either gratitude diary or worry diary, and informed

that they would be contacted in two weeks time. After two weeks participants completed outcome measures, and were given the chance the complete the workbooks.

6.3 Results

The sample reported baseline GAD-7 scores with a mean of 13.83 (*SD* = 4.49), suggesting moderate levels of anxiety and worry using GAD-7 screening classifications. The sample also reported depression scores with a mean of 12.33 (*SD* = 6.19). This suggests moderate depression using the Patient Health Questionnaire-Nine screening classifications (Kroenke et al., 2001), reflecting high levels of co-morbidity. The majority of the participants reporting some levels of depression along with anxiety.

A pearson's correlation matrix was used to examine the relationship between the baseline self-regulatory measures that may be predictive of attrition, including agency (hope) pathways (hope), dispositional optimism, expectancy, self-control and depression (see Table 5.1). Both hope constructs, agency and pathways, optimism and expectancy were positively correlated, and negatively correlated with depression. Self-control was negatively correlated with the hope constructs, optimism and expectancy, and positively correlated with depression.

Table 5.1

Pearson's correlations between all self-regulatory measures, n = 247.

Variable	1	2	3	4	5
1. Hope Agency	-				
2. Hope Pathways	.70**	-			
3.Optimism	.45**	.39**	-		
4.Expectancy	.17**	.15**	.10	-	
5.Self-Control	-.33**	-.25**	-.28**	-.06	-
6.Depression	-37**	-.29**	-.38**	-.12	.32**

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

Attrition

Of the 247 participants who began the study, 111 dropped out. From the 167 participants allocated to the technique conditions, 87 dropped out. Eighty participants were allocated to the waitlist condition of which 24 dropped out of the study (see Figure 9). This 44% dropout rate compares favorably to other unguided self-help studies reporting dropout rates of up to 79% (Wierzbicki & Perkarik, 1993; Christensen, Griffiths, Mackinnon, & Brittliffe, 2006).

Initially, whether difficulty predicted attrition from the technique conditions was examined. From the 167 participants who were allocated to a technique condition, 107 provided data rating technique difficulty. A logistic regression was conducted with dropout as the dependent variable (dropout = 0, completion = 1) and difficulty, along

with a difficulty by group interaction, as predictors. Difficulty, a continuous variable, was standardized. Difficulty did not significantly predict dropout (Wald(1) = .69, p = .41, Exp(B) = .83, CI = .54 - 1.28) and neither did an interaction - difficulty by group (Wald(1) = .64, p = .42, Exp(B) = .90, CI = .69 - 1.16), suggesting that in those providing data, perceived technique difficulty was not significantly related to dropout.

A hierarchical logistic regression model was used to identify predictors of attrition including all 167 participants in the technique conditions (see Table 5.2). A simultaneous enter method was used in order to covary for the closely related self-regulatory constructs. As well as hope and self-regulatory covariates, age and gender and baseline symptoms severity (anxiety) were entered into the model, as all have been implicated as predictors of attrition in previous research (Davis & Addis, 1999; Wangberg, Bergmo, & Johnsen, 2008). Variables were entered in blocks, and all continuous variables were standardised. Gender and age were entered into Block 1, symptom severity (anxiety) and depression were entered into Block 2 and optimism, expectancy and self-control were entered simultaneously in Block 3. Each block of covariates failed to significantly predict attrition. Demographics, psychological symptoms and motivational variables optimism, expectancy and self-control were not useful in predicting attrition. Group was entered in Block 4 in order to test whether allocated technique would significantly predict dropout. Group significantly predicted dropout. Participants allocated to the gratitude diary were 2.24 times as likely to complete the study than those allocated to the worry diary. Finally, the hope constructs agency and pathways were entered in Block 5. Hope significantly predicted attrition; being a standard deviation higher on agency made people 2.15 times more likely to complete, whereas being a standard deviation higher on pathways made people 2.12 times more likely to drop out. From all the potential predictors of attrition, trait hope

and allocated technique were the strongest predictors of dropout an unguided self-help intervention.

To test for any significant interactions between predictor variables, allocated technique (worry diary/gratitude diary), symptom severity and attrition, two further logistic regression analyses were conducted. Variables were entered in blocks. Block one contained all variables as in the primary model with attrition as the dependant variable (see Table 5.2) block two contained these same variables entered in interaction with allocated technique (group). None of the interaction terms were significant (Chi squared for interaction block, $\chi^2(9) = 5.10, p = .75$) showing that technique did not interact with predictors to explain dropout. In the second logistic regression, the first block again contained all variables as in model one (see Table 5.2), block two contained the same variables in interaction with baseline Generalized Anxiety Disorder Scale scores. None of the interactions were significant (Chi squared for interaction block, $\chi^2(9) = 7.64, p = .57$) showing that symptom severity did not interact with any of the predictor variables. Thus, all significant predictions were independent from allocated technique and symptom severity.

Table 5.2

Logistic regression model of all relevant predictors with attrition as dependent variable (dropout = 0 complete = 1), n = 167.

Variable		Wald (df = 1)	Exp(B)	CI (95%)
Block 1 -	Age_1	1.31	1.01	.99-1.04
	$Gender_2$	.07	.88	.31-2.42
Block 2 -	$Anxiety/Worry_1$ (GAD-7)	.17	.92	.60-1.39
	$Depression_1$	.10	.93	.61-1.44
Block 3 -	$Expectancy_1$	.22	1.01	.77-1.54
	$Optimism_1$	.60	1.16	79-1.70
	$Self\text{-}Control_1$	.30	.90	.62-1.31
Block 4 -	$Group_3$	5.52	2.24*	1.14 - 4.37
Block 5 -	$Hope - Agency_1$	8.13	2.15**	1.27-3.64
	$Hope - Pathways_1$	8.92	.47**	.29-.77

Note: Block 1, $\chi^2 = .30$, $df = 2$, $p = .86$, Cox & Snell $r^2 = .002$,

Block 2, $\chi^2 = 1.14$, $df = 2$, $p = .57$, Cox & Snell $r^2 = .01$,

Block 3, $\chi^2 = .33$, $df = 2$, $p = .95$, Cox & Snell $r^2 = .01$,

Block 4, $\chi^2 = 5.88$, $df = 1$, $p = .02$, Cox & Snell $r^2 = .05$,

Block 5, $\chi^2 = 11.37$, $df = 2$, $p = .003$, Cox & Snell $r^2 = .11$,

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

$_1$ = Standardized variable.

$_2$ = Male = 1, Female = 2

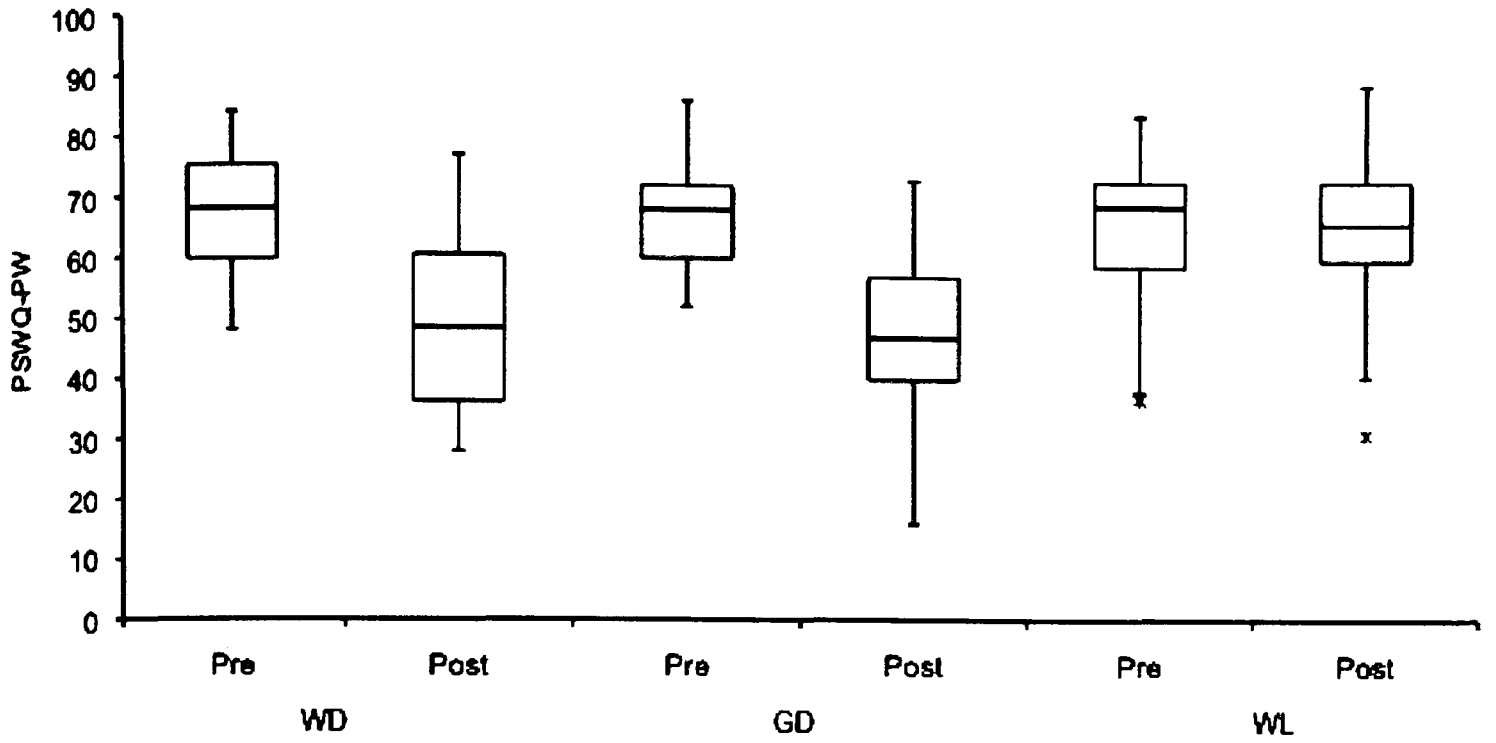
$_3$ = Worry diary = 1, Gratitude diary = 2

Outcome

For those who completed the study, adherence measures showed that the mean number of logins to the web system was 5.72 (SD = 1.75), the modal number of logins for completers was seven from a possible seven, suggesting high adherence for those completing the study. There were no significant differences in number of logins across the study fortnight for both groups, gratitude diary (M = 5.55, SD = 1.17), worry diary (M = 6.04, SD = 1.66) $t(78) = 1.35$, $p = .18$ (effect size, Cohen's $d = .34$), and participants reported spending equal amounts of time on the workbooks, gratitude diary (M = 2.72, SD = .71) worry diary (M = 2.69, SD = .84), $t(77) = -.16$, $p = .87$ (effect size, Cohen's $d = .04$), indicating that participants in both groups reported spending, on average, around 5-10 and 10-15 minutes on the worksheets. There were no significant relationships between number of logins and time reported as spent on the worksheets and outcome on any of the measures.

A multivariate analysis of covariance (MANCOVA) was used to test for significant differences between the three groups (gratitude diary, worry diary and waitlist) for participants who completed worry/anxiety outcome measures with time one measures used as covariates. The MANCOVA showed significant differences between the groups on all measures, PSWQ-PQ, $F(2,126) = 41.07$, $p < .001$; GAD-7 $F(2,126) = 21.98$, $p < .001$, and smaller but significant differences on depression as measured by the PHQ-9, $F(2,126) = 8.83$, $p < .001$. A further ITT MANCOVA was used to confirm the findings of the completer analysis revealing significant differences between the groups on all measures PSWQ-PQ, $F(2,240) = 16.08$, $p < .001$; GAD-7 $F(2,240) = 8.08$, $p < .001$, and smaller but significant differences on depression as measured by the PHQ-9, $F(2,240) = 6.38$, $p < .001$.

Post-hoc tests were used to examine the differences identified by the multivariate analysis of covariance, using univariate analysis of covariance (ANCOVA) with time one measures as covariates, using both completer and ITT strategies. F-tests and significance levels can be seen in Table 5.3. For those who completed the study, being allocated a workbook lead to large significant decreases in worry on both the Penn State Worry Questionnaire – Past Week and the Brief Generalized Anxiety Disorder Scale compared to a waitlist. Both techniques, gratitude diary and worry diary, were equally effective in reducing worry. The effects of the workbooks were smaller on reported depression, with the gratitude diary producing larger reductions in depression than the worry diary. Completer and ITT pre and post means and effect sizes for all intervention conditions can be seen in Table 5.4. Figure 14 shows box plots for all pre post measures. Figures 15 and 16 show charts of pre and post means for the two primary outcome measures for those who completed the study.


PSWQ-PW
100
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70
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Pre
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Pre
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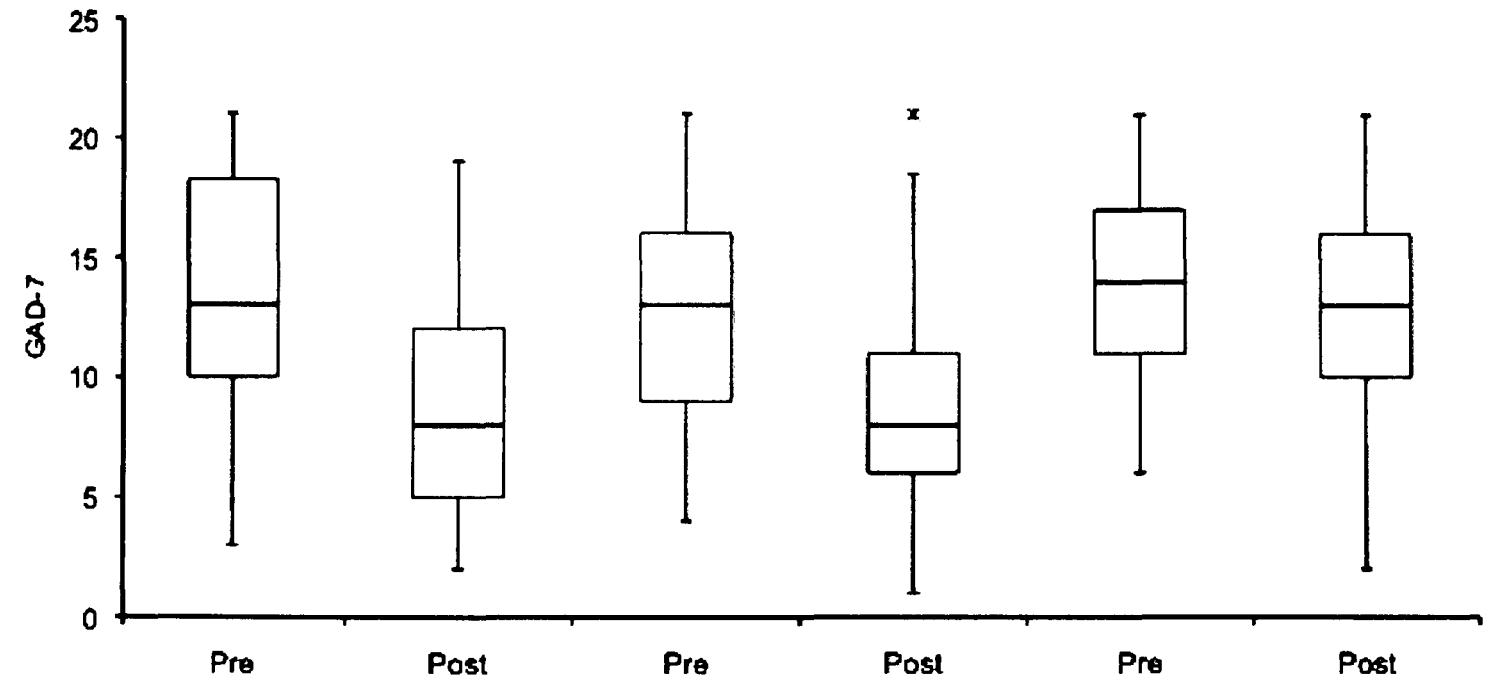
GD
WL


GAD-7
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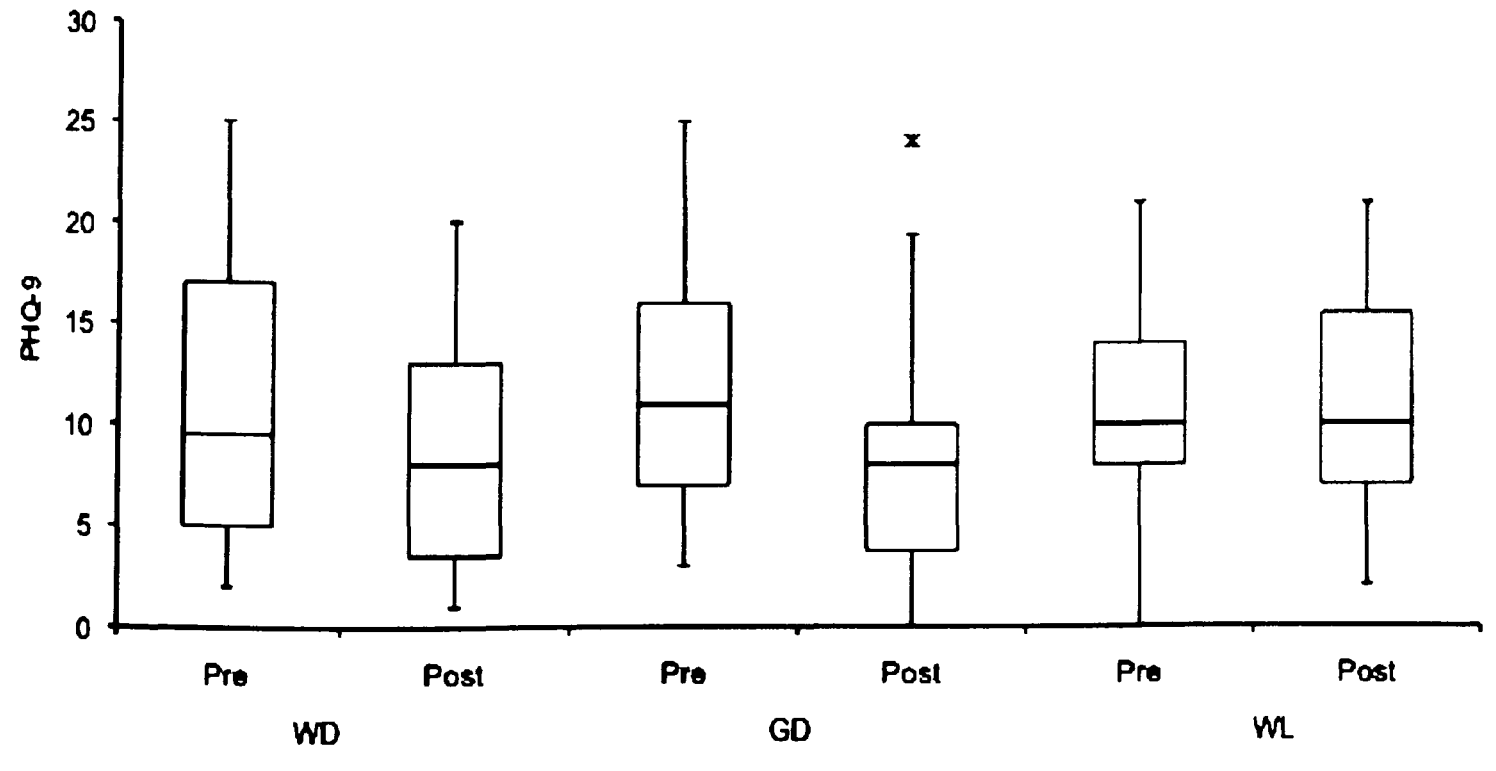
PHQ-9
30
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Pre
Post
Pre
Post
WD
GD
WL

Figure 14. *Box plots for all pre-post measures. GD = Gratitude Diary (n = 51), WD = Worry Diary (n = 28), WL = Wait List (n = 56), PSWQ-PW = Penn State Worry Questionnaire – Past Week, GAD-7 = Brief Generalized Anxiety Disorder Scale, PHQ-9 = Patient Health Questionnaire – Nine*

Table 5.3

F-tests including degrees of freedom and p-values for all post-hoc ANCOVAs.

	Observed Case		*Intent To Treat*	
Comparison	*F*(df)	*p*	*F*(df)	*P*
PSWQ-PW				
GD vs WL	75.36 (1,105)	<.001	35.61 (1,170)	<.001
WD vs WL	58.66 (1,81)	<.001	15.59 (1,151)	<.001
GD vs WD	.20 (1,77)	.66	3.88 (1,164)	.05
GAD-7				
GD vs WL	29.07 (1,105)	<.001	15.24 (1,170)	<.001
WD vs WL	34.40 (1,81)	<.001	8.47 (1,151)	.004
GD vs WD	.37 (1,77)	.54	.94 (1,164)	.34
PHQ-9				
GD vs WL	17.12 (1,105)	<.001	9.94 (1,170)	.002
WD vs WL	4.81 (1,81)	.03	1.38 (1,151)	.24
GD vs WD	2.69 (1,77)	.11	5.89 (1,64)	.04

Note. GD = Gratitude Diary, WD = Worry Diary, WL = Wait List, PSWQ-PW = Penn State Worry Questionnaire – Past Week, GAD-7 = Brief Generalized Anxiety Disorder Scale, PHQ-9 = Patient Health Questionnaire – Nine.

Table 5.4

Means, standard deviations and effect sizes (Cohen's d) for outcome measures pre and post intervention techniques.

		Observed Case			*Intent to Treat*		
Measure	Group	Pre	Post	*d*	Pre	Post	*d*
PSWQ-PW	GD	66.35 (9.96)	46.66 (13.46)	1.7	65.55 (10.92)	54.79 (15.63)	.80
	WD	66.88 (10.79)	48.81 (14.61)	1.4	66.43 (12.23)	59.54 (15.97)	.48
	WL	67.14 (11.73)	66.00 (11.41)	1.0	67.41 (11.37)	66.43 (11.22)	.09
GAD-7	GD	13.15 (4.78)	8.96 (4.79)	.95	13.46 (4.42)	11.1 (5.06)	.50
	WD	13.33 (4.83)	8.55 (4.37)	1.0	13.86 (4.96)	11.98 (5.45)	.36
	WL	14.01 (4.14)	13.25 (4.64)	.17	14.24 (4.14)	13.69 (4.56)	.13
PHQ-9	GD	12.47 (6.44)	7.94 (5.82)	.78	12.83 (6.28)	10.35 (6.5)	.39
	WD	11.14 (6.9)	8.81 (5.69)	.37	11.59 (6.28)	10.74 (6.01)	.14
	WL	11.68 (6.22)	11.01 (5.62)	.11	12.44 (6.06)	11.98 (5.72)	.08

Note. GD = Gratitude Diary, WD = Worry Diary, WL = Wait List, PSWQ-PS = Penn State Worry Questionnaire – Past Week, GAD-7 = Brief Generalized Anxiety Disorder Scale, PHQ-9 = Patient Health Questionnaire – Nine.

