Volume I
Research Component

CLINICAL AND THEORETICAL APPLICATIONS OF RATIONAL EMOTIVE BEHAVIOURAL THERAPY

By

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A thesis submitted in partial fulfilment to the University of Birmingham for the degree of

DOCTORATE IN CLINICAL PSYCHOLOGY

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May 2015

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OVERVIEW

A thesis submitted in partial fulfilment to the University of Birmingham for the degree of Doctorate of Clinical Psychology. The thesis comprises two volumes, the research component and the clinical practice component.

VOLUME I

Volume I is the research component consisting of three chapters. Chapter I is a meta-analysis examining the effectiveness of Rational Emotive Behavioural Therapy (REBT) at reducing emotional distress. A systematic search was conducted according to specific inclusion criteria and all relevant included studies were quality assured. Subsequent data extraction was completed. The results found that REBT was significantly more effective than non-active treatments at reducing distress for anxiety and anger. However, REBT was equally effective when compared with active treatments.

Chapter II is the empirical paper examining the theoretical underpinning of two Cognitive Behavioural Therapies (CBT), Rational Emotive Behavioural Therapy (REBT) and Cognitive Therapy (CT). Participants were recruited from an undergraduate university programme and the National Health Service. There was some evidence supporting the REBT theory of demands being more important than self-downing beliefs when examining the student sample but this was not consistent for the clinical sample. The research highlighted the need for more understanding on

both forms of implicit and explicit demands, the need for better measures and suggested recommendations for future research.

Finally, Chapter III provides a public domain briefing paper giving an overview of the meta-analysis and empirical paper.

VOLUME II

Volume II is the clinical practice component and contains five chapters illustrating the clinical and empirical work undertaken during placement. These works were conducted in different specialties including adult, child and adolescent, older adult and learning disabilities.

Chapter I illustrates a case of a young girl suffering from depression and self-harm behaviours. A detailed account of her history is provided followed by two formulations. The first uses a cognitive behavioural perspective and the second uses a systemic perspective.

Chapter II illustrates a service evaluation conducted in the National Health Service in a Child and Adolescent Health Service. The aim was to