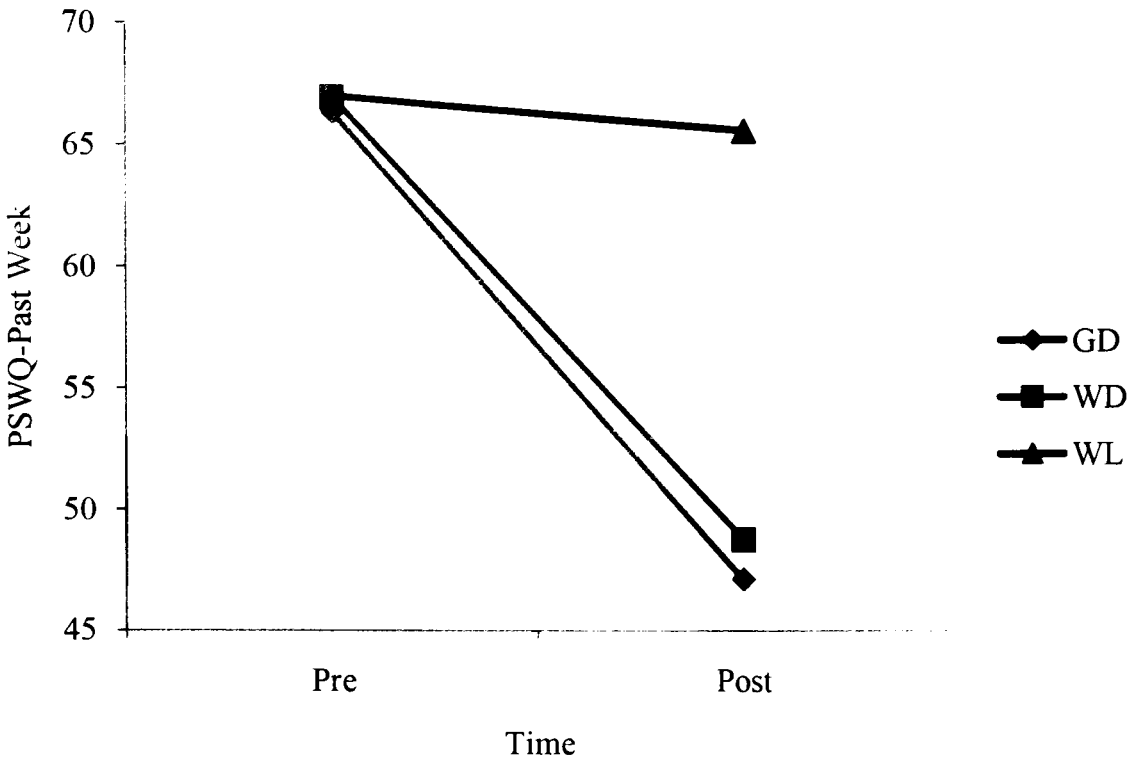

Figure 15. Chart representing Penn State Worry Questionnaire - Past Week mean score pre and post intervention. Note: GD = Gratitude Diary, WD = Worry Diary, WL = Wait List.

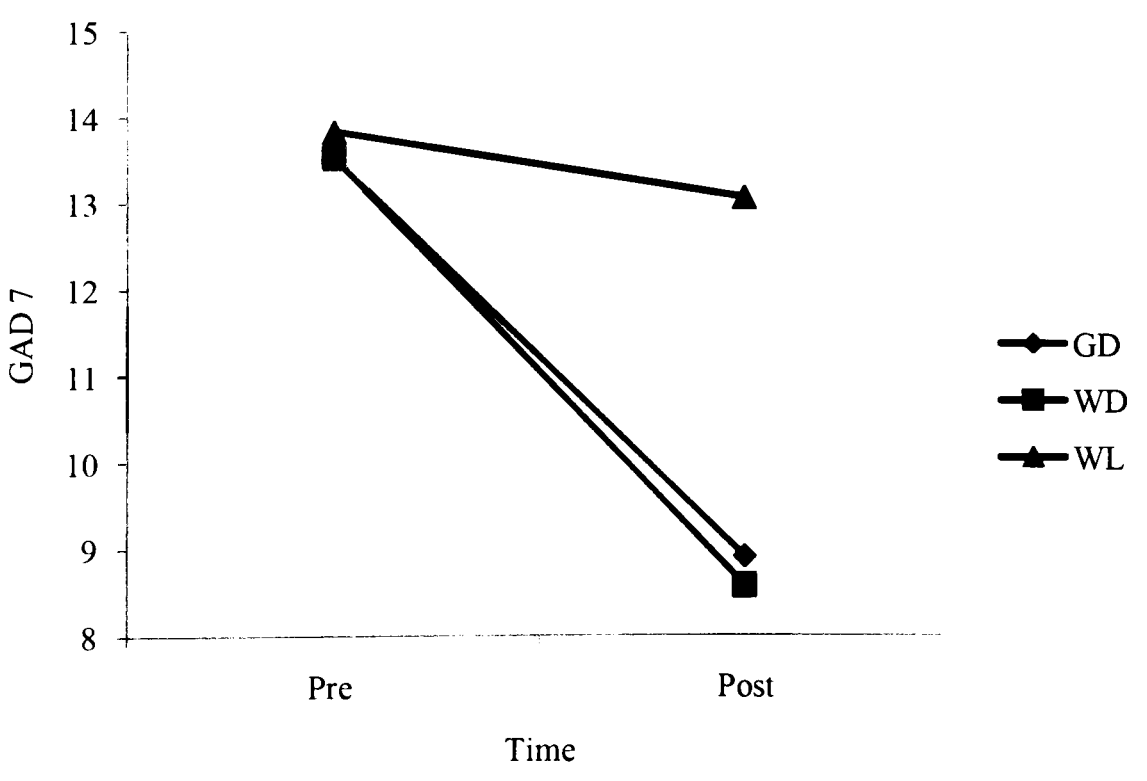

Figure 16. Chart representing brief Generalised Anxiety Scale mean score pre and post intervention. Note: GD = Gratitude Diary, WD = Worry Diary, WL = Wait List.

Linear multiple regression models were used to identify predictors of outcome for both treatment conditions. The first model included all those variables used in the logistical regression models, with a dependent variable as PSWQ-PW at time two. PSWQ-PW at time one was entered, along with group, age, sex, depression, optimism, expectancy, agency (hope), pathways (hope) self-control, and an interaction terms with group by, optimism, expectancy, both hope measures and dispositional gratitude (to investigate motivational concordance). None of the variables or interactions significantly predicted PSWQ-PW at time two, expectancy was the variable that came nearest to reaching significance, $\beta = -.20, p = .08$. The same model was repeated for GAD-7 at time two, with GAD-7 at time one entered as in the model, the results were largely equivalent. None of the variables or interactions were significant, again expectancy was the only baseline variable to near significance, $\beta = -.18, p = .08$. This demonstrates that of all the variables entered into the model, expectancy may be the best predictor of outcome, however, ability to predict outcome from the variables selected was limited.

6.4 Discussion

This study examined the relationship between self-regulatory psychological variables, technique variables and attrition following a brief unguided self-help intervention for worry. Trait hope significantly predicted attrition. Agency significantly predicted retention, Pathways significantly predicted attrition when controlling for optimism, outcome expectancy, self-control and depression. Allocation to the gratitude technique lead to significantly increased likelihood of completion, those in the gratitude group being over twice as likely to complete the study than those in the self-monitoring group. For participants who completed the study, both techniques lead to significant

decreases in reported worrying compared to a waitlist control. Both techniques were equally effective in reducing worry.

Snyder's et al. (1991) conceptualisation of hope has received less attention in applied health research than dispositional optimism and expectancy. In this study, the hope constructs, Agency and Pathways significantly predicted a behaviour notoriously difficult to predetermine - attrition. This is an important finding for three reasons. Firstly, this study is believed to be the first that shows that hope is psychological construct that can be used to predict attrition in applied contexts. Secondly, the study showed show that pathways and agency components may not always be additive, and can significantly predict different behaviors. Thirdly, hope; pathways and agency, significantly predicted attrition with all potential attrition-related psychological variables controlled. Hope is a distinct predictor of attrition and not simply a substitute for measures with which it is correlated, such as optimism, expectancy or depression.

The hope constructs dissociated and predicted directly opposite health related behaviors; Agency predicted retention, and Pathways predicted attrition. This suggests that predictions based on hope theory and its subcomponents may vary substantially depending on the behavior or concept of interest. For instance, research showing that Pathways and Agency are additive, resulted from a cross-sectional study evaluating trait hope and well-being (Magaletta & Oliver, 1999). The current results suggest that Agency may be important in sustaining intervention behavior; designing unguided interventions with components or modules that increase agency may reduce disengagement. Despite Pathways being associated with dropout, this does not necessarily make it a negative attribute. Being high in pathways may have reflected

more ready disengagement from self-help techniques, in order to find alternative routes to help more suited to the particular individual's needs.

To move toward a more full understanding of unguided self-help therapy, psychological factors that precede dropout should be mapped. The present study goes some way in beginning this endeavor. This study is not comprehensive, and other measures likely to be related to attrition, such as self-efficacy, should be studied following the development of self-efficacy scales that specifically measure self-help behaviour. The lack of significance in the other psychological variables is interesting. Optimism and expectancy have been inconsistent in predicting adherence and attrition in previous studies (Dew & Bickman, 2005). Future research should attempt to measure goal priority in self-help therapy. Geers, Wellman and Lassiter (2009) have recently shown that optimism only predicted goal pursuit for high priority goals. Self-control may become a more important predictor as the complexity of the intervention increases, with multiple components over longer periods of time. Baseline depression did not predict attrition, conversely to previous research (Clark et al., 1996). This is useful as it suggests that unguided self-help may be utilised and sustained even in the presence of depression.

It is possible that psychological predictors of attrition may vary depending on the intervention target problem. Psychological predictors of attrition from depression and anxiety interventions may be different to those that predict physical activity and smoking cessation intervention attrition. If this were shown to be the case, knowledge to this effect would be invaluable. It would allow design of unguided interventions that address the specific motivational challenges present as a function of the type of intervention, and increase sustainability without guidance. The present study suggests

that designing unguided interventions with components or modules that increase agency may reduce dropout.

Allocation to the gratitude technique was associated with significantly higher completion rates than being allocated to the self-monitoring technique. Retention is traditionally increased through adding contact (Muñoz et al., 2006); this research again demonstrates that manipulating the technique can have a significant effect on reducing attrition without adding guidance. Future research investigating full interventions in randomised controlled clinical trials should break interventions down to measure which techniques are considered effective and acceptable by users in unguided contexts. For instance, high attrition has been reported following the behavioural component of an unguided intervention for body image (Hrabosky & Cash, 2007). Techniques effective with guidance may be unsustainable without contact and encouragement. The results from the present study suggest that regularly returning to focus on gratitude may be more acceptable than monitoring and challenging worries, in the absence of support.

Both techniques were associated with significant decreases in worry compared to waitlist. Effect sizes pre and post intervention were large. Importantly, this study again demonstrated, consistent with previous research (Christensen, Griffiths, Korten, Brittliffe, & Groves, 2004; Farvolden, Denisoff, Selby, Bagby, & Rudy, 2005; Muñoz et al., 2006; Munoz et al., 2009), that people who reported completing the unguided self-help techniques reported significant benefits. Equivalence was demonstrated in both the completer analysis and the highly conservative intent-to-treat analysis. In the short term, two different approaches produced equivalent reductions in worry and anxiety.

With regard to baseline overall predictors of outcome, expectancy was the only

baseline measure that neared significance, again highlighting the potential importance of outcome expectancy in the therapy process (Kirsch, 1999; Meyer et al., 2002; Webb, Simmons, & Brandon, 2005; Greenberg, Constantino, & Bruce, 2006; Price, Anderson, Henrich, & Rothbaum, 2008). None of the other variables or an interaction reflecting motivational concordance predicted outcome. Hope was an attrition specific predictor and not related to outcome. Thus, processes that underlie attrition and outcome may not always be similar (as in Study three). This highlights how little is known about self-help process, the 'how or why' compared to outcome; and questions of general effectiveness.

This study has some limitations. The majority of the sample was female; therefore these results may not generalise to a male population. Our research is consistent with previous research showing that females may be more likely to use self-help therapy (Neil, Batterham, Christensen, Bennett, & Griffiths, 2009). An important aim of this study was to predict dropout, and it is reassuring the level of dropout was similar to that reported in previous research on unguided interventions (Christensen et al., 2006) and attrition rates reported outside highly controlled trial conditions (Wierzbicki & Perkarik, 1993).

In conclusion, the findings of this study offer an important contribution to understanding the psychology of attrition in the unguided self-help domain. Trait hope is a useful measure that can be used to predict dropout, and altering intervention technique can significantly improve retention.

Chapter 7

General Discussion

7.1 Summary of findings

Retention

All four studies (Study two, Study three, Study four, Study five) without human contact clearly demonstrated that attrition is consistently high in unguided open-access self-help studies. Despite the multitude of possible reasons for disengaging from a self-help attempt, it was possible to predict attrition based on psychological variables. Outcome expectancy, internal health locus of control and dispositional hope predicted dropout at varying stages in the study series. Importantly, technique significantly affected attrition across all three of the studies that compared a gratitude to a problem-focused symptom specific technique. In studies three to five, those allocated to the gratitude condition were significantly more likely complete the study than those allocated to problem focused techniques. For those who reported difficulty data, difficulty was not significantly related to dropout.

Outcome

Studies one and two were not designed to address outcome. Nevertheless, participants reported significant increases in positive affect and reductions in negative affect following the gratitude technique in study one. The majority of people in study

two reported sleeping *'the same as usual'*, however, it was possible to predict variance around this point. Studies three, four and five addressed outcome directly. The use of comparison groups comprising of an alternative more commonly used technique, and a waitlist control allowed the effect of a gratitude diary to be assessed. Across all three symptoms groups, body dissatisfaction, depression and worry/anxiety, completing the study in the gratitude condition was associated with significant decreases in dysfunction compared with the waitlist controls. The gratitude technique was equally as effective as the restructuring and self-monitoring techniques in all cases, and on all outcomes aside one – increases in gratitude.

Mechanism

Various mechanisms were explored across the studies in this thesis. A primary focus was initially placed on expectancy and motivational concordance. Both mechanism are considered important in placebo response (Kirsch & Lynn, 1999; Stewart-Williams, 2004; Hyland, Geraghty, Joy, & Turner, 2006; Hyland, Whalley, & Geraghty, 2007; Hyland & Whalley, 2008; Kelley, 2008), therefore their respective roles in perceived benefit following a gratitude technique were investigated. Study one demonstrated that expectancy, with regard to positive affect, is likely to be a critical mechanism in laboratory contexts. Additionally, those high in dispositional gratitude were more likely to feel greater positive affect than those who where less disposed to feel gratitude. The relationship between dispositional gratitude and positive affect was expectancy mediated. Motivational concordance, which requires the relationship between dispositional-outcome to occur independently of expectancy (Hyland & Whalley, 2008), did not predict outcome in a lab context.

Study two demonstrated that in an applied context, perceived improved sleep outcome could be significantly predicted using a motivational concordance framework. Thus, beneficial response was predicted based on concordance between dispositional gratitude and a gratitude technique. Importantly, this significant relationship occurred independently from expectancy, and was mediated by ease of engagement in the behaviour required by the therapy. Additionally, dispositional gratitude did not significantly predict outcome following a very similar positive technique where participants documented times they felt loved and looked after. This suggested that dispositional gratitude is a specific predictor following gratitude therapy – i.e. concordance is important – and supports previous research (Hyland et al., 2007).

Study three suggested that the mechanisms that allow prediction of outcome response in shorter-term placebo-type experiments contexts do not simply transfer across to longer-term self-help contexts. Motivational concordance did not predict outcome following a gratitude technique for body dissatisfaction, expectancy neared significance in predicting outcome for some of the outcome variables but was inconsistent. Study four addressed mechanisms more directly, with multiple outcome measures. Motivational concordance predicted positive affect change; those higher in gratitude were more likely to report experiencing higher positive affect following the gratitude technique. Expectancy predicted positive affect change, change in automatic thoughts following the automatic thought record techniques and changes in gratitude. Mediators of change were explored to test whether the differing techniques might produce equivalent outcome, but have different underlying mechanisms. Changes in negative automatic thoughts and changes in positive affect, accounted for very similar amounts of variance in change in depression in both technique conditions. Changes in gratitude were larger following the gratitude technique, compared to the automatic

thought record technique; nevertheless, change in gratitude had a significant indirect effect on depression following the completion of automatic thought records. In study five, despite exploring all baseline measures; significant predictors of outcome were generally absent. However, expectancy neared significance. Figure 17 shows a summary of the key contributions of each study.

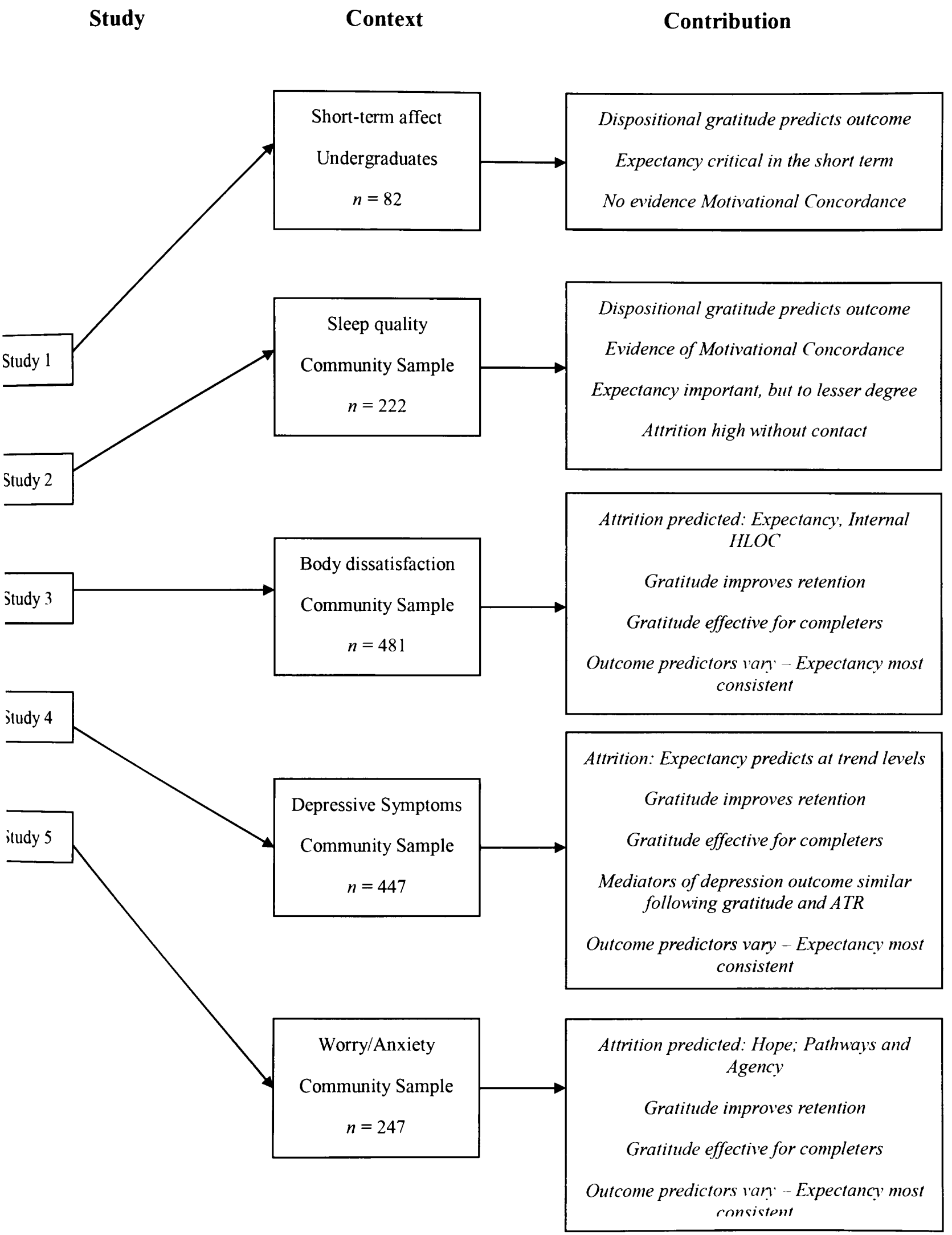

Figure 17. Diagram showing the contribution of each study to the thesis.

7.2 Theoretical Implications

7.2.1 Retention

Unguided self-help has the potential take a preventative role in helping those who actively seek solutions for symptoms of psychological distress. Unguided self-help should not be used as a substitute for guided self-help or face-to-face therapy. Nonetheless, it maybe uniquely positioned to provide unprecedented access to those who wish to initiate an intervention process. Additionally, in areas where there is no access to any other form of help at all, it may provide more benefit compared to doing nothing at all. As such there is a responsibility for psychologists to provide management strategies/techniques that are as effective as possible. In order for unguided self-help therapy to become more effective it needs to be easily sustained in the motivational context in which it is situated. That is, people need to be able to carry out the techniques and be motivated to continue to carry out the techniques without direct guidance and human contact and support.

Retention and gratitude

The research contained within this thesis demonstrated that attrition from unguided internet administered bibiliotherapy was not random. Attrition was related to a number of factors including technique. Participants randomly allocated to receive a gratitude workbook were significantly more likely to complete the study than participants offered problem focused cognitive techniques. This finding occurred in three separate studies, with different samples taking part to reduce different symptoms. Across all three studies (Study three, Study four, Study five) where attrition was

directly investigated, participant ratings of initial difficulty did not predict dropout. However, not all participants who dropped out gave ratings of difficulty. Therefore, it is not possible to rule out difficulty as a cause of differential attrition rates in the present studies. There are important theoretical implications in both cases, whether difficulty was, or was not responsible for attrition.

Difficulty may have been related to attrition. If it perceived difficulty resulted in increased attrition in the problem-focused symptoms specific condition, this suggests that techniques commonly employed in face-to-face contexts may need to be substantially modified if they are to be utilised without guidance. Difficulty with problem-focused symptoms specific homework has been documented previously (Helbig & Fehm, 2004). Additionally, in a recent meta-analysis of psychotherapy approaches for depression Cuijpers, van Straten, Andersson, and van Oppen (2008) report that CBT has a significantly higher dropout rate than other therapies, such as interpersonal therapy or problem solving therapy. Although Cuijpers et al. (2008) urge caution in interpretation of their findings, they suggest that individuals might find the focus on cognition and challenging cognitions difficult. The present research concurs with Longmore and Worrell's (2007) conclusions; it was not necessary to directly challenge thoughts to produce changes in symptoms in the short term – and it seems likely that this approach increased attrition, perhaps through being more difficult.

Difficulty may not have been related to attrition. The behaviour involved in positive techniques such as keeping a gratitude diary may be more rewarding than correcting negative thoughts. Cultivating gratitude may be a behaviour that is easier to sustain, not necessary because the task itself is easier to do (it is possible to imagine many who may find it difficult to recall things to be grateful for) but because as part of

a health promoting 'ritual' it is a task that may lead to greater positive affect. Cultivating gratitude, appears to have many benefits including reduced stress through more effective coping, and strong links to well-being and satisfaction with life (Wood, Joseph, & Linley, 2007; Wood, Joseph, & Maltby, 2008; Wood, Joseph, & Maltby, 2009). It may reflect an effective affect-regulation strategy that actually leads to a pleasant experience at the time an individual engages with it. Challenging and restructuring negative thoughts may be effective an affect regulation strategy (Butler, Chapman, Forman, & Beck, 2006), however, despite relief gained through the rationalisation of problem thoughts, recalling and analysing problems thoughts is unlikely to be a pleasant experience. With guidance and support of an active therapist these techniques may be sustained. Without support, the relief gained by rationalisation of thoughts may not outweigh the possible negative experience direct focus on specific upsetting thoughts. This may lead individuals to disengage with the process.

Predicting Attrition

Primarily in studies three and five, attrition could be predicted using psychological variables measured at baseline. This finding is important. Identifying psychological variables increases the possibility of modifying interventions to increase retention. Identifying non-modifiable variables, such as demographic characteristics, may allow the creation of risk profiles, although this information is less useful, and has the potential to lead to exclusion in order to increase retention. For example, excluding young males may increase overall retention dramatically. The successful identification of psychological predictors of attrition may be in part due to the a priori focus on attrition from the outset of the investigations. Studies that focus on attrition are usually conducted following trials where the primary focus was on outcome. Therefore,

measures beyond demographics tend to be selected for their relevance to outcome rather than attrition. Studies primarily include variables such as demographics and symptoms severity (see Grilo et al., 1998; Couper, Peytchev, Strecher, Rothert, & Anderson, 2007; Balmford, Borland, & Benda, 2008; Wangberg, Bergmo, & Johnsen, 2008; Weinert, Cudney, & Hill, 2008; Curran, Stecker, Han, & Booth, 2009). Motivational variables (expectations, hope, confidence) are often not included.

Expectancy related constructs, situation specific expectancy and trait hope appear to be factors related to the regulation of self-help behaviour. Scheier and Carver (1985) and Carver and Scheier (1990) suggest that when difficulty in progression toward a goal is encountered, individuals will consider expectations of desired outcome in order determine whether to continue or disengage. Although Scheier and Carver (1985) and Carver and Scheier (1990) specifically highlight difficulty, any barrier or goal conflict could lead to reevaluations of outcome expectancy. For instance, the reward value of the task that forms a critical part of the route toward a goal may be important. Taking the current research as an example, if completing the automatic thought records is unrewarding, considered 'boring', or if completion of an individual thought record does not seem to bring benefit, then an individual may reevaluate their expectations that the process, i.e. completing thought records on a regular basis, will help them overall. Additionally, even if progress is good, and goal conflict arises, such as constraints on time or alternative life events, reevaluation of the process and reflections on outcome expectancies may be critical in the disengagement process.

The above examples show why outcome expectancy needs investigation when considering attrition. They also provide some suggestions as to why outcome expectancy, despite being reasonably consistent did vary as a predictor of attrition in the

current studies. Initial outcome expectancy measures may capture overall broad direction of expectancy cognitions at the outset (whether broadly positive, or broadly negative), these may in turn influence expectancy judgments that occur through the process, thus predicting attrition. However, expectancies are likely to change through the progression of the intervention. Measuring expectancy at multiple points across the intervention period may increase the strength of expectancy as a predictor of self-help attrition.

Hope, according to Synder et al. (1991), is composed of two interrelated cognitive processes, 'Agency' and 'Pathways' thinking. According to Hope theory, Agency 'goal directed determination' and Pathways 'seeing routes toward goals' act together to produce hope. Study five, showed what the author believes to be the first demonstration of the two interrelated constructs (correlating at $r = .7$) significantly predicting a specific behaviour in opposite directions. The results of study five showed Agency as a significant predictor of retention. Agency appears to represent a dispositional measure of persistence and determination to complete selected goals. People high in agency often engage in self-affirming statements such as 'I know I can do this' and 'I will finish this' (Snyder, LaPoint, Crowson, & Early, 1998). Those participants scoring high on Agency may be particularly suited to unguided self-help; with a high degree of self-motivated energy, their behaviour may be less influenced by the absence of external encouragement. Scoring high on the Pathways subscale of the trait Hope measure predicted attrition from the intervention. The items making up the Pathways subscale such as "there are many different ways around a problem" and "I can think of many ways to get the things in life that are most important to me" (Snyder et al., 1991), may actually represent a measure of readiness to disengage with a pathway toward a goal. Carver and Scheier (1998) suggest that goals are organised in hierarchies. One

possibility is that the higher order goal to 'reduce worry/anxiety' was being actioned through the lower order goal to 'complete worry self-help intervention'. In the case of Study five, although the goal to complete the study may have been initially important, those higher in Pathways hope, may have more readily disengaged to pursue other paths to their goal of reducing worry.

In open access unguided studies in particular, attrition may not always represent disengagement with primarily negative consequences (Wierzbicki & Perkarik, 1993). The significant relationship with higher Pathways thinking, a trait associated with many benefits (Feldman & Snyder, 2005), and discontinuation supports this assertion. The proportion of the sample that dropout is also likely to include those who gained early in the intervention and did not feel the need to continue (Christensen, Griffiths, Groves, & Korten, 2006). Attrition in unguided self-help may not always have the same implications as in face-to-face therapy. However, of those who do not follow study protocol and attrit, despite the possibility of 'early gainers', there is likely to be a large proportion who do not gain. Early attrition in this case may substantially reduce the potential benefit of the intervention. These individuals will not be helped to the greatest extent possible within the limits of the modality.

Applying research from a diverse range disciplines within psychology may directly inform attrition research. Research in personality and social psychology may be particularly useful. For example recent research suggests why dispositional optimism may not have predicted retention in Study five. Geers, Wellman and Lassiter (2009) have proposed that measuring goal priority is necessary in order for dispositional optimism to predict engagement in behaviours. Geers et al. (2009) showed that a main effect of dispositional optimism did not predict engagement across a number of studies

including behaviours ranging from exercising to making friends. This is consistent with study five, where dispositional gratitude did not significantly predict attrition. When Geers et al. (2009) included an interaction between goal pioritisation/value and dispositional optimism, this significantly predicted engagement in all cases. Therefore, if a question such as "to what extent is reducing your worry a major priority currently" was added to Study five, then an interaction between dispositional optimism and goal prioritisation may have significantly predicting attrition. Those participants scoring high on the above question, with high dispositional optimism may have been less likely to dropout. This is just one example of how integrating research from personality and social psychology may aid in understanding attrition.

7.2.2 Outcome and mechanism

Studies three to five demonstrated that using a gratitude diary significantly reduced reported symptoms of body dissatisfaction, depressive symptoms and worry in those who used the technique over a two-week period, compared to a waitlist control. Furthermore, effect sizes of pre-post means across all studies fell within the medium to large categories proposed by Cohen (1988). Those who reported using techniques, on average, found them useful.

There is a potential criticism with regard to showing medium to large effect sizes for individuals who completed the studies. This could have been predicted, whatever technique was used, as the majority of those experiencing benefit would have continued. Those who experience no benefit would have dropped out. This is only a relevant criticism if attempts were made to generalise the findings from the body dissatisfaction study, for instance, to all those feeling dissatisfied with their appearance. This was not the case. Studies three to five, were pragmatic experiments which

suggested that for those select individuals that continue without guidance, a gratitude technique is substantially more effective than waiting in reducing symptoms. Further, Studies also employed additional intent-to-treat analytic strategies that include all data from those initially randomised. Even when over half the sample was entered as not having changed, randomisation to a workbook was still significantly more effective than waiting for treatment.

The gratitude diaries produced equivalent changes in symptoms compared to the problem focused symptom specific techniques in studies three to five. Outcome equivalence would be expected according to the contextual model of psychotherapy (Wampold, 2001).

Tables 6.1 and 6.2 show comparisons between the two techniques according to a contextual model and a medical/specific model of what is necessary for self-help to be effective.

Table 6.1

Contextual model of necessary ingredients for effective self-help therapy.

Component	Gratitude Diary	Monitoring and Restructuring
Intended to be therapeutic	✓	✓
Functional explanation for symptoms	✓	✓
Rationale for ameliorating symptoms	✓	✓
Tasks and exercises suggested to be beneficial consistent with the explanation of symptoms and rationale as to how those symptoms will be alleviated	✓	✓

Table 6.2

Medical/specific model of necessary ingredients for effective self-help therapy.

Component	Gratitude Diary	Monitoring and Restructuring
Based on cognitive theory of causes of symptoms	✗	✓
Techniques derived from experimental research characterising the development of symptoms	✗	✓
Techniques directly address a specific symptom suggested as contributing to the maintenance of depression/worry/body dissatisfaction	✗	✓

Tables 6.1 and 6.2 classify *what* may be necessary to produce change rather than *why*. Questions regarding why particular components make self-help therapy effective will be addressed shortly. Considering the above tables, applying contextual model of change to self-help easily explains the equivalence in outcomes in Studies three to five. Both techniques have the necessary components needed to make a therapy effective according to this model. Meta-analytic studies have shown that when different approaches to treatment have all the ingredients highlighted in the contextual table, they are consistently effective in reducing symptoms (Wampold, 2001; Cuijpers et al., 2008). The importance of contextual factors also accounts for the performance of 'psychological placebos' used in trials of specific psychotherapeutic treatments. Psychological placebos are designed in therapy trials by removing the specific ingredients (those in Table 6.2), and leaving in some of the placebo-type contextual ingredients (those in Table 6.1). When well designed and all contextual factors are left in the therapy, the 'placebo therapies' work as well as the specific treatments (see Baskin, Tierney, Minami, & Wampold, 2003; Stice, Burton, Bearman, & Rohde, 2007).

If a medical/specific model of psychotherapeutic change was used to characterise self-help therapy, it might be expected, despite the relatively small numbers, that there would be a trend in the direction of the monitoring and restructuring techniques as being a more effective than a gratitude diary. The monitoring and restructuring exercises directly tackle a specific 'transdiagnostic' factor, negative automatic thoughts (Ehring & Watkins, 2008). Whether it be a depressive thought, a concern about physical appearance or an anxious thought about an up coming event. Theoretically, monitoring and restructuring techniques take a more direct route to the proposed cause of the

problem, and therefore should have the potential to be more effective than a technique that utilises a less direct approach.

Self-help researchers are beginning to address what components may be important in self-help therapy. Gellatly et al. (2007) conducted a meta-analysis and a meta-regression on a broad range of self-help interventions. Included in their classification of self-help were interventions designed to assist participants with their depressive symptoms ranging from booklets and audiotapes to websites. Gellatly et al.'s (2007) review is particularly useful as delivery techniques varied considerably. Other reviews such as that conducted by Spek et al. (2007) focus exclusively CBT website interventions. Gellatly et al. (2007) found that interventions were more effective when they were guided. Interestingly, although authors urge caution, whether guidance was 'supportive' beyond general monitoring did not increase the effect. There was no difference in effect size with regard to the method of delivery; bibilotherapy was as effective as fully online interventions. Engaging in CBT techniques was more effective than education alone. Importantly, authors note that there was no evidence regarding whether alternative approaches other than CBT would be effective.

Throughout their review, Gellaty et al. (2009) do not mention why self-help therapy may be effective. As stated previously in this thesis, mechanisms of action are very rarely proposed in self-help research. Richardson and Richards (2006) provide what the author believes to be the first discussion that begins to examine why self-help therapy might work. Richardson and Richards (2006) highlight studies where self-help appears to show reduced effects, particularly when trialed in primary care environments (see Mead et al., 2005). They further suggest that finding CBT techniques to have reduced effects when the level of guidance is reduced, questions whether techniques are

actually the potent part of CBT. They suggest that this neglect of relationship factors, and a rush to turn manualised CBT into self-help with reduced guidance may have lead to the reduced effects. Additionally, Richardson & Richards (2006) propose that common factors, (referring explicitly to the therapeutic relationship) could be manipulated in self-help manuals. Thus, the text in self-help manuals could be enhanced to be read in a more understanding and empathetic manner, and then tested to see if this was more effective than standard text. Although a useful first step, Richardson and Richards, (2006) discussion neglects a lot of factors. First, showing reduced effects of techniques when the contact is reduced does not immediately suggests that the techniques are impotent. Proponents of a specific/medical model of psychotherapy may suggest that the guidance is necessary for the techniques to be used properly; reduced efficacy does not have implications for the techniques themselves. Additionally, a number of studies (Strachan & Cash, 2002; Christensen, Griffiths, Mackinnon, & Brittliffe, 2006; Munoz et al., 2009, Study three, Study four, Study five) demonstrate that unguided techniques can be effective for those who complete the programmes. Therefore, techniques must be important. Richardson and Richards's (2006) paper returns to main focus on what makes therapy effective, rather than why self-help therapy is effective.

Why is self-help therapy effective? The implications from the current research suggest the contextual model of psychotherapy (Wampold, 2001) might be a useful theoretical framework through which to view the effects of unguided self-help on mild to moderate symptoms of psychological distress. A misconception of the contextual model is that it suggests techniques are unimportant (see DeRubeis, Brotman, & Gibbons, 2005), this is not the case. Clearly when unguided self-help is effective, in the absence of supportive relationships, technique is all-important. However, the

appropriate theoretical level at which the technique is viewed is central in this discussion. The contextual model is a 'meta-thoery' of psychotherapeutic change (Wampold, 2007), a set of higher assumptions, below which many specific models of change fall. Therefore, applying a the contextual model to unguided self-help, techniques included in unguided bibilotherapy or on intervention websites can vary in orientation, but it is very important that the techniques must contain, or lead to, all the components listed in Table 6.1 to have the potential to be effective. See Figure 18.

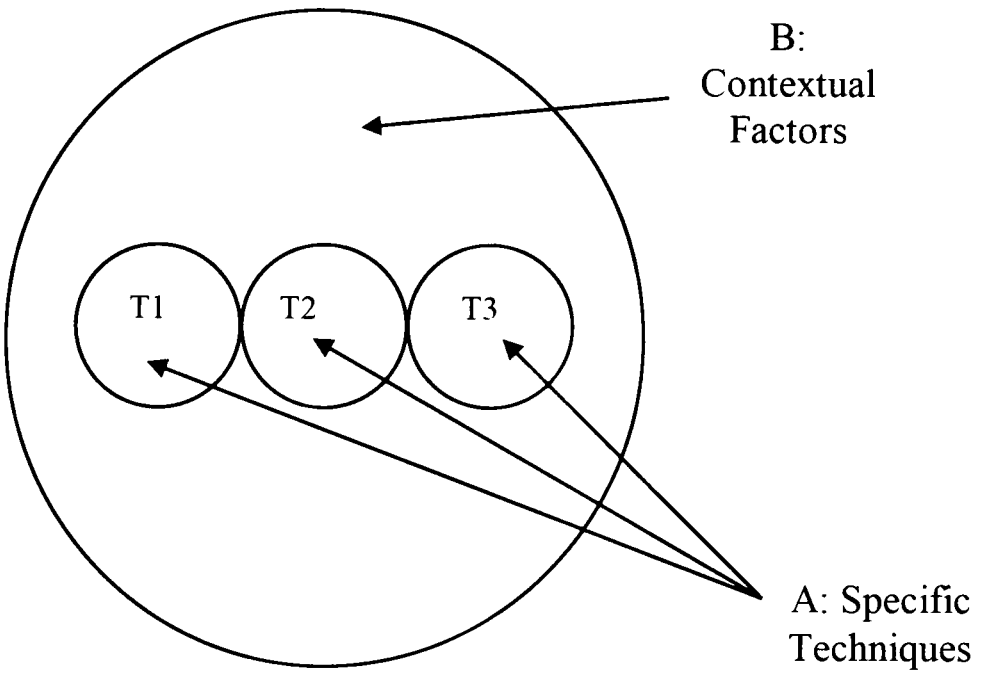

Figure 18. Diagram representing important contributory factors to self-help therapy.

According the model depicted in Figure 13, specific theories of change and techniques (A) can vary quite dramatically and still be effective, as long as they are situated within the contextual loop (B) depicted in Figure 13. However, as in Figure 19, if a technique is included in an unguided self-help intervention that does not have all the contextual components, it may be less effective. For instance, if the theory is not coherent with human experience and does not generate expectancy for change, or the

techniques do not seem to logically address what the theory has set out.

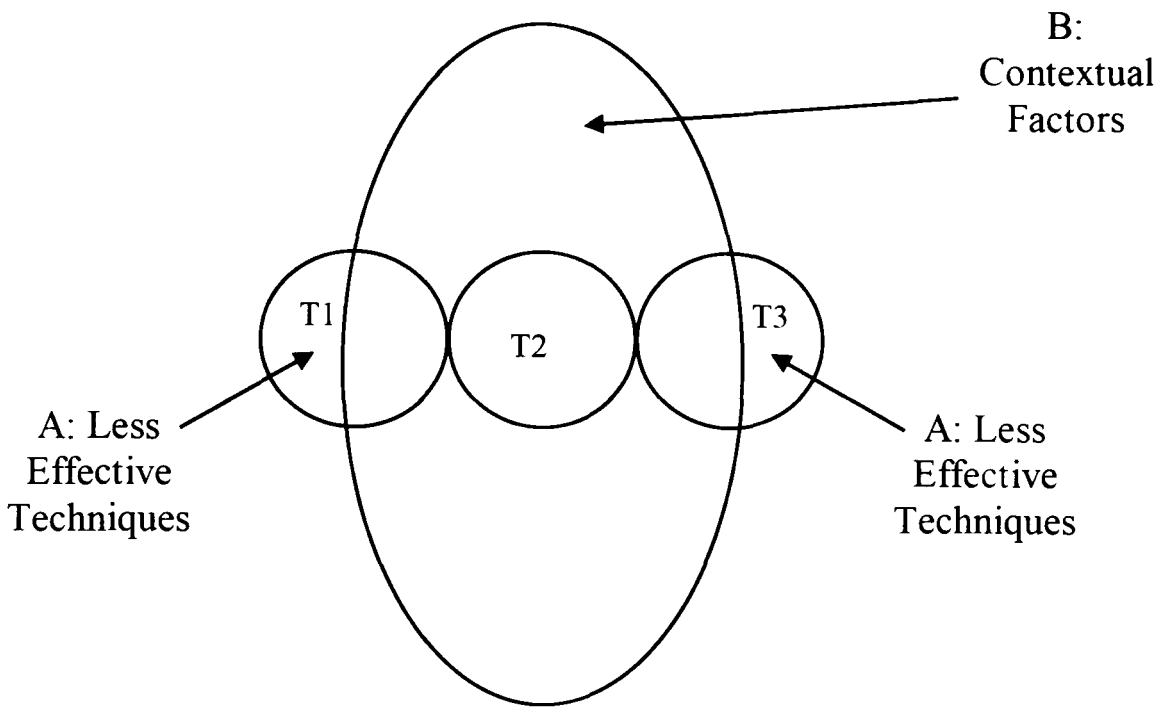

Figure 19. Diagram representing when self-therapy is likely to be less effective.

According to the assumptions of specific/medical model of self-help, although Figure 18 may represent the necessary ingredients for change in some instances, the model depicted in Figure 20 may more accurately describe what is necessary for change. There may be one specific factor (A*) that could make the whole treatment more effective beyond contextual factors, as it specifically addresses a 'broken part'. Such 'broken parts' may have been shown to play a large role in the onset of symptoms through empirical research. As an example, studies have shown that those with body dissatisfaction often over estimate their actual body size (Rosen, Cado, Silberg, Srebnik, & Wendt, 1990). This was interpreted as being a critical specific process in the onset of body dissatisfaction. Therefore, aligned with medical analogy, a treatment was created,

that contained this 'active' component – size perception training. According to the medical/specific model, and assuming participants actually engage with the therapy, in this example a self-help intervention with prescriptions of size perception training would be more effective beyond contextual components, as it actually addresses one of the 'true' causes of body dissatisfaction.[5]

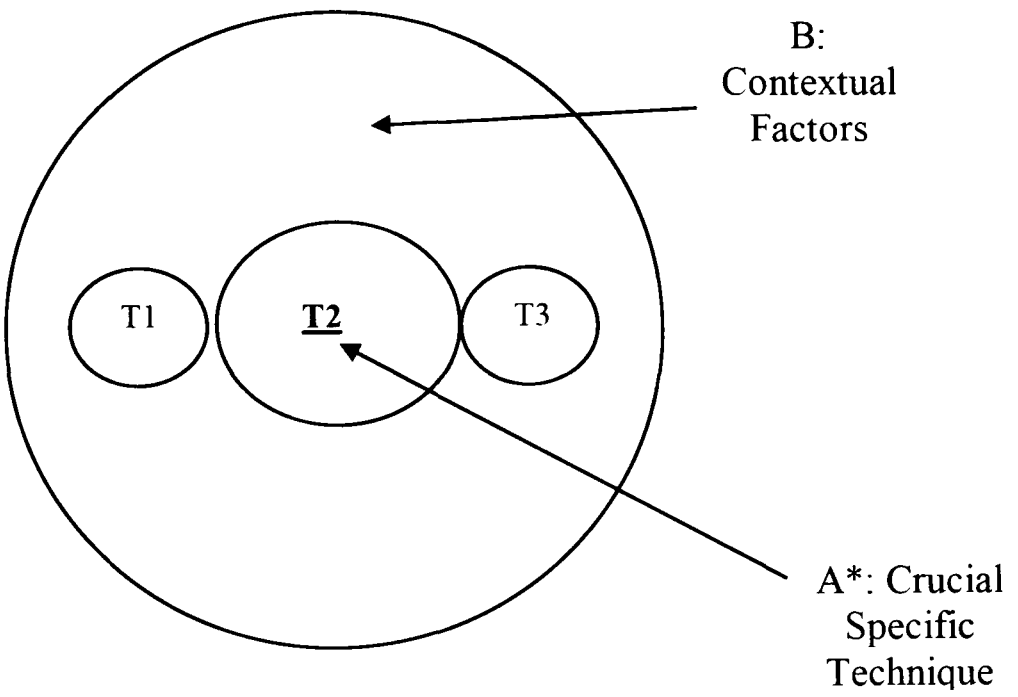

Figure 20. Diagram depicting specific technique that would improve overall outcome.

[5] Although used for an example here, Rosen et al. (1990) actually carried out this comparison in a face-to-face trial, and found that adding the size perception training component did not make the treatment significantly more effective than regular CBT.

The medical model, although logically appealing, has a distinct lack of evidence to support it, particularly in mild to moderate symptoms. Techniques that address what is seen as fundamental in theoretical models of particular symptoms, are not more effective than 'bone fide' treatments with different rationales and different techniques (Benish, Imel, & Wampold, 2008). Therefore, it does not appear to serve as an adequate explanation for why unguided self-help may help people. There are no definitive answers, and much process research is needed.

One possible explanation as to why unguided self-help therapy may be effective, it that it acts to remoralise those who engage with it. Frank and Frank (1991) suggest that people come to seek therapy (this directly applies to unguided self-help as unguided self-help users actively seek support) do so as they are feeling demoralised by their symptoms, whatever they may be e.g. low mood, body dissatisfaction, worrying excessively. Effective self-help, containing all the contextual components, serves to remoralise, and give hope. This provision of hope and remoralisation reduces symptoms, whatever they may be. Wampold, (2007) suggests that the critical role of therapeutic interventions is to provide the user with a new more functional explanation for their symptoms. To the extent that an intervention does this, and the user takes the explanation as credible, the intervention will have the potential to improve symptoms.

In order for remoralisation to occur, participants must first find 'meaning' in the material. Frank and Frank (1991) proposed "effective psychotherapies combat demoralization by persuading patients to transform these pathogenic meanings into ones that rekindle hope, enhance mastery, heighten self-esteem" (p.52). *Meaning* and *meaningful* are terms with many different uses, therefore in this discussion, to find a self-help intervention 'meaningful' is defined as:

> 'having subjective value, relating to personal life experience and providing explanation/information that is accepted as helpful within an individuals socio-cultural context'

The critical part of developing effective self-help therapy is to develop techniques that have meaning. Interventions must relate to human experience in order to provide meaning, and considering cultural context is important. Conveying details of scientific research regarding the development of a symptom allows for the provision of a technique that may be very meaningful to the user, particularly in a cultural environment where health and well-being are described in scientific/mechanistic terms. This highlights that there may not be an objectively 'most effective' self-help technique, based on an objectively 'true' theory for the development of mild to moderate symptoms. This is evidenced by the need to modify therapy techniques in order for the technique to be more meaningful and thus effective varying cultural contexts (for instance Latino and Chinese American samples, see Chen & Davenport, 2005; Muñoz & Mendelson, 2005). Also, individuals within cultures will vary to the extent to which they find meaning in a particular explanation and technique, leading to variance around the mean symptom reduction levels after the provision of unguided self-help.

The placebo response has been reconceptualised as the 'meaning response' (Moerman, 2002). With regard to the above discussion, this highlights the degree of crossover between placebo responses and response to self-help therapy. As stated in Chapter one Moerman (2002) refers to the placebo response as "the psychological and physiological effect of the *meaning* in the treatment of illness" (p. 14). Beneficial response following self-help therapy could easily be defined as the 'psychological effect of the *meaning* in the intervention'. Moerman (2002) suggests that the meaning which effects the extent of the placebo response will come from many contextual factors surrounding the healing 'ritual'. Placebo pills, surgery and creams will be all be sources

of symbolic meaning. This will be added to by the meaning provided by the doctor, both in what a doctor symbolizes in western culture, and the information they provide. The expectations and beliefs the individual brings to ritual will also influence the meaning of the props, the creams and injections, and thus potentially their effectiveness. Unguided self-help will be especially affected by factors other than the actual contents of the intervention. There is no support or human contact to provide extra meaning and strengthen power the ritual.

Looking to broader therapeutic contexts and their meaning could potentially explain variance in effect sizes after self-help therapy. Mead et al. (2005) report that guided self-help did not effectively reduce symptoms of depression in primary care patients. The primary care patients were on a waiting list for face-to-face treatment. Half the patients remained on the waiting list, whilst the others received treatment. Participants were satisfied with the treatment, but reported no significant changes in symptoms. This research may not be an accurate reflection of guided self-help outside this context. Although the researchers themselves note this, others have used Mead et al.'s (2005) study to call into question guided self-help in general (Richardson & Richards, 2006). Considering the contextual meaning in this treatment, these participants were in the process of 'waiting' for full psychotherapy treatment. Therefore, anything they receive whilst waiting for a more in depth personal treatment, may be have quite different contextual meaning to someone who receives guided self-help as their only treatment option. The guided self-help offered in Mead et al.'s (2005) trial could have been seen as something to do whilst waiting for 'real' treatment to begin, and this may have had a large effect on symptom perception.

7.3 Theoretical implications for Expectancy and Motivational Concordance

Expectancy has been proposed as critical in both the placebo response and in beneficial outcome following psychotherapy. As well as the possibility that expectancy has a direct impact on symptoms perception (Kirsch 1999, Study one) expectancy also may contribute the therapeutic outcome by influencing the engagement in the behavior required in the therapy (Westra, Dozois, & Marcus, 2007; Ahmed & Westra, 2008, Study two). A single item baseline expectancy question was either a non-significant trend predictor, or a significant predictor of outcome benefit on at least one dependent measure in all of the studies included in this thesis. None of the other variables measured at baseline reached consistency in predicting outcome to the same extent as expectancy. With regard to positive affect following intervention, a single item expectancy question significantly predicted outcome over very short time periods (Study one) and over longer time periods (Study four). Expectancy is likely to be a critical mechanism that contributes to outcome in self-help therapy trials. In the cases where expectancy was a trend predictor on specific outcome measures (PHQ-9, Study four – $p = .06$; GAD-7, Study five – $p = .08$), one possibility is that the reduced association may have been due to the validity and reliability of the single item baseline measure of expectancy. Although the use of a general single item expectancy question has been shown to be a better predictor than a group of symptoms specific expectancies (Hyland et al., 2007) a multi-item expectancy scale may have been more reliable. As with the role of expectancy in predicting attrition, the inclusion of multiple measures taken throughout the study may have lead to stronger expectancy-outcome correlations.

Moreover, more frequent measurement of expectancy in general would allow for the closer examination of the role of expectancy in the self-help process[6].

Motivational Concordance

Study two was the only study where motivational concordance predicted outcome on the primary measure. Despite research by Hyland et al. (2006), Hyland et al. (2007), Hyland and Whalley (2008), motivational concordance theory may not be applicable to self-directed bibiotherapy. Engaging in self-directed bibliotherapy for depressive symptoms or anxiety may reflect a more complex process than the contexts where motivational concordance had been demonstrated previously. Hyland et al. (2007) showed motivational concordance using flower essences for mild emotional symptoms. Additionally motivational concordance had been demonstrated for sleep outcome using a gratitude diary over one to three nights (Hyland et al., 2007, Study two). The positive affect, or need satisfaction that according to motivational concordance theory leads to a reduction in symptoms, may not contribute strongly enough to have a notable effect on particular psychological dysfunction such as worry or body dissatisfaction. The main effect of the intervention i.e. expecting it to work, finding meaning in the material, may be large enough to mask any person x treatment interactions that may occur. Research on motivational concordance is at an early stage; future development in the theory may make the predictions that stem from the theory more robust across varying therapeutic settings.

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[6] Measuring expectancy at multiple time points may be useful, however, there is a tension between increasing understanding, and measurement affecting process. For example, asking an individual to regularly reflect on their expectations of beneficial outcome may have an impact on the outcome itself, in either direction.

7.4 Practical implications

Expectancy and hope were associated with attrition, and expectancy was related to outcome in studies reported within this thesis. This suggests that an important aspect of self-help interventions design, especially in unguided self-help contexts, is to generate positive expectancies regarding outcome. Creating unguided self-help interventions with a direct focus on increasing expectations may improve both retention and outcome. Although there are other specific implications that could be drawn from the current research (using gratitude in intervention strategies, for instance), perhaps the greatest practical implications from this thesis stem from the conclusion that a contextual model of psychotherapy, developed in relation to face-to-face therapy (Wampold, 2001), may also be a useful way of studying and understanding self-help therapy.

7.4.1 Implications of using a contextual model in self-help therapy

Retention

Studies in this thesis demonstrate that the techniques offered to individuals as unguided self-help therapy have a significant affect on attrition (Study three, Study four, Study five). According to a specific/medical model of psychotherapeutic change, there are specific techniques that need to be in intervention packages as they are necessary to treat the 'true' cause of the distress. For example cognitive restructuring is seen as a critical component in most self-help packages for depression (Christensen, Griffiths, Korten, Brittliffe, & Groves, 2004; Clarke et al., 2005; Christensen et al., 2006). If it is this technique that appears to lead people to dropout, this is essentially unavoidable using this model. The specific technique is necessary for the therapy to be effective, so

it needs to remain in the package. Therefore, sophisticated strategies designed for cohort maintenance, including multiple personalised reminders and phone contact are used in attempts to keep people using the specific technique. To the authors knowledge, research presented in this thesis is some of the first to offer a very different approach along side strategies already in use. The results presented here suggest that the new approach (gratitude diary), at least in the short term, was as effective as problem-focused techniques, and significantly better at retaining participants. Significant increases in retention were gained without excessive monitoring, multiple contact attempts or phone contact. If effective self-help is considered within a contextual model, then multiple techniques and interventions may be effective as long as they feature all components suggested in Table 6.1. It may be possible to modify techniques substantially, and still effectively reduce symptoms. This would be of particular benefit to unguided self-help, as techniques that are particularly well suited to unguided interventions could be tested. It may be possible to reduce the complexity of problem-based techniques substantially, such that they are easy to complete or engage with on a regular basis, without losing effectiveness. If future research continues to support evidence that techniques with a positive orientation (such as a gratitude diary) increase retention, then full interventions, rather than single technique (i.e. a gratitude list) could be developed with a positive orientation. Interventions could focus on strengths, goals, gratitude and hope. Such interventions or strategies are being developed (see Seligman, Steen, Park, & Peterson, 2005), however, they are aimed at those without dysfunction who want to improve well-being. If contextualised appropriately and rationales adjusted, these positive techniques could be effective for mild to moderate symptoms, and importantly, sustainable without guidance.

Current internet administered self-help techniques are firmly based within an Empirical Supported Treatment (EST) model (see Chambless & Hollon, 1998). Although theoretically it may be possible to substantially change approach without losing efficacy, it likely that this would be strongly challenged. Nonetheless, it may be possible that current self-help approaches could be added to, rather than replaced. For example, adding a gratitude technique into a package with self-monitoring and restructuring may lead to higher retention compared to restructuring and monitoring alone.

Outcome

Different self-directed techniques may be equally effective in creating positive change in targeted symptoms. Self-help interventions are dominated by a CBT approach (Gellatly et al., 2007). CBT translates very well into self-help materials, as it is structured and can be broken down into different modules. It is possible, and very likely, that CBT is not the only form of self-help that will be helpful. Self-help materials with different approaches may be equally effective, and importantly, they may offer an alternative approach to those individuals to whom CBT rationales do not provide a functional, meaningful explanation for their experience. Assuming one self-help technique is more effective than other 'bone fide' self-help techniques, will slow the progression of self-help therapy research. Recent research has shown that cognitive restructuring, as prevention in an unguided context, actually increased the depressive symptoms of those with ruminative thinking styles (Haeffel, in press)[7]. Rather than

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[7] It is important to note the contextual meaning of the intervention in order to interpret results. Haeffel's (in press) study used undergraduates who took part in the trial for course credit. Therefore these results may not generalise to individuals, even with ruminative thinking styles, who engage in self-help solely for the potential benefit of the technique.

suggesting that this techniques may not be useful in an unguided context Haeffel (in press) proposed that unguided self-help therapy as a whole might be dangerous.

As yet there are not many alternatives to CBT used as self-help. Recent research has investigated the efficacy adding mindfulness components to CBT and demonstrated that integrative intervention was effective in reducing depression (Meyer et al., 2009). Stand-alone mindfulness interventions are likely to be effective. Expressive writing has the potential to be used as a self-help technique (Smyth & Helm, 2003), and although results have been mixed (Bugg, Turpin, Mason, & Scholes, 2009) it is another technique that particular individuals might find useful. Finally, if contextualised correctly, positive psychology techniques have the potential to translate well into structured self-help interventions.

7.5 Limitations

This research must be considered preliminary, as such there are a number of limitations that should be noted.

A workbook methodology was used

Although not a limitation in itself (workbook based bibilotherapy has been shown to be as effective as fully web based interventions see Marks et al. 2006 and Gellatly et al. 2007), having participants download workbooks lead to a reliance on self-report measures of adherence. There is a possibility that some participants may have been merely reporting use rather than completing the workbook, although this is considered unlikely. There were no incentives offered to complete the study (payment, prizes, course credit), no contact with a researcher and it was extremely easy to discontinue.

The choice was taken early on in the research programme not to require the participants to send the workbooks back at the end of the two weeks (or after three days in Study two). It was important not to incentivise completion through payment or some other method (entering participants into a prize draw). One of the aims of the current research was to study self-help behaviour with the only motivator being the potential of benefit itself. Without incentive or payment, having participants mail back the completed workbook may have increased the attrition rate further, potentially making response rates very low. Additionally, if participants knew researchers would read their workbooks, this may have restricted their engagement with the material. Finally, if a requirement were made to return the workbooks, this would still not guarantee participants completed them equally across the two weeks. The alternative would have been to create a fully online intervention system. That way material participants created as part of the interventions could be seen, and time and date entered monitored. However, designing online intervention that are attractive, easy to use and with multiple functionality, is costly, time consuming and a large project in itself. This was not the purpose of the research in this thesis.

The majority of the participants in all studies were female

Study one used psychology undergraduate students who were a female majority. Studies two to five used an open access recruitment policy, which resulted in a female majority again. Previous research has noted that women are more likely to use self-help therapy (Neil, Batterham, Christensen, Bennett, & Griffiths, 2009), therefore the gender bias in the sample is a natural result of the recruitment method. This needs to be considered when generalising the findings. Future research must attempt understand why men are reluctant to take part in self-help studies, and efforts need to be made to

recruit more men. If this does not occur, the developing self-help knowledge base will heavily gender biased.

There was no follow-up period

Participants were not followed up beyond the post-treatment measures in the three two-week intervention studies. The intervention gains, may or may not have been sustained. To know whether a gratitude diary is an intervention with long-term effects, full scale efficacy trials are needed. This was not the purpose of the present studies. The research contained in this thesis was designed to model self-help behaviour over brief periods of time, in order to begin to investigate questions of attrition, initial outcome and mechanism. Questions regarding attrition and mechanism have gone almost entirely unaddressed in a self-help domain. It is useful to start with brief interventions that can be easily manipulated, study modifications made, and multiple iterations of similar studies carried over a relatively brief period of time. To have included follow up periods, would have taken the current research past the allocated three-year time period. Additionally, with no contact and no incentives, follow-up attrition is likely to have been higher than intervention attrition, making interpretation of follow-up data problematic.

Other limitations

There are a number of smaller limitations that would be addressed if the research was carried out again. There was limited demographic data collected. Although demographic data was not needed for a specific research question, lack of demographic data makes characterising the sample difficult. It may have been useful to have piloted each of the workbooks used to a smaller sample of participants, to test the workbooks

for readability and generally test whether any problems were encountered. Use of more outcome measures in Study two (sleep) and Study three (body dissatisfaction) may answered useful questions. Use of serial measurement in the sleep study would allowed a comparison of retrospective measures to the serial measures to test the consistency of outcome reports. Inclusion of a depression measure in the body image study would have allowed at test of whether changes in depression mediated changes in body image.

Overall, despite some limitations, the current research provides an important contribution the understanding of process in unguided self-help. Additionally, the present studies offer a starting point for much future research.

7.6 Future directions

Motivational concordance may be a mechanism specific to self-help therapy for particular symptoms, such as sleep. It may not be a general mechanism underlying all self-help therapy, as proposed at an early stage in this thesis. Future research could continue to investigate motivational concordance with enhanced outcome measures, such serial measurement and objective physiological measures. This would enable the limits of the theory to be identified within a specific symptom domain.

Future research on attrition in unguided self-help settings should focus on two key areas: Person related variables (such as motivation, personality symptom severity) and technique/intervention factors that may predict attrition. Research aiming to model psychological processes and predictors of attrition should aim to recruit large samples (n = 1000 +) in order to utilise analytic methods such as Structural Equation Modeling (SEM). These advanced statistical methods would allow more complete analysis of mediators and moderators related to attrition. The relationship between technique

difficulty and attrition should be studied specifically, both within and across technique approach. Findings from difficulty-attrition studies would have large direct implications for intervention design. It may be the case that interventions and techniques need to be specifically developed for unguided use, rather than simply transferring face-to-face therapy interactions into text and images for workbooks and websites.

Research investigating outcome should test the longevity of beneficial effects of relatively brief unguided interventions. Low intensity interventions (such as those used in current intervention), may not have lasting effects beyond the intervention period. However, until research is conducted this should not be assumed. It may be that for some individuals, the interventions resulted in personal insight that lead to sustained symptom reduction.

Using qualitative methodologies may be useful in informing research on unguided self-help mechanisms. Qualitative research with participants who found unguided self-help effective, and those who did not, may allow greater understanding of why the techniques were effective from the participants perspective. Currently, self-help research is predominately 'top-down'. Participants are given 'Empirically Supported Treatments' (EST) translated into self-help materials, and monitored. Using a contextual model of self-help therapy, allows the flexibility to study techniques beyond the few EST. This approach, coupled with using a more 'bottom-up' method in mechanism research, may lead to unguided self-help being offered to individuals that is more acceptable and more effective than the current empirically driven self-help on offer.

7.7 Conclusions

The research in this thesis has explored the effects of gratitude interventions in a number of different contexts, ranging from placebo to self-help methodologies. Retention presents perhaps the greatest challenge in increasing efficacy of self-help without contact. Simple gratitude techniques can lead to large changes in symptom perception. The integration of placebo theory and contextual models of psychotherapy with self-help process research will lead to a more full understanding of why, and for whom, self-help therapy is effective.

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Appendix A

Qualitative Feedback

Study Comments

Below is a selection of comments primarily following Study four – the mood study. Although feedback was welcomed through all the studies, Study four specifically asked for feedback, following a personalised email sent on participant completion date.

"can i just say thank you for allowing me to take part in the study.

i have found it very interesting and it has helped me a lot. i now feel so much more happy and tend to focus on the postive things in my life rather than the negative.

i know i didnt need to send this email. but i cant beileve how in 2 weeks how much better i feel," "I first saw about the study in my magazine and as I had been feeling so negative and low for quite a few months, nothing to go to the doctor about, I followed the study through.

At first I really had to think so hard it almost hurt. Then once I was in the flow it all slotted in very well. I found myself thinking about what I had written down whilst making the tea, shopping etc. by the end of each night I was getting myself to think of other thinks to write down. This study has lifted me out of the dull drums and back on a level plane..... I get through the day easier, I have even started to find out about evening classes at the local college, I am sorting my finances out, I am doing things again.

Thank you so much, I didn't want the doctor, or tell others how I was feeling, in fact I was not sure how I was feeling really, I just knew it wasn't me. I found the source of where my saddness started and am not beating myself up about it any more. I am moving on slowly but in a positive way.

Thank you again. If I can help in any way with any other studies, please let me know. This 'moody' study was easy to follow, helpful contact if I needed and a chance (free) to sort my life out."

"Filling out your questionnaire made me realise that I had to change my life style for the better, i had to start thinking that I was really worth something, my family thought I was so why shouldn't I. It hasn't happened overnight but slowly I am getting their. i have good days nad bad days but mainly they are good days. It is really helped at the moment beacuse my son is away in a war zone. Going over the questionnaire help to amke me aware that things are getting better.

Your with many thanks"

"I have completed your workbook. I am feeling better overall and notice my negative thoughts and now test them straight away.

All the best with your studies - not as glamourous as say, cancer research but just as worthwhile to those like myself."

"I found the study very helpful. Unfortunately it coincided with a difficult time for me as my baby daughter has just been diagnosed with serious food allergies. This may have affected my final responses! I found it extremely helpful to look back on an 'event' and analyse the evidence supporting or not supporting how I was feeling. Practising that has also meant that I've found myself regularly questioning my negative feelings. When I've begun to feel 'down' I've quickly thought through whether the feelings are justified and brought to mind evidence that suggests otherwise. It also greatly helped to practise acknowledging how I'm feeling. For instance, rather than just generally feeling down and negative, I can now pinpoint the root of the feeling rather than just what is on the surface. I found analysing my feelings by giving them a percentage figure less useful- maybe because I'm not a number person. Thanks for allowing me to take part in the study- it's been very interesting a useful."
"I found the process of writing my thoughts down quite helpful actually, although some days it was easier to complete the workbook than others. If my negative thoughts and feelings had stemmed from either an isolated incident or related to my adult life I found I was much more able to find balancing thoughts and always felt much better when I'd completed the task - I felt calmer and happier and was much more able to 'let go' of the bad feelings - I could even laugh at myself for letting them get a hold in the first place as they would seem trivial at the end of the task. But on one of the days when the event which had upset me evoked memories of traumatic events in my childhood I was completely unable to think of any thoughts which didn't support my view or which might have balanced my view - I just had to wait for the feelings to go away on their own, and at this point I nearly gave up on the workbook because I didn't want to think about things."
"I found the study very helpful and I am still carrying on doing the lists and thinking now, not every day but frequently. I thought it might be difficult to find 6 things, but surprisingly it was not a problem finding things to be grateful for - lucky me. I had actually been trying to think of things to be grateful for before I took your study,as I had read that this helps, but writing it down and actually making the time to think about that alone made it more intense"
"Really enjoyed this experience. I noticed one thing in particular - thinking through the 'gratitude list' made me re- experience the positive emotions associated with each point. I think that this would be a very life enhancing habit, but I'd probably have to carry it out for a month rather than 2 weeks for it to become habitual rather than a 'remember to do'. I don't think this stop or diminishes negative thought patterns, but does tend to put them into perspective.

All the best with the study - I have forwarded the address to a few friends"
"I would have liked a little variation to the daily questionnaire and the e-mailed updates. I found two weeks of answering exactly the same questions a littel boring instead of motivating. Perhaps every other day, or every other week would have been better. On the plus side, it has given me a tool to use whenever I get a negative mood, to analyse and evaluate it rather than just give in to it. Overall, though, just a little too impersonal for my liking, and therefore a bit annoying rather than helpful."
"To be honest to begin with i found it very hard. As it went on it made me so much more aware of how negative i can be when it comes to my own insecurities.It also really aided me to go straight to the positive thought&miss out all the doubt&negativeness i had become a custom too. Every situation has always been my thought for a very long time, whilst this hasn't completely eliminated this aspect, it has certainly aided it. With thanks&gratitude"
"Hi, The work sheets started off fine and it wasnt too difficult to think of things but i was feeling pretty good but for a while in the middle things went a bit dark so then it was so much harder to think of positive things.When i felt good seeing all the things i do have to be grateful for made me feel really good but when i hit a dark bit again it made no difference as in my head i feel so down on myself that even though i read the sheets over to try and pick myself up its really difficult to feel good about them when my head was buzzing with so many negative thoughts.I am glad i did the experement as it really made me think about the little things that i did think about before but this made me look at it all in a different way."
"The study was easy to complete and quick and simple to carry out. My mood definitely improved during the study and it made me think about the positive things in my life as opposed to the negative ones. I wish you every success in your future research and please do not hesitate to contact me should you need any further assistance"
"I wouldn't say this therapy would really cheer me up if I was really upset about something major but what it did do was made me notice and appreciate the "little things" that make life better – the birds singing, walking through the park, listening to music I like – and I actually did find myself smiling to myself and feeling happier and more motivated with my lot in life.

In terms of the process, I think the work book was well-presented and easy to follow, and the online feedback easy to complete – although I was unsure of what to do on the days when I was unable to complete the workbook, as the instructions didn't make this clear. I think my mistake was in having the emails sent to my work email address and trying to incorporate the workbook into my working day. On the whole, this worked well, as I have my own office and can concentrate on things like this, but was obviously affected by workload and weekends, when I was unable to complete the records and/or reply to the emails on time.

Overall, I enjoyed taking part, felt it was certainly a very positive thing to do, and generally felt happy and contented when taking part in the study."

"I actually really enjoyed it and only missed one day when it got to bed time and i was just too tired. After the first couple of days and covering things like 'I'm grateful my childhood was Ok, my parents are alive and supportive - you know, historical things, i found it really interesting to pick 6 new things from that actual day. For example, 'I'm grateful it didnt rain this morning when i took the dog out as it is now' ' I'm grateful i managed to stop when that car pulled out' Etc it helped me to really focus on what went right each day, or even what wasnt too bad and could have been so much worse!! i tend to count my blesings anyway but to do it so regularly and get in that way ofreflecting on the day was quite different. i know we could have put the

same things down each day but i dont think that would have been so effective. I've been keeping a short diary this year and have found myself puting down things to be grateful for in that- maybe one a day since the study. i work in an addiction service and I often come out of home visits thinking how lucky i am.I would be interested to know if my scores did actually change from before to after if it's at all possibly to pull that information out."

"I have to say I have never really done this sort of study before or anything related to psychology at all. It was new to me and interesting too and gave me an idea about how you can try to control or at least observe your every day thoughts and moods. I can't say the study has changed my attitude to life or my moods drastically but I probably felt a bit happier anyway. I found it difficult though to define new things that I felt grateful for every day. My gratitude list remained more or less the same all the time and it would consist of things like 'I'm grateful for having a family, friends, home, job, being healthy and alive', which are basically the things which we all very often take for granted.

Hope these comments are of any use to you in your research."

"I have to admit to not spending as much time on it as I should have - I was actually working in a very remote area of Cambodia whilst doing it, and spent a lot of time thinking about how lucky I am anyway. I am a pretty positive person, and I spend a lot of time thinking how lucky I am as it is. So I didn't feel like I got a great deal of benefit from it. I think this is why I didnt spend as much time as I should have done. My negative moods during the survey were the result of slight loneliness (I was the only foreignor so had limited people to talk to) and frustration with myself as I could not settle to my work. I think doing your survey made me remember when those bad moods came though that I had a lot to look

forward to when I left, and I was veyr lucky to be doing the work i was doing."
"I enjoyed the work book and was surprised how easy it was once I got into the swing of it! My mood definately improved during the study. I have been getting used to living on my own for the past year with my eight year old son, after the break up of a relationship.I have found that with no one to talk to in the evenings I can dwell on things and maybe worry a little too much. The work book has helped me put things back in perspective. I wonder if the study would produce different results at another time of year, my mood may have improved anyway as my annual holiday is getting closer!"
"I think the main comment I have is that the way I scored depended very much on how I was feeling at the time - so if I was low, I scored low, if I was happier, I scored better - what might have been helpful might have been tips on how to lift your mood - so you scored, then tried the tips and scored again. Dr David Burns I have since discovered has some great tips. Also after doing it for a few days, it became a bit mundane and I began doing it almost by rote, with less thought. Just observations. Keep up the good work, thanks for letting me be part of it."
"I actually found it quite tricky , which is silly as I know I have lots to be grateful for but writing them down felt very unnatural and contrived and to be honest I'm not sure how useful it is as a therapy because most people in my position know that they have a lot to be grateful for or happy about but the simple fact is that we/they aren't happy! Therefore, listing the things that should make you happy can often, in my opinion, actually make you feel more miserable because you feel even worse about yourself that you have all these things and yet you still see no point to life and feel like a failure. Maybe you just have to be less self aware than me for this therapy to work for you. I can see how it might help if you're completely fog bound by depression and can't see anything to be glad about(gosh it's all very Pollyanna isn't it?!) but in my case I know I'm lucky and have lots to be grateful for, and I am, but it doesn't make me actually feel any better. Sorry."
"as I was going through a bit of a difficult time regarding my health, I felt that concentrating solely on the positive thoughts really did help in dealing with some negative issues. Sometimes I found it difficult to write down only positive things but always managed it in the end, which - I think - proved beneficial." "I found it very interesting to take part in the study. I was filling in the gratitude list each evening and spending time thinking about each item on the list. As the days went by it became easier to find things to

be grateful for. Each day I was looking for situations and things to put on the list. This act resulted in a positive mood. Thank you for allowing me to take part."
"I found the tasks quite easy to do at first, interesting and it made me think differently i.e. a bit more positively! After a few days though it became more of a chore. Possibly this was because I was attempting to think up new statements all the time, instead of duplicating earlier ones. Maybe there were too many to write down for each session - I did divide some up throughout the day, instead of trying to complete the daily sheet in one go. Or perhaps it was because there was no variation in tasks - it was the same throughout. I am not convinced the tasks had much effect on how I was feeling, as other events etc have made me feel quite positive and happy over the last couple of weeks (not least the great weather we had at the beginning of the tasks). Even so, I feel it was a worthwhile and interesting process and I wish you luck with the study."
"I don' think the exercise made much difference to my mood. My answers may show a difference, I am not sure, but that was not my impression. I don't think I 'do' gratitude as such :-) I don't think I really 'feel' it. While I know the sorts of things I ought to feel grateful for, I find that these are relative and on an intellectual level rather than having much emotional connection to the concept. It would have been easy to turn the workbook into a very negative exercise e.g. 'I'm grateful for not being as much of a cripple as the bloke down the road' etc."
"I know that CBT was probably not the best one for me at this time - a day or two after signing up to this study I got signed off from work due to stress issues. The CBT was therefore leading me to look at the more negative emotions in my life - not necessarily a good thing as I'm sure you can imagine! Obviously I'm not sure what determined the workbook I got - I know it was either by luck of the draw or by the way I answered the original survey. I think I'm now going to look at one of the others and see if that helps more as for me I couldn't see where the CBT was supposed to take me and so I don't feel that I've benefitted from it. I have to be fair and say that is more than likely due to circumstance rather than anything else! You'll be pleased to hear I've already forwarded the link to a few friends and I know at least one of them was planning to do it"
"I found the study very interesting in that, the positive became part of me quite quickly, which is quite

encouraging to people who find negative thinking the norm. The true test for me was on days that things had gone wrong in my everyday life. Was i able to hold on to my new found positive approach? On the whole Yes. It not only changed my way of thinking but also affected my coping skills. As i didn't keep a copy of my original answers to compare the final answers i would be interested to know how big the improvement was. All i'm aware is that there has been improvement within my mood, by concentrating on gratitude.Thank you for helping me. Its good to make a difference in someones life, gratitude is a powerful thing! Please accept my gratitude."
"I figured that CBT is quite similar to "postive mental attitude" approach, i.e just think positive and you will feel positive. I feel taking part in the study has shown me it really works and think/hope I will generally have and try to have positive thoughts as the default. I was probably a fairly positive person before the study though.I did think the questionnaire was quite lengthy and this possibly could have put some people off, but maybe you need that many questions to get "proper" results?"
"Thank you for letting me take part in this study, even if it was a placebo, it has worked, and I am very grateful"

Appendix B

Workbooks and examples of web system flow (where the internet was used)

The workbooks presented here contain only text, examples and one blank sheet. See relevant methods section for exact number of blank sheet participants would have received.

Study One

Gratitude Therapy Mood Workbook

Any Questions?

Contact: adam.geraghty@plymouth.ac.uk

Gratitude Therapy to Promote Positive Mood

Please read this carefully so you understand what you are to do, and also the reason for doing it.

Background

The study of mood has progressed vastly over the past twenty years. Psychologists now understand a lot about how mood works and what affects it. Research has shown that certain tasks improve mood and create positivity. One such experience that has received much attention is the feeling of gratitude. Research published in top psychology journals, which asks people to carry out gratitude exercises, has shown that these gratitude tasks increase positive mood, increase overall feelings of well being, and have many other health benefits.

Why does it work?

There are several reasons why gratitude might improve mood.

1. Gratitude has been shown to be very effective in creating positive affective states that have long lasting effects.
2. Engaging in more positive thoughts (cognitive shifts) enables biochemical changes that lead to the experience of a more positive mood.
3. Thinking about gratitude allows you time to reflect on the positive in your life, which may have a calming effect allowing you to relax. A more calm and relaxed state is linked to increases in positive mood.
4.

We are not exactly sure which of these reasons is true. They may all contribute to the effectiveness of gratitude therapy for mood.

What do you want me to do?

There are many things in our lives, both large and small, that we might be grateful about. Think back over the past few months and write down eight things in your life that you are grateful or thankful for. Examples could be for wonderful parents, for being healthy, for a friend being kind, for your partner or you being successful at something.

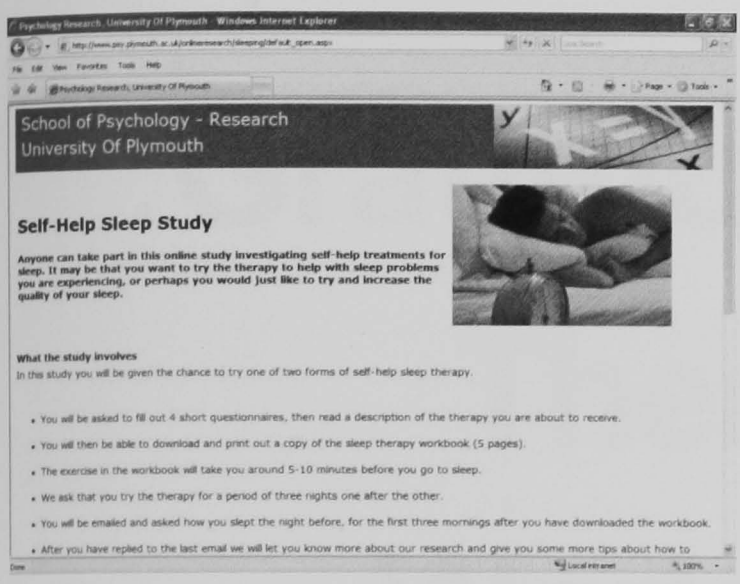
Please spend about 5-10 minutes on this task, and write what you are grateful for on the sheet provided. Please be as descriptive as possible. When you write each one down, please concentrate for a few seconds on the feeling of gratitude that each one gives you.

Gratitude Items

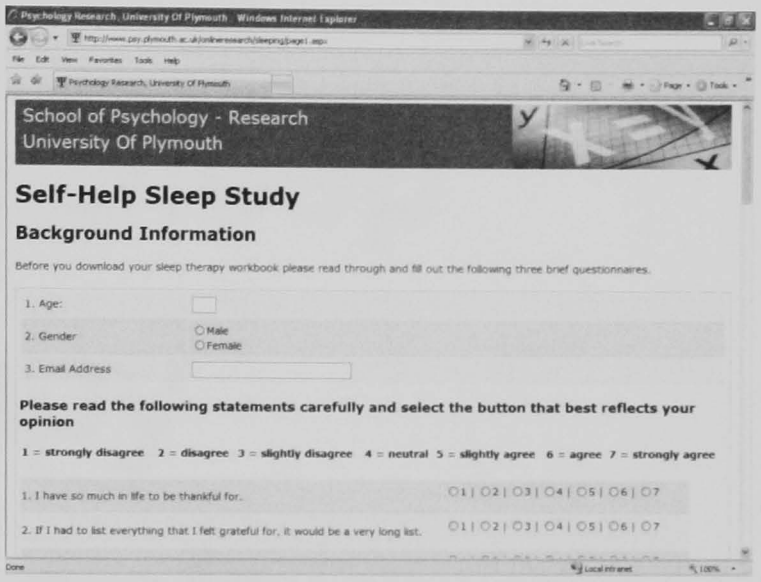
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

Study Two

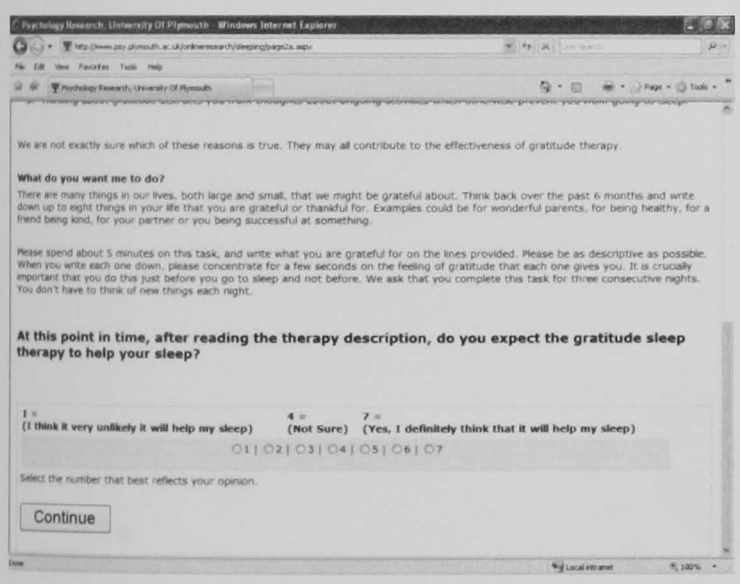
Study Two Basic Web System



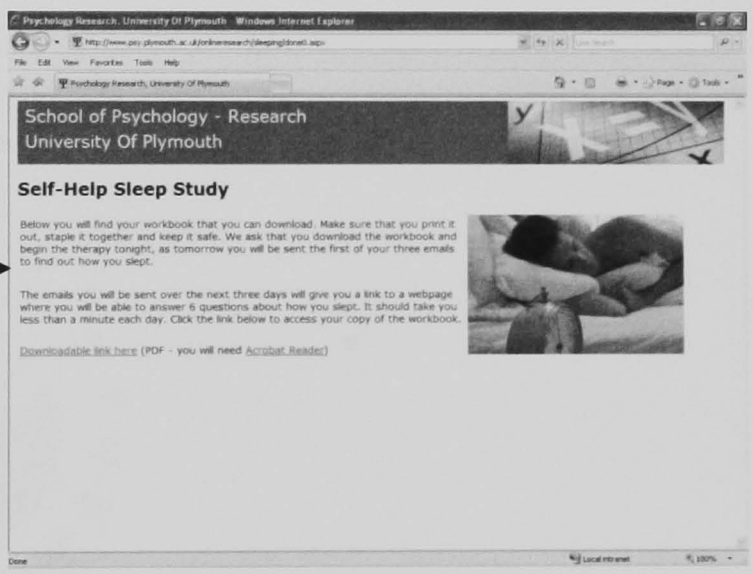
Information and consent pages



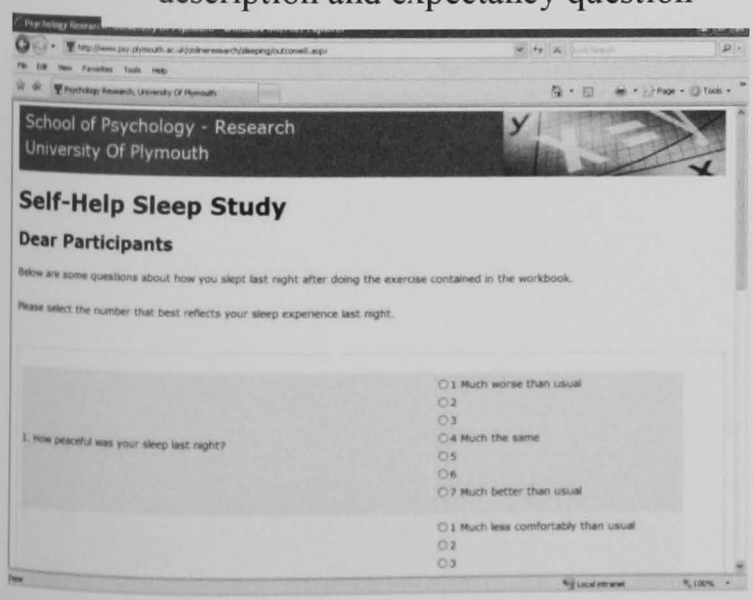
Demographic questions and all baseline measures



Randomisation occurs. Technique description and expectancy question



Link to downloadable workbook



Daily sleep questions and easy of task completion

Gratitude Sleep Therapy Workbook

Gratitude Therapy to Promote Healthy Sleep

Although you will have seen this information before on the website, please take the time to read this carefully so you understand what you are to do, and also the reason for doing it.

History
During the last 20 years psychologists have found that thinking positive thoughts has health benefits. Several types of positive thoughts have been studied, and one that seems particularly important is the feeling of being grateful for something. Nowadays gratitude therapy is studied as a psychological coping device. Not only is it used in research projects but it is increasingly being made available for people to use. Recent research, published in psychology journals, shows that it is particularly effective for sleep problems.

Why does it work?
There are several reasons why gratitude might help sleep.

1. Thinking positive thoughts before you go to bed produces 'positive' hormones (e.g., endorphins).
2. Focusing on gratitude before you go to sleep has a calming effect on the (autonomic) nervous system.
3. Thinking about gratitude distracts you from thoughts about ongoing activities which otherwise prevent you from going to sleep.

We are not exactly sure which of these reasons is true. They may all contribute to the effectiveness of gratitude therapy.

What do you want me to do?
There are many things in our lives, both large and small, that we might be grateful about. Think back over the past 6 months and write down up to eight things in your life that you are grateful or thankful for. Examples could be for wonderful parents, for being healthy, for a friend being kind, for your partner or you being successful at something.

Please spend about 5 minutes on this task, and write what you are grateful for on the lines provided. Please be as descriptive as possible. When you write each one down, please concentrate for a few seconds on the feeling of gratitude that each one gives you. It is crucially important that you do this just before you go to sleep and not before. We ask that you complete this task for three consecutive nights. You don't have to think of new things each night.

What happens after that?
You will be sent an email in which you will be given a link to webpage where you can answer questions about your sleep experience each night after you have used the gratitude therapy.

You will be given more information about the background of the study when you have completed night three.

Gratitude Items: Night 1

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

Being Nurtured Sleep Therapy Workbook

Although you will have seen this information before on the website, please take the time to read this carefully so you understand what you are to do, and also the reason for doing it.

History

During the last 20 years psychologists have found that thinking positive thoughts has health benefits. Several types of positive thoughts have been studied. The feeling of being loved or nurtured may particularly useful. Nowadays, positive therapies similar to being nurtured therapy, are studied as psychological coping devices. Not only are exercises similar to being nurtured therapy used in research projects but they are increasingly being made available for people to use. Recent research, published in psychology journals, shows that simple positive tasks such can be particularly effective for sleep problems.

Why does it work?

There are several reasons why thinking of times when you felt nurtured might help sleep.

1. Thinking positive thoughts before you go to bed produces 'positive' hormones (e.g., endorphins).

2. Focusing on being nurtured before you go to sleep has a calming effect on the (autonomic) nervous system.

3. Thinking about being nurtured distracts you from thoughts about ongoing activities which otherwise prevent you from going to sleep.

We are not exactly sure which of these reasons is true. They may all contribute to the effectiveness of being nurtured therapy.

What do you want me to do?

There are often times in our lives when we feel nurtured or loved. Think back over the course of your life and write down up to eight times when you felt nurtured. Examples of this could be the feeling of being supported by a friend, the feeling of being loved by a parent, the feeling of being given sympathy when sick or experiencing the wisdom of an older caring person. Please spend about 5 minutes on this task and write down times you felt nurtured on the lines provided. Please be as descriptive as possible. When you write each one down, please concentrate for a few seconds on the feeling of being nurtured that each one gives you. It is crucially important that you do this just before you go to sleep and not before. We ask that you complete this task for three consecutive nights. You don't have to think of new things each night.

What happens after that?

You will be sent an email in which you will be given a link to webpage where you can answer questions about your sleep experience each night after you have used the being nurtured therapy. You will be given more information about the background of the study when you have completed night three.

Being Nurtured Items: Night 1

1. _____

2. _____

3. _____

4. _____

5. _____

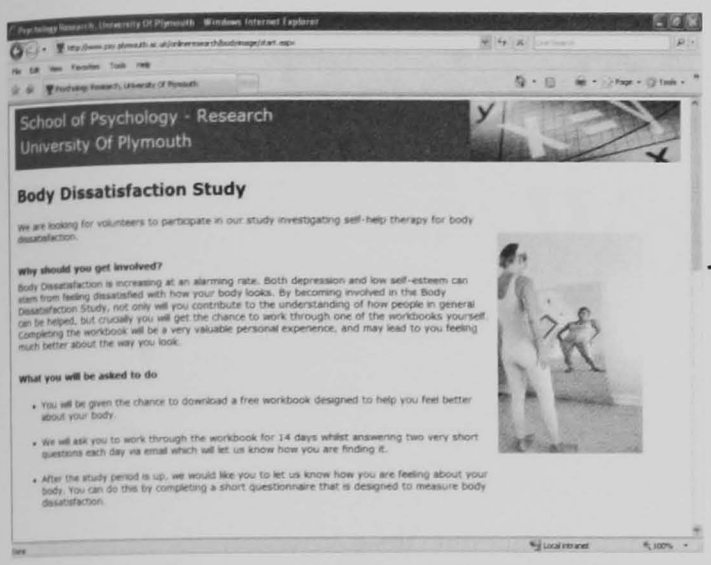
6. _____

7. _____

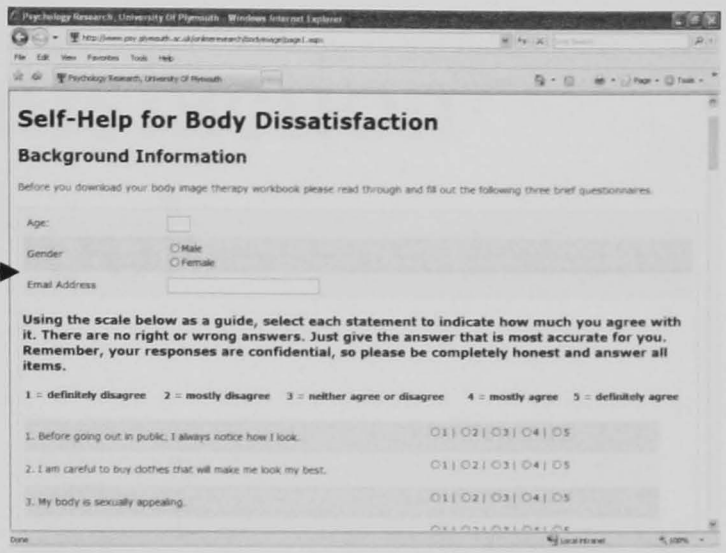
8. _____

Study Three

Study Three Basic Web System



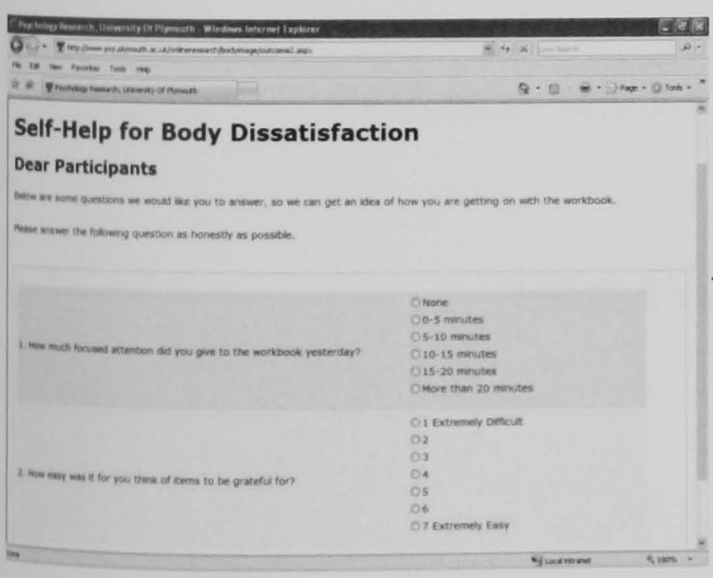
Information and consent page



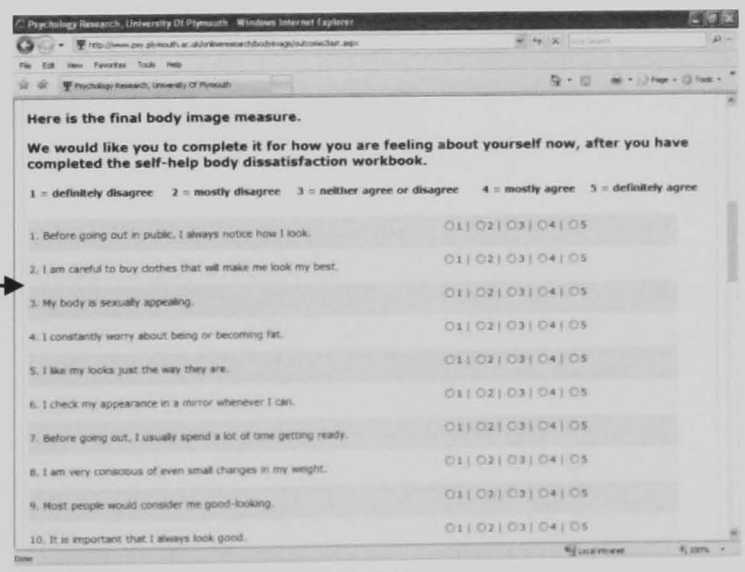
Demographic questions and all baseline measures

Randomisation occurs. Technique description and expectancy question

Link to downloadable workbook



Daily Compliance question. Difficulty question



Final outcome measures

Body Dissatisfaction Workbook

Gratitude Therapy

Professor Michael Hyland, PhD CPsychol

Adam Geraghty, BSc MSc

Welcome to the body dissatisfaction workbook.

The following pages contain techniques and information that are designed to lessen your body dissatisfaction and make you feel better about yourself. If you follow the instructions carefully and complete all stages of the workbook there is every chance that you will finish this study feeling more positive and better about the way you look.

Body Image

Before we start it is necessary to understand what it is that you are attempting to change. It is important to understand that 'body image' does not refer to what you actually look like, your physical body. The term 'body image' refers what you think about your body and the relationship you have with it. Your personal body image is made up of thoughts, perceptions and beliefs that you assign to your physical body. As such body image has little to do with physical appearance. Indeed, even people you may think have perfect bodies - models, for example - often express contempt for aspects of their appearance and suffer from body dissatisfaction. This demonstrates crucially that how you feel about your body and yourself is often not related to your objective body size and shape, it is intimately tied to how you *think*.

Development of a Negative Body Image

According to Dr Thomas Cash, a body image expert, negative body image often develops gradually over time and is a result of two main factors: historical influences and current influences. Historical influences stem from the past: things such as family experiences, pressure from parents, teasing by siblings and going through school, college or university. Current influences include experiences of everyday life that determine how you think and feel about your looks.

It is important to remember that although body image problems develop over time, they are not permanent and they can be changed. This has been demonstrated in scientific studies showing that doing self-help exercises very much like the one in this book significantly help people to feel better about themselves.

Although it may seem like it at times, body image is not unchangeable. Originating from your thoughts and perceptions, body image is flexible and can change in time with effort and awareness.

What if you just really want to change the way you look?

You may be thinking, 'I don't want to change the way I think, that won't help me, I want to change my body!' This is very common, and understandable, after all it really seems as though it is your body that is giving you problems. There are many things that may lead to the strong desire to change your looks. Perhaps the strongest is the media's representations of how both women and men should look. It is important to remember that in many cases this representation is not only unrealistic, but also unhealthy. Additionally, with technology becoming so advanced, what you see is not actually what people look like. The photographs have been airbrushed and doctored for hours to produce this 'perfection'.

Scientific research also shows that people who lose a lot of weight - perhaps you may have wished to do so in the past? - have usually put it back on a year later,

and often feel worse than they did about themselves before they started the original diet a year before. Wouldn't it be much better, much healthier, to learn to accept and love the body you are in as it is? Changing your relationship with your body, so that it is more positive, will make you much happier with yourself over the long term. The best way to feel better about yourself is to change the way you think.

What is positive psychology?

Positive psychology is newly emerging field that focuses on and researches the role positivity plays in every day life and health. Many published studies have shown the beneficial effects of positivity on immune system functioning, mortality and many psychological disturbances such as depression, anxiety and schizophrenia and other more minor conditions. Positive psychology is novel in that the focus in treatment is placed on the positive, for example positivity based interventions. This is in contrast to the traditional medical approach that sees treatment as correcting the negative, for example a strong focus is placed on what is wrong and ways to correct the problem.

Helping yourself with gratitude therapy

Rather than working at a rational level, gratitude therapy works at a deeper, unconscious level to make you feel better about the person you are. Instead of telling you to stop thinking about your body, gratitude therapy makes you more positive about yourself in a holistic manner. Your body dissatisfaction will decrease of its own accord if you carry out the exercise described in this workbook. By focusing on the positive on a regular basis, your negative thoughts will become reduced and will take less of your energy. As you engage with the positivity fostering gratitude exercises you will begin to accept and feel better about your body.

It may sound hard to be grateful when there are things you don't like about yourself. It is not necessary to have a body the media pitches as ideal to begin to spend time feeling grateful. What the therapy will foster is an interior attitude of thankfulness regardless of life circumstances. Research has shown that beginning to practise gratitude can help alleviate many negative emotions such as envy, resentment, disappointment and dissatisfaction with yourself. Dr Robert Emmons, a gratitude expert, suggests that spending time focusing on what you are grateful for in your day-to-day life will not only help you accept and begin to like yourself more, but, with continued practice, will also impart more meaning to your life and teach you a way of encountering the world that is decidedly positive.

What we would like you to do.

To carry out gratitude therapy, you need to find a quiet place where you can think without being disturbed. You could try doing it before going to sleep, or sitting on a train, or simply sitting by yourself in a room without any distractions. You may also like to try it when you may be feeling down about your body.

There are many things in our lives, both large and small, that we might be grateful for. We would like you to think back over your life, be it the past month or years ago and write down up to 6 things in your life that you are grateful or thankful for once a day for two weeks. Please use the specific pages in the workbook to write your gratitude items. Examples could be for wonderful parents,

for being healthy, for a friend being kind, for your partner or you being successful at something. See the start of the gratitude records towards the end of the workbook for an example.

When you have finished your list, take the first item and concentrate on feeling grateful about that item for about half a minute. Then move on to the next item and feel 'being grateful' for the second item. Do this for each of the items in turn. With each item, try to reconnect with the positive feelings you experience when feeling grateful. You should spend about five minutes on this task. Five minutes spent focusing on the positive feelings that arise from experiencing gratitude is usually enough for the therapy to take effect and begin to make you feel better about yourself, as well as lessening your concerns about your body. Five minutes may not seem like a long time, but remember you are dealing with subconscious thought patterns, not conscious logic.

The aim of the therapy is to re experience the feeling of being grateful.

When you carry out this task you may find your mind wandering. Don't worry. Once you notice your mind has wandered, simply bring it back to the feeling of being grateful. Writing down six things you are grateful for every day for fourteen days may seem a daunting task, but you will get better at it with practice. Once you start to find it difficult thinking of new things, just try thinking of things from your day rather than the distant past. For instance, 'I am grateful that it didn't rain today' or 'I am grateful that my boss showed me an easier way to...'. If you are still struggling you can think of even the smallest things 'I am grateful that there was cereal in the cupboard'. It really isn't that important what you are grateful for, rather that you are spending time feeling thankful. This is the key to enhancing positivity in your life, and lessening dissatisfaction you may feel with your body.

You will be sent an email each day that allows you to tell us how you are getting on with the workbook, we will ask you how easy you are finding doing it, and also how much time you are spending on the exercises. After the end of the second week we will send you a slightly longer email with questions asking you how you are feeling about your body after the therapy. When you

have replied to this last email, you will be given more information about the background of the study.

So, before you begin, thank you for agreeing to take part in this study. We are looking forward to hearing how you are getting on.

The next pages contain the gratitude records for each day. Start day one today...

About the authors

Michael Hyland is a Professor of Health Psychology at the University of Plymouth. He has extensive experience and expertise in designing therapeutic interventions, stemming from his work investigating what makes therapy effective. Professor Hyland has developed self-help packages for body dissatisfaction, sleep disorders and general well-being.

Adam Geraghty is a postgraduate research student conducting and PhD under the supervision of Michael Hyland. Adam is primarily involved in running the practical and administration aspects of the Body Dissatisfaction Study.

If you wish to contact us at any point email: adam.geraghty@plymouth.ac.uk

Example

List up to 6 things that you are grateful for in your life on the lines below

1 I am grateful for a loving girlfriend who cares about me, and is thoughtful

2 I am grateful for living in a lovely part of the world. With opportunities !

3 I am grateful that my car does not always break down. And for the AA

4 I am grateful for having a roof over my head. I have shelter and warmth.

5 I am grateful for my health, it may not be perfect but I am luckier than many people I know

6 I am grateful for having food in the cupboard, and that I know how to cook

Remember to spend some time focusing on the feeling of gratitude that you experience as you think about and write down the things in your life that you feel grateful for.

Day 1

List up to 6 things that you are grateful for in your life on the lines below

1_____

2_____

3_____

4_____

5_____

6_____

Remember to spend some time focusing on the feeling of gratitude that you experience as you think about and write down the things in your life that you feel grateful for.

Body Dissatisfaction Workbook

Cognitive Behaviour Therapy

Professor Michael Hyland, PhD CPsychol

Adam Geraghty, BSc MSc

Welcome t o the body dissatisfaction workbook.

The following pages contain techniques and information that are designed to lessen your body dissatisfaction and make you feel better about yourself. If you follow the instructions carefully and complete all stages of the workbook there is every chance that you will finish this study feeling more positive and better about the way you look.

Body Image

Before we start it is necessary to understand what it is that you are attempting to change. It is important to understand that 'body image' does not refer to what you actually look like, your physical body. The term 'body image' refers what you think about your body and the relationship you have with it. Your personal body image is made up of thoughts, perceptions and beliefs that you assign to your physical body. As such body image has little to do with physical appearance. Indeed, even people you may think have perfect bodies - models, for example - often express contempt for aspects of their appearance and suffer from body dissatisfaction. This demonstrates crucially that how you feel about your body and yourself is often not related to your objective body size and shape, it is intimately tied to how you *think*.

Development of a Negative Body Image

According to Dr Thomas Cash, a body image expert, negative body image often develops gradually over time and is a result of two main factors: historical influences and current influences. Historical influences stem from the past: things such as family experiences, pressure from parents, teasing by siblings and going through school, college or university. Current influences include experiences of everyday life that determine how you think and feel about your looks.

It is important to remember that although body image problems develop over time, they are not permanent and they can be changed. This has been demonstrated in scientific studies showing that doing self-help exercises very much like the one in this book significantly help people to feel better about themselves.

Although it may seem like it at times, body image is not unchangeable. Originating from your thoughts and perceptions, body image is flexible and can change in time with effort and awareness.

What if you just really want to change the way you look?

You may be thinking, 'I don't want to change the way I think, that won't help me, I want to change my body!' This is very common, and understandable, after all it really seems as though it is your body that is giving you problems. There are many things that may lead to the strong desire to change your looks. Perhaps the strongest is the media's representations of how both women and men should look. It is important to remember that in many cases this representation is not only unrealistic, but also unhealthy. Additionally, with technology becoming so advanced, what you see is not actually what people

look like. The photographs have been airbrushed and doctored for hours to produce this 'perfection'.

Scientific research also shows that people who lose a lot of weight - perhaps you may have wished to do so in the past? - have usually put it back on a year later, and often feel worse than they did about themselves before they started the original diet a year before. Wouldn't it be much better, much healthier, to learn to accept and love the body you are in as it is? Changing your relationship with your body, so that it is more positive, will make you much happier with yourself over the long term. The best way to feel better about yourself is to change the way you think.

Helping yourself with Cognitive Behaviour Therapy

Cognitive Behaviour Therapy (CBT) is form of psychotherapy that is very popular. It has been shown to be very effective in treating problems such as body dissatisfaction, depression and anxiety. CBT is based on the idea that your judgments and interpretations of events, not the events themselves govern your emotional reactions. In the case of body dissatisfaction, CBT teaches us that *you feel how you think*. A central tenant of CBT is that it is possible for people to solve their own personal problems if they can learn to examine their own minds and actions in an unbiased and accurate way.

What we would like you to do

We would like you to complete what are known in CBT as automatic thought records. People with poor body image tend to think about their bodies and often themselves in a negative way. These negative thoughts about your body are often **automatic:** they just seem to come into your mind without any effort, **distorted:** they are not always supported by the things you know to be true, **unhelpful:** they keep you feeling upset or depressed about your body, and make it difficult to change, **plausible:** you accept them as facts and don't question them, **involuntary:** you do not choose to have them and they are very difficult to stop.

The aim of automatic thought records are to help you recognise when you are thinking negatively about your body, and to look for more positive and realistic ways of viewing yourself. Over time and with practice, you will find yourself beginning to feel better about your body. You will start to believe you negative thoughts less, look for more positive and realistic ways of viewing your body and you will begin to foster a more accepting view of yourself.

There are seven main sections to the automatic thought record, and what you should write in each one is explained below. But first, have a look at an example. At the beginning of the automatic thought records in this workbook there are two examples of automatic thought records that have been completed by people who are dissatisfied with their bodies.

Completing automatic thought records has been shown to be very effective at helping people see negative thought patterns that have often gone unchallenged for years. As you get better at filling them in you will become more aware of how you think automatically. Completing the thought records

will help you begin to adjust problematic thoughts. As you do this you will begin to feel much better about your body. Each column is important so read through what you have do to carefully, and keep referring to the examples as this will make it much clearer. Here is what you should write in each section:

Situation: In this column try to be as specific as possible about the situation you were in when you felt bad about your body. Try to limit the situation section to a specific time frame that does not exceed 30 minutes. For instance 'walking into town' is a good situation, 'all day Friday' is not.

Mood: List the moods you were experiencing in the situation you described and rate their intensity on a 0-100% scale – rating a mood 90% for example would mean that you were feeling that mood very intensely at the time. Try and describe the mood in one word, for example: 'depressed 85%' 'nervous 68%'.

Automatic thoughts: Try and identify the main thoughts that went through your mind at the time. When you have come up with two or three, identify the thought that was the strongest, or that makes you feel the worst when you think back. Circle it. This is the 'hot thought' that you will work with for the rest of the record. To identify your automatic thoughts ask yourself 'what was going through my mind when I started to feel this way?' or 'what does this say about me?'

Evidence supporting hot thought: In this column, look for evidence that supports your hot thought. This will most often be the negative things that happened that lead to your 'hot thought'. Try and identify only factual evidence, try to avoid interpretation of facts.

Evidence that does not support your hot thought: This may seem difficult initially but with practice you will get better at this. Try to be unbiased by your supporting evidence, ask yourself 'Have I had any experiences that show that this thought is not completely true all the time?' 'If my best friend or someone I loved had this thought, what would I tell them?' 'Am I blaming myself for something over which I do not have complete control?'

Balanced thinking: Balanced thinking takes into account both the negative and positive information you may have written in the previous columns. It is here you attempt to understand the meaning of *all* the available information. With this additional information or an expanded point of view, your interpretation of an event may change... (see example balanced thinking section for ideas). To help here, ask yourself 'based on the evidence I have listed in columns 4 and 5 of the thought record, is there an alternative way of thinking about or understanding the situation?'

Rate moods now: Copy the original mood you felt from column 2, and rate on 0-100% scale the intensity of that mood now, after you have completed the automatic thought record. If you are completing the record a while after the initial event, think about how going back over the event makes you feel now,

after you have challenged your initial automatic thoughts, just as you remembered the initial intensity of the triggering event.

How to complete the study

What we would like you to do is to complete a thought record every day for 14 days. You may find them a little tricky at first: this is normal and they will get easier. Select a situation that made you feel upset or down about your body from each day. Ideally you would complete your thought record right after the event, but often this is not practical. Why not complete the record in the evening, when you can reflect back over your day? If you have a good day, it is still good to practice, why not think back to a time from the past and carry out the thought record on that time? The main thing is that you are practicing thinking in a more rational and balanced way. This is the most important part of the process. By thinking this way you will begin to feel better about your body as you start to question your negative automatic thoughts more.

After a little practice they shouldn't take you much more than 10 minutes, but obviously, you can spend as much time on them as you like, there is no limit.

You will be sent an email each day that allows you to tell us how you are getting on with the workbook, we will ask you how easy you are finding doing it, and also how much time you are spending on the exercises. At the end of the second week we will send you a slightly longer email with questions asking you how you are feeling about your body after the therapy. When you have replied to this last email, you will be given more information about the background of the study.

So, before you begin, thank you for agreeing to take part in this study and we are looking forward to hearing how you are getting on.

The next pages contain the thought records for each day. Start day one today…

About the authors

Michael Hyland is a Professor of Health Psychology at the University of Plymouth. He has extensive experience and expertise in designing therapeutic interventions, stemming from his work investigating what makes therapy effective. Professor Hyland has developed self-help packages for body dissatisfaction, sleep disorders and general well-being.

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If you wish to contact us at any point email:

adam.geraghty@plymouth.ac.uk

Body Image - Automatic Thought Record - Example 1

1.Situations	2.Moods	3.Automatic Thoughts	4.Evidence that supports the 'hot thought'	5.Evidence that does not support the 'hot thought'	6.Balanced Thoughts	7.Rate Moods Now
Walking into a Bar	Depressed 72%	Everyone is looking at me I am really Fat Everyone else looks amazing	Everyone else is really skinny My legs and arms are huge!	My friends said I looked nice A guy smiled at me	I guess I am not that fat I may have looked ok People were probably thinking about what they looked like rather than looking at me	Depressed 30%

Body Image - Automatic Thought Record - Example 2

1.Situations	2.Moods	3.Automatic Thoughts	4.Evidence that supports the 'hot thought'	5.Evidence that does not support the 'hot thought'	6.Balanced Thoughts	7.Rate Moods Now
Giving a presentation at work	Anxious 88% Upset 60% Depressed 67%	I look disgusting I hate my skin I just want to disappear	My skin is really bad today People stare at my imperfections No one else has this problem	A really good friend and I spoke about it he said he didn't even notice Things could be much worse! People enjoy spending time with me	All thoughts pass, soon I wont care about this People enjoyed the talk and spent most time looking at hand outs, not at me	Anxious 10% Upset 25% Depressed 20%

Body Image - Automatic Thought Record - Day 1

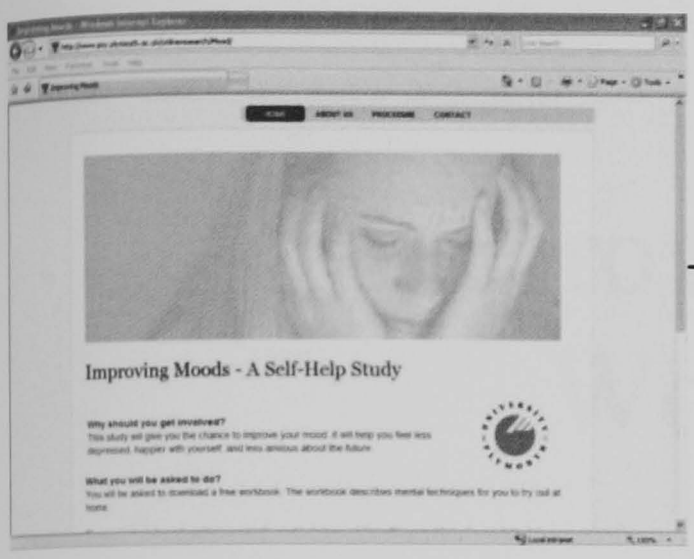
1.Situations	2.Moods	3.Automatic Thoughts	4.Evidence that supports the 'hot thought'	5.Evidence that does not support the 'hot thought'	6.Balanced Thoughts	7.Rate Moods Now

Body Image - Automatic Thought Record - Day 2

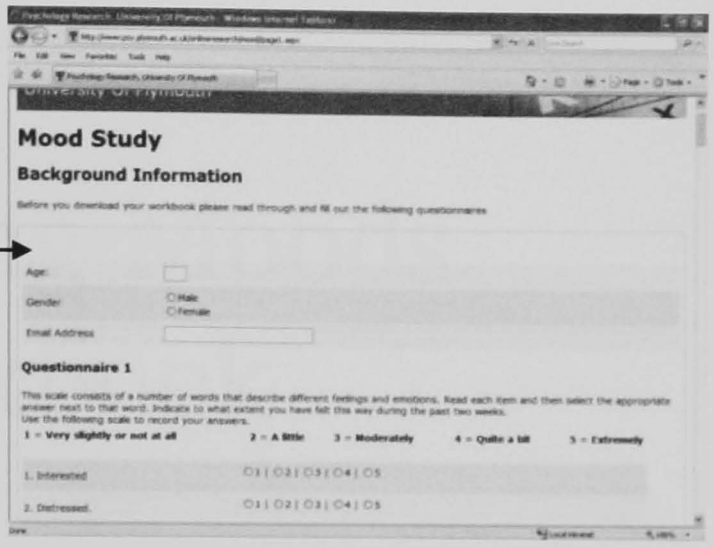
1.Situations	2.Moods	3.Automatic Thoughts	4.Evidence that supports the 'hot thought'	5.Evidence that does not support the 'hot thought'	6.Balanced Thoughts	7.Rate Moods Now

Study Four

Study Four Basic Web System



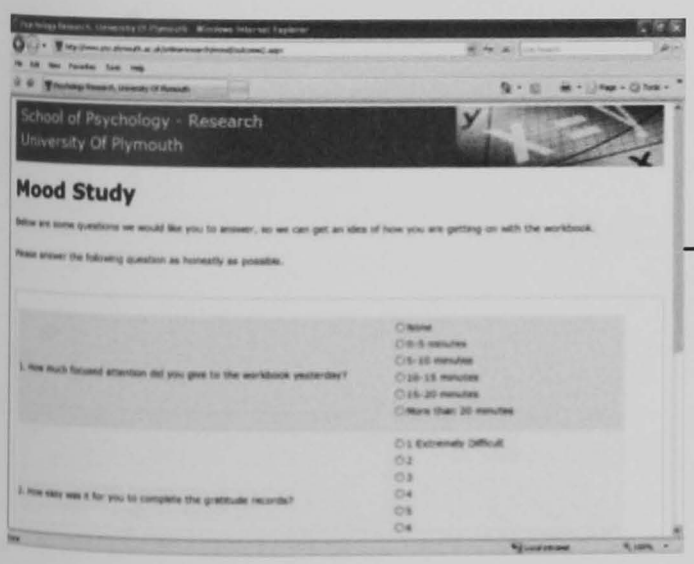
Information and consent pages



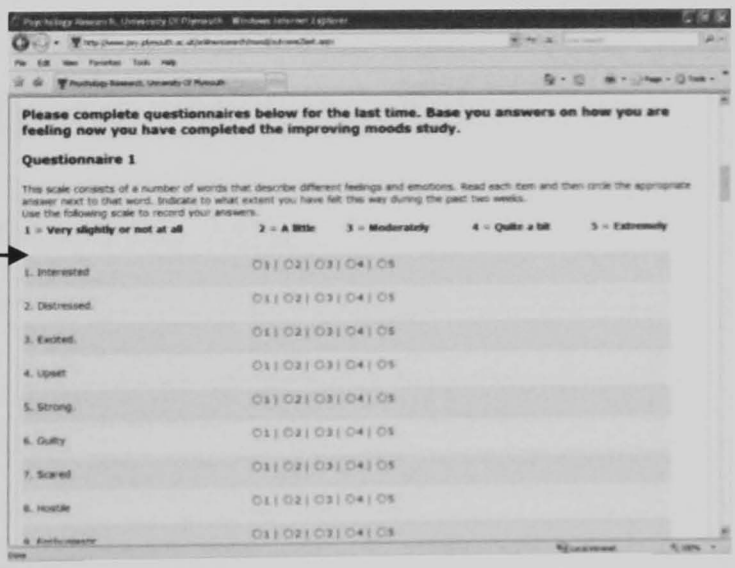
Demographic questions and all baseline measures

Randomisation occurs. Technique description and expectancy question

Link to downloadable workbook



Every Other Day Compliance question. Difficulty question



Final outcome measures

Improving Moods Workbook

Cognitive Behaviour Therapy

Professor Michael Hyland, PhD CPsychol

Adam Geraghty, BSc MSc

Welcome to the Improving Moods workbook.

An important first step in improving how you feel is to learn more about what you are experiencing. By increasing your understanding of moods and their causes, you will improve your ability to identify your own negative moods and feel better.

Moods tend to linger for periods of time. When your mood is negative, this reduces your enjoyment of life, stops you doing the things you like and disrupts your relationships with others.

Certain types of thinking often cause negative moods. For example, you may criticise yourself too much, you may try and take responsibility for everything that happens to you or you may feel pessimistic about what will happen in the future. You can see how thinking like this can lead to negative moods. It is very important to remember that how you think determines the way you feel.

Development of frequent negative moods
The more negative moods you experience, the more likely you are to see things in a negative light, leading to more negative moods. This downward spiral can leave you feeling really depressed. However, you *can* control your thoughts. You can choose what you eat, you choose what you do with body, and you can choose what to with your mind. It just takes a bit of effort.

"But aren't negative moods important?"
It is important not to ignore negative emotions. Emotions are part of what it is to be human, and healthy moods and emotions enrich your life and steer you in a positive direction. They may also help you to deal healthily with unfavourable life events. It is when the balance between positive and negative feelings slips, and over time you feel you may be experiencing more and more negative moods that mental exercises such as those included in this workbook may be helpful.

Helping yourself with Cognitive Behaviour Therapy
Cognitive Behaviour Therapy (CBT) is form of psychotherapy that is very popular. It has been shown to be very effective in treating problems such as low mood, depression and anxiety. CBT is based on the idea that your judgments and interpretations of events, not the events themselves govern your emotional reactions. In the case of negative emotions, CBT teaches us that *you feel how you think*. A central idea of CBT is that it is possible for people to solve their own personal problems if they can learn to examine their own minds and actions in an unbiased and accurate way.

What we would like you to do
We would like you to complete what are known in CBT as automatic thought records. People with who experience frequent negative moods tend to think circumstances, events and often themselves in a negative way. These negative thoughts are often **automatic:** they just seem to come into your mind without any effort, **distorted:** they are not always supported by the things you know to be true, **unhelpful:** they keep you feeling upset or down, and make it

difficult to change, **plausible:** you accept them as facts and don't question them, **involuntary:** you do not choose to have them and they are very difficult to stop.

The aim of automatic thought records are to help you recognise when you are thinking negatively, and to look for more positive and realistic ways of viewing both situations and yourself. Over time and with practice, you will find yourself beginning to feel more positive. You will start to believe your negative thoughts less, look for more positive and realistic ways of viewing situations and will begin to foster a more accepting view of yourself.

There are seven main sections to the automatic thought record, and what you should write in each one is explained below. But first, have a look at an example. At the beginning of the automatic thought records in this workbook there are two examples of automatic thought records that have been completed by people in the process of improving their moods.
Completing automatic thought records has been shown to be very effective at helping people see negative thought patterns that have often gone unchallenged for years. As you get better at filling them in you will become more aware of how you think automatically. Completing the thought records will help you begin to adjust problematic thoughts. As you do this you will begin experience negative moods less. Each column is important so read through what you have do to carefully, and keep referring to the examples as this will make it much clearer. Here is what you should write in each section:

Situation: In this column try to be as specific as possible about the situation you were in when you experienced a negative mood. Try to limit the situation section to a specific time frame that does not exceed 30 minutes. For instance 'walking into town' is a good situation, 'all day Friday' is not.

Mood: List the moods you were experiencing in the situation you described and rate their intensity on a 0-100% scale – rating a mood 90% for example would mean that you were feeling that mood very intensely at the time. Try and describe the mood in one word, for example: 'depressed 85%' 'nervous 68%'.

Automatic thoughts: Try and identify the main thoughts that went through your mind at the time. When you have come up with two or three, identify the thought that was the strongest, or that makes you feel the worst when you think back. Circle it. This is the 'hot thought' that you will work with for the rest of the record. To identify your automatic thoughts ask yourself 'what was going through my mind when I started to feel this way?' or 'what does this say about me?'

Evidence supporting hot thought: In this column, look for evidence that supports your hot thought. This will most often be the negative things that happened that lead to your 'hot thought'. Try and identify only factual evidence, try to avoid interpretation of facts.

Evidence that does not support your hot thought: This may seem difficult

initially but with practice you will get better at this. Try to be unbiased by your supporting evidence, ask yourself 'Have I had any experiences that show that this thought is not completely true all the time?' 'If my best friend or someone I loved had this thought, what would I tell them?' 'Am I blaming myself for something over which I do not have complete control?'

Balanced thinking: Balanced thinking takes into account both the negative and positive information you may have written in the previous columns. It is here you attempt to understand the meaning of *all* the available information. With this additional information or an expanded point of view, your interpretation of an event may change... (see example balanced thinking section for ideas). To help here, ask yourself 'based on the evidence I have listed in columns 4 and 5 of the thought record, is there an alternative way of thinking about or understanding the situation?'

Rate moods now: Copy the original mood you felt from column 2, and rate on 0-100% scale the intensity of that mood now, after you have completed the automatic thought record. If you are completing the record a while after the initial event, think about how going back over the event makes you feel now, after you have challenged your initial automatic thoughts, just as you remembered the initial intensity of the triggering event.

How to complete the study

What we would like you to do is to complete a thought record every day for 14 days. You may find them a little tricky at first: this is normal and they will get easier. Select a situation that affected your mood negatively each day. Ideally you would complete your thought record right after the event, but often this is not practical. Why not complete the record in the evening, when you can reflect back over your day? If you have a good day, it is still good to practice, why not think back to a time from the past and carry out the thought record on that time? The main thing is that you are practicing thinking in a more rational and balanced way. This is the most important part of the process. By thinking this way you will begin improve you mood as you see situations in a more objective way.

After a little practice they shouldn't take you much more than 10 minutes, but obviously, you can spend as much time on them as you like, there is no limit. You will be sent an email every other day that allows you to tell us how you are getting on with the workbook. We will ask you how easy you are finding it, and how much time you are spending on the exercises. Try to complete the emails, but if you can't keep up with them, don't worry. The most important part is that you are working through the workbook and answer the final email you are sent. You will receive this important email at the end of the second week. This email will contain a web link with questions asking you how you are feeling after completing the workbooks. When you have replied to this last email, you will be given more information about the background of the study. So, before you begin, thank you for agreeing to take part in this study and we are looking forward to hearing how you are getting on.

The next pages contain the thought records for each day. Start day one today...

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Adam Geraghty is a postgraduate research student conducting and PhD under the supervision of Michael Hyland. Adam is primarily involved in running the practical and administration aspects of the Improve your mood study.

If you wish to contact us at any point email: adam.geraghty@plymouth.ac.uk

Mood - Automatic Thought Record - Example 1

1.Situations	2.Moods	3.Automatic Thoughts	4.Evidence that supports the 'hot thought'	5.Evidence that does not support the 'hot thought'	6.Balanced Thoughts	7.Rate Moods Now
On the way home from work	Depressed 72%	I didn't get enough done today ~~I don't think~~ I am good enough for the job I don't seem to ~~be good at~~ anything	I am behind, my work load is building up I don't seem to know as much as anybody else	umm I guess they would not have given me they job if they didn't think I was capable I have been there six months and no one has said anything	Perhaps I am over analysing things. I will get better over time a good deal of the time I do like what I am doing	Depressed 20%

Mood - Automatic Thought Record - Example 2

1.Situations	2.Moods	3.Automatic Thoughts	4.Evidence that supports the 'hot thought'	5.Evidence that does not support the 'hot thought'	6.Balanced Thoughts	7.Rate Moods Now
Tuesday before bed no call from my partner	Anxious 50% Upset 60% Down 70%	Where are they? They don't care how I feel I maybe I ~~should just~~ disappear	This is not the first time They have been acting strangely This always happens to me	We have had some great times together People often tell me I worry too much	There may be many reasons they haven't called, It could be nothing to do with me I am a strong person, what ever happens I will be ok	Anxious 30% Upset 10% Down 20%

Mood - Automatic Thought Record - Day 1

1.Situations	2.Moods	3.Automatic Thoughts	4.Evidence that supports the 'hot thought'	5.Evidence that does not support the 'hot thought'	6.Balanced Thoughts	7.Rate Moods Now

Improving Moods Workbook

Gratitude Therapy

Professor Michael Hyland, PhD CPsychol

Adam Geraghty, BSc MSc

Welcome to the Improving Moods workbook

An important first step in improving how you feel is to learn more about what you are experiencing. By increasing your understanding of moods and their causes, you will improve your ability to identify your own negative moods and feel better.

Moods tend to linger for periods of time. When your mood is negative, this reduces your enjoyment of life, stops you doing the things you like and disrupts your relationships with others.

Negative moods often feel as though they are caused by bad things that happen, but this often not the case. When our mood is negative we tend to see the world as though it were bad. The secret of improving mood is to learn how to see the world as though it were good.

Development of frequent negative moods
The more negative moods you experience, the more likely you are to see things in a negative light, leading to more negative moods. This downward spiral can leave you feeling really depressed. However, you *can* control your thoughts. You can choose what you eat, you choose what you do with body, and you can choose what to with your mind. It just takes a bit of effort.

"But aren't negative moods important?"
It is important not to ignore negative emotions. Emotions are part of what it is to be human, and healthy moods and emotions enrich your life and steer you in a positive direction. They may also help you to deal healthily with unfavourable life events. It is when the balance between positive and negative feelings slips, and over time you feel you may be experiencing more and more negative moods that mental exercises such as those included in this workbook may be helpful.

What is positive psychology?
Positive psychology is newly emerging field that focuses on the role positivity plays in everyday life. Many published studies have shown the beneficial effects of positive thinking on the immune system, health and many psychological problems such as depression and anxiety.

Helping yourself with gratitude therapy
Instead of telling you to stop thinking negatively, gratitude therapy makes you more positive in a holistic manner. By focusing on positive things in your life,you will find your mood improves and you stop thinking negative thoughts automatically.

It may sound hard to focus on what you are grateful for if you are feeling down. It is not necessary for everything in your life to be ideal to begin to spend time focusing on gratitude. Research has shown that beginning to spend a small amount of time each day focusing on positive thoughts (in this case what you are grateful for) will help improve your mood. In other words, the more you focus on positive events, the easier it becomes to feel more

positive in the future.

What we would like you to do.
To carry out gratitude therapy, you need to find a quiet place where you can think without being disturbed. You could try doing it before going to sleep, or sitting on a train, or simply sitting by yourself in a room without any distractions. You may also like to try it when you may be feeling down or experiencing a low mood, it is up to you.

There are many things in our lives, both large and small, that we might be grateful for. We would like you to think back over your life, be it the past month or years ago and write down up to 6 things in your life that you are grateful or thankful for once a day for two weeks. Please use the specific pages in the workbook to write your gratitude items. Examples could be for wonderful parents, for being healthy, for a friend being kind, for your partner or you being successful at something. See the start of the gratitude records towards the end of the workbook for an example.

When you have finished your list, take the first item and concentrate on feeling grateful about that item for about half a minute. Then move on to the next item and feel 'being grateful' for the second item. Do this for each of the items in turn. With each item, try to reconnect with the positive feelings you experience when feeling grateful. You should spend about five minutes on this task. Five minutes spent focusing on the positive feelings that arise from experiencing gratitude is usually enough for the therapy to take effect and begin to make you feel better. Five minutes may not seem like a long time, but setting aside specific time to focus on what you are grateful for will make it easier to feel more positive throughout each day.

When you carry out this task you may find your mind wandering. Don't worry. Once you notice your mind has wandered, simply bring it back to the feeling of being grateful. Writing down six things you are grateful for every day for fourteen days may seem a daunting task, but you will get better at it with practice. Once you start to find it difficult thinking of new things, just try thinking of things from your day rather than the distant past. For instance, 'I am grateful that it didn't rain today' or 'I am grateful that my boss showed me an easier way to...'. If you are still struggling you can think of even the smallest things 'I am grateful that there was cereal in the cupboard'. It really isn't that important what you are grateful for, rather that you are spending time feeling thankful. This is the key to enhancing positivity in your life, and lessening negative moods.

You will be sent an email every other day that allows you to tell us how you are getting on with the workbook, we will ask you how easy you are finding doing it, and also how much time you are spending on the exercises. Try to complete the emails, but if you can't keep up with them, don't worry. The most important part is that you are working through the workbook and answer the final email you are sent. You will receive this important email at the end of the second week. This email will contain a web link with questions asking you how you are feeling after completing the workbooks . When you have replied

to this last email, you will be given more information about the background of the study.

So, before you begin, thank you for agreeing to take part in this study. We are looking forward to hearing how you are getting on.

The next pages contain the gratitude records for each day. Start day one today...

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Example

List up to 6 things that you are grateful for in your life on the lines below

1 I am grateful for a loving girlfriend who cares about me, and is thoughtful

2 I am grateful for living in a lovely part of the world. With opportunities !

3 I am grateful that my car does not always break down. And for the AA

4 I am grateful for having a roof over my head. I have shelter and warmth.

5 I am grateful for my health, it may not be perfect but I am luckier than many people I know

6 I am grateful for having food in the cupboard, and that I know how to cook

Remember to spend some time focusing on the feeling of gratitude that you experience as you think about and write down the things in your life that you feel grateful for.

Day 1

List up to 6 things that you are grateful for in your life on the lines below

1_____

2_____

3_____

4_____

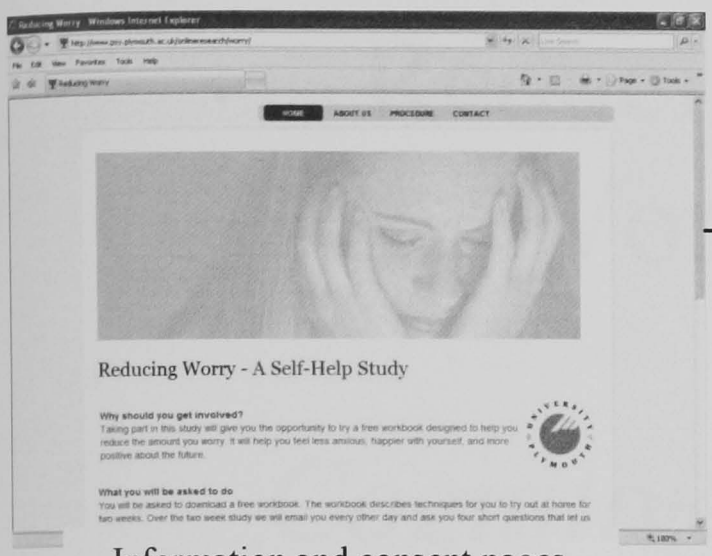
5_____

6_____

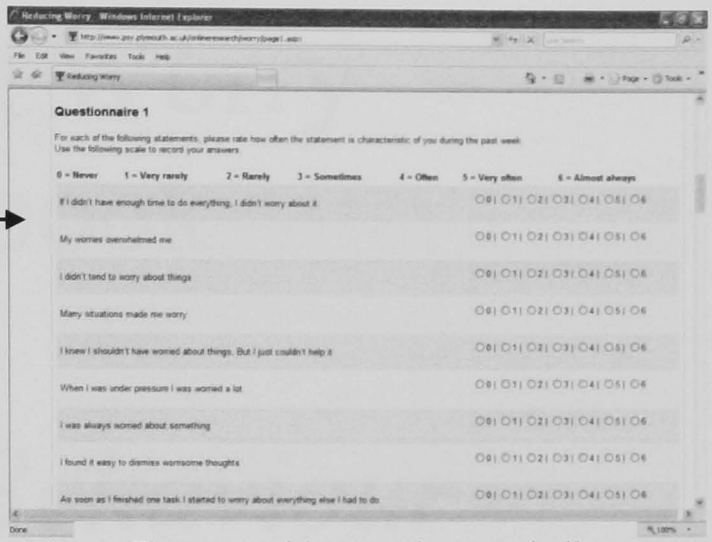
Remember to spend some time focusing on the feeling of gratitude that you experience as you think about and write down the things in your life that you feel grateful for.

Study Five

Study Five Basic Web System



Information and consent pages



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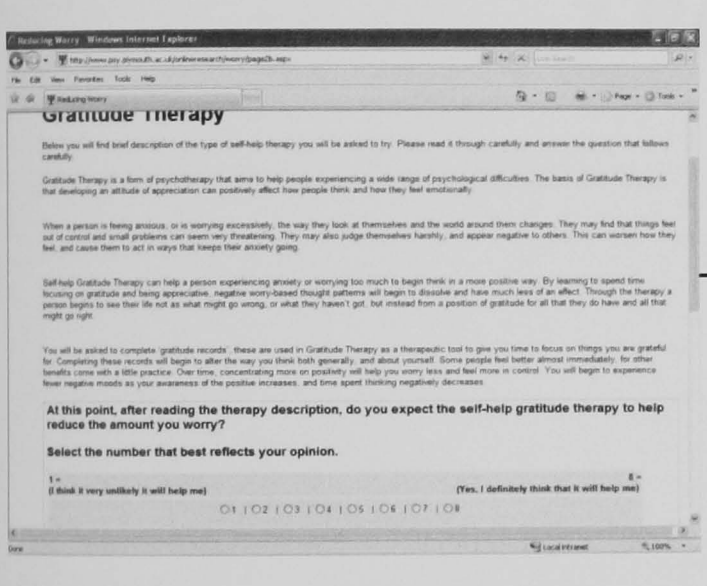

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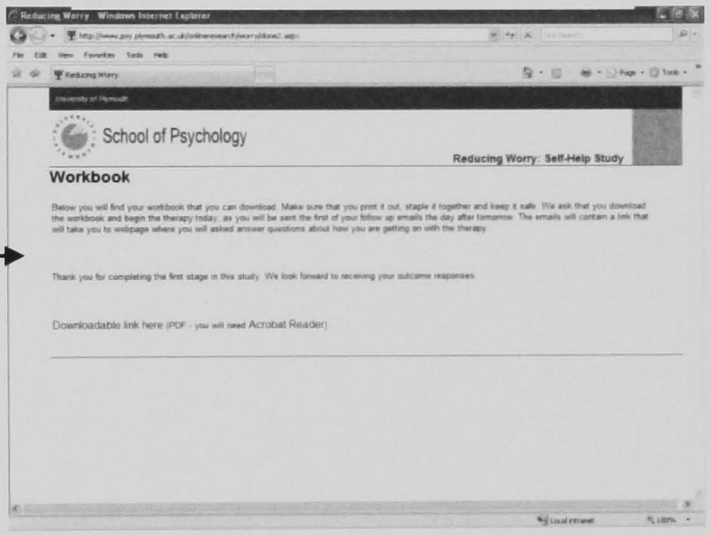
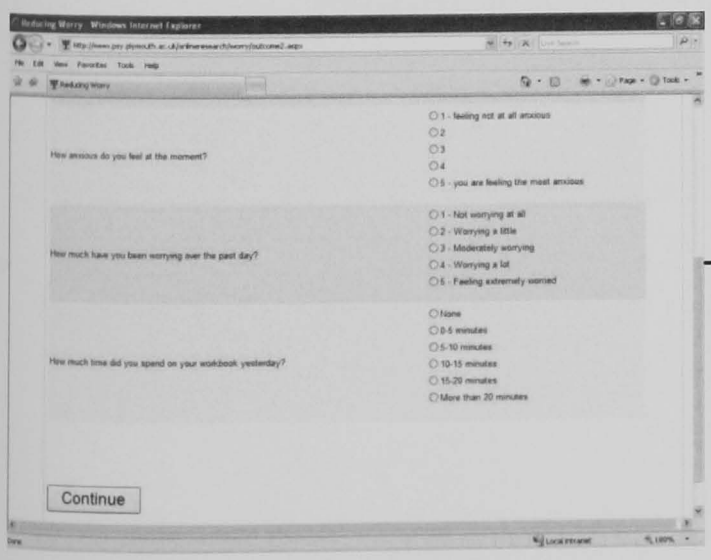
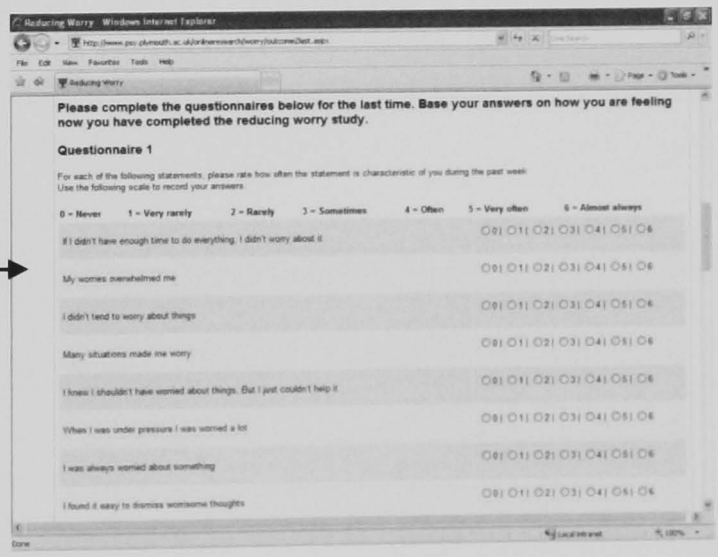


Link to downloadable workbook



Every Other Day Compliance question. Difficulty question



Final outcome measures

Reducing Worry Workbook

Cognitive Behaviour Therapy

Professor Michael Hyland, PhD CPsychol

Welcome to the Reducing Worry Workbook

Worrying thoughts are a natural part of life. They can be very useful. Consider a walker on a cliff worrying about staying on the path. Without this constructive worry the walker could be putting his or her life in danger. However, excessive worry can be very unhelpful. Worrying too much can change the way you think, feel and behave. It can also affect your physical health and leave you feeling tired and drained.

How can you tell a useful concern from an unhelpful worry? Psychologists suggest that when people worry, they go over things again and again in a way that is unhelpful because it does not actually help them to deal with the difficulties that they were worrying about.

Problematic worries tend to be out of proportion. Something very minor might happen, but for someone who worries a lot, they may find themselves concerned for days or even weeks after the minor event occurred. Worries are made up of chains of negative thoughts and can quickly spiral out of control. Here is an example:

A friend says that he will call you this evening for a chat. The evening comes and your friend does not call. It may be that your friend simply forgot to call. However, if you worry a lot you may think that your friend doesn't like you, or perhaps had an accident or is ill. You may think, "Perhaps it is me? Did I annoy him when we spoke earlier? Perhaps he is angry with me because I did not call her before today" and so on, leaving your feeling anxious and exhausted.

Worrying too much can affect you in many ways and make life difficult and much less enjoyable. However, it is very important to know that you can learn to handle your worrying effectively. Over time, with practice you can reduce the amount and extent that you worry unhelpfully, leaving your with more time, energy and feeling happier.

Helping yourself with Cognitive Behaviour Therapy

Cognitive Behaviour Therapy (CBT) is well-established form of psychotherapy. CBT is used for a range of psychological problems, and is particularly useful for reducing worry. CBT helps you become more aware of how your thoughts affect your day-to-day life, and how the way you think can lead to problems, such as worry.

What we would like you to do - Keep a worry diary

To change your experience with worry it is necessary to learn about different types of worry. It may seem odd to focus your attention on what you are trying to reduce, but by doing this you will become more aware of how worry works. Just this increased awareness may begin to reduce worry as you focus on or 'watch' what type of worries you are having, rather than being in the midst of them.

We would like you to keep a worry diary, found in at the back of these pages. By writing down your thoughts you will learn to notice the differences between worries that are real, and worries that are hypothetical or imaginary.

Worries that are hypothetical are likely to be based in the future, i.e. have not happened yet. They are often unrealistic, and because they have not happened, you cannot, with any certainty, do anything about them. Real worries are concrete concerns; therefore they represent events or occurrences that you can do something about. It is very important, and very helpful to learn and practice telling the difference between real worry and hypothetical worry. At the start of the worksheet pages there are some examples of real worries and hypothetical worries, to help you learn to see the difference. Sometimes worries are both of real and imaginary, you will see this as you work through your own diary. With practice these can be separated, the real worries planned out and the imaginary worries challenged or 'let go'.

We would like you to keep a worry diary for the two-week study period. When you have time each day fill out the form, listing the worries from your day. Practice labelling them as real or hypothetical. This will begin to help you take more control and deepen your understanding of the different types of worry you experience.

After you have completed your diary for the day, take one 'real' worry and on the other side of the page (or on separate paper) plan how you might deal with the problem that is causing the worry. Perhaps there is something you might do right away? If not draw up a plan with **when, where** and **how** you might deal with the problem. See the start of the worksheet for an example plan for a real worry.

Challenging persistent worries

Sometimes hypothetical worries may really stick, even though through your diary you can see they are not real. When these happen try and challenge them. Write down the hypothetical worry. Then write down what evidence there is that the problem will definitely occur. Then write down what evidence there is that the problem will not occur. Then look at what you have written and try and come up with a more balanced view of what might happen. This technique will help you let go of hypothetical worries that cause you a lot of concern. Additionally, simply writing out your hypothetical worry may allow you to see things differently and in more realistic way. Scientific research has shown that there is much benefit in writing out how we feel. At the start of the worksheets there is an example of challenging a hypothetical worry you can use a base.

Over the course of the two-week study, we would like you to complete your worry diary each day, including a plan of action to deal with a real worry you are having. This process of becoming more aware of how your own worrying thoughts work, focusing attention on real worries, and plans to deal with them will begin to reduce the affect that worry has on your life. This should give you more time for other things, and ultimately enable you to enjoy life more

You will be sent an email every other day that allows you to tell us how you are getting on with the workbook. We will ask you how easy you are finding it, and how you are feeling. Try to complete the emails, but if you can't keep up with them, that is not a problem. The most important part is that you are working through the workbook and answer the final email you are sent. You will receive this important email at the end of the second week. This email will contain a web link with questions asking you how you are feeling after completing the workbooks. When you have replied to this last email, you will be given more information about the background of the study.

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The next pages contain diary pages for each day. Start day one today.

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If you wish to contact us at any point with questions about the exercises, or study in general, do not hesitate to email us on the address below:

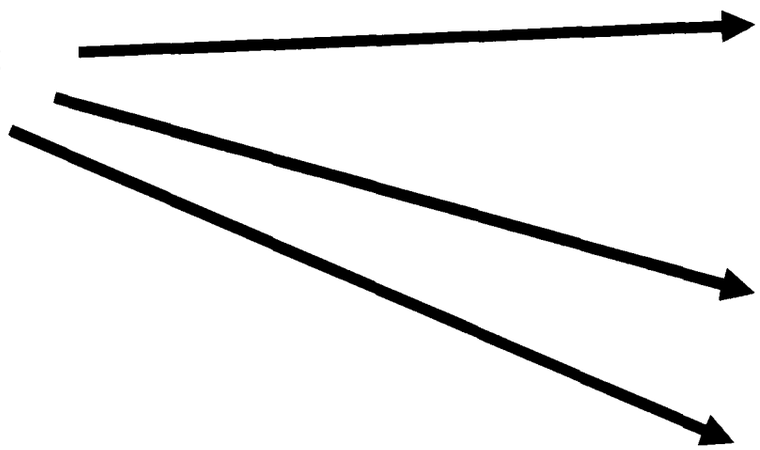
adam.geraghty@plymouth.ac.uk

Worry Diary - Example

Example Plan – Write your plans on the other side of your worry diary, or on a separate sheet of paper

Day	Time	Content	Distress How intense was the worry? How uncontrollable did it seem. Rate from 0 = Mild to 100 = Severe	Worry type Is the worry real? Does it reflect a real problem that exists? Yes/No? If no, is it hypothetical/imaginary?
Monday	10:00am	I am worried that I have not done enough preparation for work meeting next week – I only spent 10 minutes on it	68	Yes - Real
Monday	11:20am	If I don't reply write a good reply to this email, david will think I am stupid and really regret asking me to do it	60	No – Hypothetical
Monday	2:00pm	My son doesn't seem to be doing enough schoolwork. I am worried he will slip behind	70	Yes and No – Not doing enough work is real, slipping behind at school is imaginary
Monday	5:30pm	Steve is coming back later and later from work, I am worried that he may be seeing someone else.	90	No – Hypothetical/ Imaginary
Monday	8:00pm	Just got a parking ticket. I am worrying that if I don't pay it, will get a hefty fine, and I don't have much cash at the moment.	80	Yes – Real

Plan for a real worry
Worry about parking ticket



How

I will ring my mum, and ask if she will loan me the money for the ticket. I will pay it off as soon as possible so it stays at £30 rather than £60. I will post it to them with the money from the post office as soon as possible

Where

I will ring her from here, then if she agrees go to the post office

When

Tomorrow, first thing I will call my mother

Challenging a stuck hypothetical (imaginary) worry:
Steve getting back late, I am worried he might seeing someone else.

Evidence for: He has been getting back later and later. He also seems to be acting differently towards me.

Evidence against: He says he has been very busy at work, and I know that is true, the company has a lot of business at the moment. When I asked him, he said he was feeling really stressed.

Balanced: Perhaps he is just very busy and snowed under with work at the moment. I'll let it go.

Remember to plan for a real worry each day, and challenge stuck worries when you feel you need to.

Worry Diary – Day –

Day	Time	Content	**Distress** How intense was the worry? How uncontrollable did it seem. Rate from 0 = Mild to 100 = Severe	**Worry type** Is the worry real? Does it reflect a real problem that exists? Yes/No? If no, is it hypothetical/imaginary?

Reducing Worry Workbook

Gratitude Therapy

Professor Michael Hyland, PhD CPsychol

Welcome to the reducing worry workbook

Worrying thoughts are a natural part of life. They can be very useful. Consider a walker on a cliff worrying about staying on the path. Without this constructive worry the walker could be putting his or her life in danger. However, excessive worry can be very unhelpful. Worrying too much can change the way you think, feel and behave. It can also affect your physical health and leave you feeling tired and drained.

How can you tell a useful concern from an unhelpful worry? Psychologists suggest that when people worry, they go over things again and again in a way that is unhelpful because it does not actually help them to deal with the difficulties that they were worrying about.

Problematic worries tend to be out of proportion. Something very minor might happen, but for someone who worries a lot, they may find themselves concerned for days or even weeks after the minor event occurred. Worries are made up of chains of negative thoughts and can quickly spiral out of control. Here is an example:

A friend says that he will call you this evening for a chat. The evening comes and your friend does not call. It may be that your friend simply forgot to call. However, if you worry a lot you may think that your friend doesn't like you, or perhaps had an accident or is ill. You may think, "Perhaps it is me? Did I annoy him when we spoke earlier? Perhaps he is angry with me because I did not call her before today" and so on, leaving your feeling anxious and exhausted.

Worrying too much can affect you in many ways and make life difficult and much less enjoyable. However, it is very important to know that you can learn to feel better. Over time, with practice you can reduce the amount and extent that you worry unhelpfully, leaving your with more time, more energy and feeling happier.

What is positive psychology?

Positive psychology is a recent type of psychology that focuses on the way positive mood affects everyday life. Many scientific studies have shown that positive thinking helps the immune system, improves health and reduces psychological problems such as depression and anxiety.

Helping yourself with gratitude therapy

Excessive worrying narrows your attention to very specific events or situations, making it very easy to take things out of proportion and lose sight of the bigger picture. Focusing on gratitude works by broadening your attention to all that is good in your life, allowing you have a more balanced perspective on the current difficulties you may face. Gratitude and worry are incompatible feelings; it is almost impossible to grateful and worried at the same time, therefore focusing on gratitude will diffuse worry, doubt and anxiety.

Research has shown that spending 5 - 10 minutes each day focusing on what you are grateful for is sufficient to gain the benefits of gratitude therapy. It gets easier to practice gratitude therapy the longer you do it. Feeling grateful more of the time will not just help reduce worry. Research has shown that gratitude is linked to helping others more often, better relationships, increased well-being and greater satisfaction with life.

What we would like you to do.
To carry out gratitude therapy, you need to find a quiet place where you can think without being disturbed. You could try doing it before going to sleep, or sitting on a train, or simply sitting by yourself in a room without any distractions.

There are many things in our lives, both large and small, that we might be grateful for. We would like you to think back over your life, be it the past month or years ago and write down up to 6 things in your life that you are grateful or thankful for once a day for two weeks. Please use the specific pages in the workbook to write your gratitude items. Examples could be for wonderful parents, for being healthy, for a friend being kind, for your partner or you being successful at something. See the start of the gratitude records towards the end of the workbook for an example.

When you have finished your list, take the first item and concentrate on feeling grateful about that item for about half a minute. Then move on to the next item and feel 'being grateful' for the second item. Do this for each of the items in turn. With each item, try to reconnect with the positive emotions you experience when feeling grateful. You should spend about five minutes on this task. Five minutes may not seem like a long time, but setting aside specific time to focus on what you are grateful on a regular basis will make it easier for you to think in this way when you encounter situations throughout your day that may lead you to worry.

When you carry out this task you may find your mind wandering. Don't worry. Once you notice your mind has wandered, simply bring it back to the feeling of being grateful. Writing down six things you are grateful for every day for fourteen days may seem a daunting task, but you will get better at it with practice. Once you start to find it difficult thinking of new things, just try thinking of things from your day rather than the distant past. For instance, 'I am grateful that it didn't rain today' or 'I am grateful that my boss showed me an easier way to...'. If you are still struggling you can think of even the smallest things 'I am grateful that there was cereal in the cupboard'. It really isn't that important what you are grateful for, rather that you are spending time practicing this way of thinking. Additionally, you don't always have think of six things, some days you may just write one or two, and that is fine.

You will be sent an email every other day that allows you to tell us how you are getting on with the workbook. We will ask you how easy you are finding it, and how you are feeling. Try to complete the emails, but if you can't keep up with them, that is not a problem. The most important part is that you are working through the workbook and answer the final email you are sent. You will receive this important email at the end of the second week. This email will contain a

web link with questions asking you how you are feeling after completing the workbooks. When you have replied to this last email, you will be given more information about the background of the study.

Before you begin, thank you for agreeing to take part in this study and we are looking forward to hearing how you are getting on.

The next pages contain the gratitude records for each day. Start day one today.

About the authors

Michael Hyland is a Professor of Health Psychology at the University of Plymouth. He has experience and expertise in designing therapeutic interventions, stemming from his work investigating what makes therapy effective. Professor Hyland has developed self-help packages for mood disorders, sleep disorders and general well-being.

Adam Geraghty is a postgraduate research student conducting a PhD under the supervision of Michael Hyland. Adam is primarily involved in running the practical and administration aspects of the Reducing Worry Study.

If you wish to contact us at any point with questions about the exercises, or study in general, do not hesitate to contact us on the address below:

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Example

List up to 6 things that you are grateful for in your life on the lines below

1 I am grateful for a loving girlfriend who cares about me, and is thoughtful

2 I am grateful for living in a lovely part of the world. With opportunities !

3 I am grateful that my car does not always break down. And for the AA

4 I am grateful for having a roof over my head. I have shelter and warmth.

5 I am grateful for my health, it may not be perfect but I am luckier than many people I know

6 I am grateful for having food in the cupboard, and that I know how to cook

Remember to spend some time focusing on the feeling of gratitude that you experience as you think about and write down the things in your life that you feel grateful for.

Day 1

List up to 6 things that you are grateful for in your life on the lines below

1_____

2_____

3_____

4_____

5_____

6_____

Remember to spend some time focusing on the feeling of gratitude that you experience as you think about and write down the things in your life that you feel grateful for.

Appendix C

All Scales

The Gratitude Questionnaire-Six Item Form (GQ-6)

Using the scale below as a guide, write a number beside each statement to indicate how much you agree with it.

1 = strongly disagree
2 = disagree
3 = slightly disagree
4 = neutral
5 = slightly agree
6 = agree
7 = strongly agree

1. I have so much in life to be thankful for.
2. If I had to list everything that I felt grateful for, it would be a very long list.
3. When I look at the world, I don't see much to be grateful for.
4. I am grateful to a wide variety of people.
5. As I get older I find myself more able to appreciate the people, events, andsituations that have been part of my life history.
6. Long amounts of time can go by before I feel grateful to something or someone.

McCullough, M. E., Tsang, J., & Emmons, R. A. (2002). The grateful disposition: A conceptual and empirical topography. *Journal of Personality and Social Psychology*, *82*(1), 112-127.

The Positive and Negative Affect Schedule (PANAS)

This scale consists of a number of words that describe different feelings and emotions. Read each item and then circle the appropriate answer next to that word. Indicate to what extent you *feel this way right now, that is at the present moment*.

(This scale consists of a number of words that describe different feelings and emotions. Read each item and then circle the appropriate answer next to that word. Indicate to what extent you *feel this way over the past two weeks*).

Use the following scale to record your answers.

1. Very slightly
2. Very slightly or not at all
3. Moderately
4. Quite a bit
5. Extremely

1. Interested
2. Distressed
3. Excited
4. Upset
5. Strong
6. Guilty
7. Scared
8. Hostile
9. Scared
10. Hostile
11. Enthusiastic
12. Alert
13. Ashamed
14. Inspired
15. Nervous
16. Determined
17. Attentive
18. Jittery
19. Active
20. Afraid

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, *54*(6), 1063-1070.

Spiritual Connection Questionnaire

Below is a list of statements about the experience of spirituality. Please show to what extent these statements describe you by circling the number which best correspond to your experience. For example, if the statement is *very like you*, then circle *3*. If it is only *slightly* like you, then circle *1*. Do not spend to long over any statement. Just give the first answer that comes into your head. There are no right or wrong answers.

-3 - Unlike me
-2
-1
0
1
2
3 - Like me

1. My spirituality makes life good for me.
2. I feel no spiritual connection to the world around me.
3. I sometimes experience other people 'shining with an inner light'.
4. I have never had a spiritual experience that has changed my life.
5. There is a larger plan to life.
6. I do not feel that there is a form of energy that binds people together.
7. I feel I have an inner spiritual strength.
8. I do not have a personal relationship with some power greater than myself.
9. I feel an inner strength from a spiritual connection with others.
10. Spirituality is not important to me.
11. I feel that I am always protected by an ultimate principle, force or being.
12. I will never have a spiritual bond with another person.
13. My connection to something spiritual makes me happy.
14. I do not feel connected to the universe in any spiritual way.

Wheeler, P., & Hyland, M. E. (2008). The development of a scale to measure the experience of spiritual connection and the correlation between this experience and values. *Spirituality and Health International*, *9*(4), 193-217.

Adapted Succorance Scale

Using the scale below as a guide, write a number beside each statement to indicate how much you agree with it.

1 = strongly disagree
2 = disagree
3 = slightly disagree
4 = neutral
5 = slightly agree
6 = agree
7 = strongly agree

1. I usually tell my friends about my difficulties and misfortunes.
2. I prefer to have a friend with me when I receive bad news.
3. I enjoy being with someone whose wisdom I can rely on.
4. I like being cared for when I am unwell.
5. I like when people ask me about my health or how I am feeling.
6. I am drawn to people who are sympathetic and understanding.
7. I enjoy sympathy, affection and understanding more than anything else.
8. I feel lonely and homesick when I am in a strange place.

Based on:
Murray, H. A. (1938). *Explorations in personality.* New York: Oxford University Press.

Perceived Sleep Quality Scale

Below are 5 items, please read each one can select the number that best reflects your sleep experience last night.

1 - Much worse than usual
2
3
4 - Much the same
5
6
7 - Much better than usual

1. How peaceful was your sleep last night
2. How comfortably did you sleep last night?
3. How soundly did you sleep last night?
4. How would you rate your quality of sleep last night?
5. How relaxed did you feel this morning?

First used in:

Hyland, M. E., Whalley, B., & Geraghty, A. W. A. (2007). Dispositional predictors of placebo responding: A motivational explanation of flower essence and gratitude therapy. *Journal of Psychosomatic Research*, *62*, 331-340.

Multidimensional Body Self-Relations Questionnaire - Appearance Subscales (MBSRQ -AS) Body Areas Satisfaction Subscale.

Use this 1 to 5 scale to indicate how dissatisfied or satisfied you are with each of the following areas or aspects of your body:

1 = very dissatisfied
2 = mostly dissatisfied
3 = neither satisfied or dissatisfied
4 = mostly satisfied
5 = very satisfied

1. Face (facial features, complexion)
2. Hair (color, thickness, texture)
3. Lower torso (buttocks, hips, thighs, legs)
4. Mid torso (waist, stomach)
5. Upper torso (chest or breasts, shoulders, arms)
6. Muscle tone
7. Weight
8. Height
9. Overall appearance

Brown, T. A., Cash, T. F., & Mikulka, P. J. (1990). Attitudinal body-image assessment: Factor analysis of the body-self relations questionnaire. *Journal of Personality Assessment*, *55*, 135-144.

Multidimensional Body Self-Relations Questionnaire - Appearance Subscales (MBSRQ -AS) Appearance Evaluation subscale.

Using the scale below as a guide, write a number beside each statement to indicate how much you agree with it. There are no right or wrong answers. Just give the answer that is most accurate for you. Remember, your responses are confidential, so please be completely honest and answer all items.

1 = definitely disagree
2 = mostly disagree
3 = neither agree or disagree
4 = mostly agree
5 = definitely agree

1. My body is sexually appealing.
2. I like my looks just the way they are.
3. Most people would consider me good-looking.
4. I like the way I look without my clothes on.
5. I like the way my clothes fit me.
6. I dislike my physique.
7. I am physically unattractive.

Brown, T. A., Cash, T. F., & Mikulka, P. J. (1990). Attitudinal body-image assessment: Factor analysis of the body-self relations questionnaire. *Journal of Personality Assessment*, *55*, 135-144.

Multidimensional Health Locus of Control Scale

For each item we would like you to circle the number that represents the extent to which you agree or disagree with that statement. Please use the scale that ranges from strongly disagree (1) to strongly agree (6). The more you agree with a statement, the higher will be the number you circle. The more you disagree with a statement; the lower will be the number you circle. Please make sure that you answer **EVERY ITEM** and that you circle **ONLY ONE** number per item. This is a measure of your personal beliefs; obviously, there are no right or wrong answers.

1 = Strongly disagree
2 = Moderately disagree
3 = Slightly disagree
4 = Slightly agree
5 = Moderately agree
6 = Strongly agree

1. If I get sick, it is my own behavior that determines how soon I get well again.
2. No matter what I do, if I am going to get sick, I will get sick.
3. Having regular contact with my physician is the best way for me to avoid illness.
4. Most things that affect my health happen to me by accident.
5. Whenever I don't feel well, I should consult a medically trained professional.
6. I am in control of my health.
7. My family has a lot to do with my becoming sick or staying healthy.
8. When I get sick, I am to blame.
9. Luck plays a big part in determining how soon I will recover from an illness.
10. Health professionals control my health.
11. My good health is largely a matter of good fortune.
12. The main thing which affects my health is what I myself do.
13. If I take care of myself, I can avoid illness.
14. Whenever I recover from an illness, it's usually because other people (for example, doctors, nurses, family, friends) have been taking good care of me.
15. No matter what I do, I 'm likely to get sick.
16. If it's meant to be, I will stay healthy.
17. If I take the right actions, I can stay healthy.
18. Regarding my health, I can only do what my doctor tells me to do.

Wallston, K. A., Wallston, B. S., & DeVellis, R. (1978). Development of the multidimensional health locus of control (MHLC) scales. *Health Education and Behavior*, *6*, 160-170.

Patient Health Questionnaire Nine (PHQ-9)

Over the last two weeks, how often have you been bothered by the following problems?

Use the scale below as a guide.

0 – Not at all
1 – Several Days
2 – More than half the days
3 – Nearly everyday

1. Little interest or pleasure in doing things?
2. Feeling down, depressed, or hopeless?
3. Trouble falling or staying asleep, or sleeping too much?
4. Feeling tired or having little energy?
5. Poor appetite or overeating?
6. Feeling bad about yourself - or that you are a failure or have let yourself or your family down?
7. Trouble concentrating on things, such as reading the newspaper or watching television?
8. Moving or speaking so slowly that other people could have noticed?
Or the opposite - being so fidgety or restless that you have been moving around a lot more than usual?
9. Thoughts that you would be better off dead, or of hurting yourself in some way?

Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The PHQ-9: validity of a brief depression severity measure. *Journal of General Internal Medicine*, *16*(9), 606-613.

Automatic Thought Questionnaire (ATQ)

Listed below are a variety of thoughts that sometimes pop into people's heads. Please read each thought and indicate how frequently if at all, the thought occurred over the past two weeks. Please use the scale below to indicate how often the thought occurs:

0 - if the thought never occurs
1 - if the thought sometimes occurs
2 - if the thought occurs moderately often
3 - if the thought occurs often
4 - if the thought occurs all the time

1. I feel like I am up against the world
2. I'm no good
3. Why can't I ever succeed
4. No one understands me
5. I've let people down
6. I don't think I can go on
7. I wish I were a better person
8. I'm so weak
9. My life is not going the way I want it too
10. I'm so disappointed in myself
11. Nothing feels good anymore
12. I can't stand this anymore
13. I can't get started
14. What's wrong with me
15. I wish I was somewhere else
16. I can get things together
17. I hate myself
18. I'm worthless
19. I wish I could just disappear
20. What's the matter with me
21. I'm a loser
22. My life is a mess
23. I'm a failure
24. I'll never make it
25. I feel so helpless
26. Something has to change
27. There's something wrong with me
28. My future is bleak
29. It's just not worth it
30. I can't finish anything

Hollon, S. D., & Kendall, P. C. (1980). Cognitive self-statements in depression: Development of an automatic thoughts questionnaire. *Cognitive Therapy and Research*, *4*(4), 383-395.

Satisfaction With Life Scale (SWLS)

Below are five statements that you may agree or disagree with. Using the 1 - 7 scale below indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be open and honest in your responding.

1 = strongly disagree
2 = disagree
3 = slightly disagree
4 = neither agree nor disagree
5 = slightly agree
6 = agree
7 = strongly agree

1. In most ways my life is close to my ideal.
2. The conditions of my life are excellent.
3. I am satisfied with my life.
4. So far I have gotten the important things I want in life.
5. If I could live my life over, I would change almost nothing.

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessment*, *49*(1), 71-75.

Penn State Worry Questionnaire - Past Week

For each of the following statements, please indicate how often the statement was characteristic of you during the past week using the scale below as a guide.

0 - Never
1 - Very rarely
2 - Rarely
3 - Sometimes
4 - Often
5 - Very often
6 - Almost always

1. If I didn't have enough time to do everything, I didn't worry about it
2. My worries overwhelmed me
3. I didn't tend to worry about things
4. Many situations made me worry
5. I knew I shouldn't have worried about things, But I just couldn't help it
6. When I was under pressure I was worried a lot
7. I was always worried about something
8. I found it easy to dismiss worrisome thoughts
9. As soon as I finished one task I started to worry about everything else I had to do
10. I did not worry about anything
11. When there was nothing more I could do about a concern. I didn't worry about it anymore
12. I noticed that I had been worrying about things
13. Once I started worrying, I couldn't stop
14. I worried all the time
15. I worried about projects until they were all done

Stober, J., & Bittencourt, J. (1998). Weekly assessment of worry: an adaptation of the Penn State Worry Questionnaire for monitoring changes during treatment. *Behavior Research and Therapy*, *36*(6), 645-656.

Generalised Anxiety Disorder scale – Seven (GAD-7)

Over the last two weeks, how often have you been bothered by the following problems?

Please use the use the scale below as a guide.

0 – Not at all
1 – Several Days
2 – More than half the days
3 – Nearly everyday

1. Feeling nervous, anxious or on edge
2. Not being able to stop or control worrying
3. Worrying too much about different things
4. Trouble relaxing
5. Being so restless that it is hard to sit still.
6. Becoming easily annoyed or irritable
7. Feeling afraid as if something awful might happen

Spitzer, R. L., Kroenke, K., Williams, J. B., & Lowe, B. (2006). A brief measure for assessing generalized anxiety disorder: the GAD-7. *Archives of Internal Medicine*, *166*(10), 1092-1097.

The Adult Hope Scale (AHS)

Read each item carefully. Using the scale shown below, please select the number that best describes YOU and put that number in the blank provided.

1. = Definitely False
2. = Mostly False
3. = Somewhat False
4. = Slightly False
5. = Slightly True
6. = Somewhat True
7. = Mostly True
8. = Definitely True

1. I can think of many ways to get out of a jam.
2. I energetically pursue my goals.
3. I feel tired most of the time.
4. There are lots of ways around any problem.
5. I am easily downed in an argument
6. I can think of many ways to get the things in life that are important to me.
7. I worry about my health.
8. Even when others get discouraged, I know I can find a way to solve the problem.
9. My past experiences have prepared me well for my future.
10. I've been pretty successful in life.
11. I usually find myself worrying about something.
12. I meet the goals that I set for myself.

Snyder, C. R., Harris, C., Anderson, J. R., Holleran, S. A., Irving, L. M., Sigmon, S. T. et al. (1991). The will and the ways: development and validation of an individual-differences measure of hope. *Journal Personality Social Psychology*, *60*(4), 570-585.

Life Orientation Test – Revised (LOT-R, Optimism-Pessimism)

Please be as honest and accurate as you can throughout. Try not to let your response to one statement influence your responses to other statements. There are no "correct" or "incorrect" answers. Answer according to your own feelings, rather than how you think "most people" would answer.

5 = I agree a lot
4 = I agree a little
3 = I neither agree nor disagree
2 = I disagree a little
1 = I disagree a lot

1. In uncertain times, I usually expect the best.
2. It's easy for me to relax
3. If something can go wrong for me, it will.
4. I'm always optimistic about my future.
5. I enjoy my friends a lot.
6. It's important for me to keep busy.
7. I hardly ever expect things to go my way.
8. I don't get upset too easily.
9. I rarely count on good things happening to me.
10. Overall, I expect more good things to happen to me than bad

Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): a reevaluation of the Life Orientation Test. *Journal Personality and Social Psychology*, *67*(6), 1063-1078.

Brief Self-Control Scale

Using the scale provided, please indicate how much each of the following statements reflects how you typically are.

1 - Not at all
2
3
4
5 - Very much

1. I am good at resisting temptation.
2. I have a hard time breaking bad habits.
3. I am lazy.
4. I say inappropriate things.
5. I do certain things that are bad for me, if they are fun.
6. I refuse things that are bad for me.
7. I wish I had more self-discipline.
8. People would say that I have iron self- discipline.
9. Pleasure and fun sometimes keep me from getting work done.
10. I have trouble concentrating.
11. I am able to work effectively toward long-term goals.
12. Sometimes I can't stop myself from doing something, even if I know it is wrong.
13. I often act without thinking through all the alternatives.

Tangney, J. P., Baumeister, R. F., & Boone, A. L. (2004). High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. *Journal of Personality*, *72*(2), 271-324.

Expectancy and Difficulty (Ease of task completion)

The single item expectancy question used throughout the studies as been structurally equivalent. In each study, the symptom target and technique/therapy referred to has changed

At this point in time, after reading the therapy description, do you expect the _____ to help you _____?

Select the number that best reflects your opinion

I think it very unlikely it will help me — Yes, I definitely think that it will help me

1 2 3 4 5 6 7 8

The single item difficulty/Ease of task completion question used throughout the studies was also structurally equivalent. In each study, the symptom target and technique/therapy referred to has changed.

How easy was it for you to complete the _____?

Please the scale below as a guide.

Very difficult — Very easy

1 2 3 4 5 6 7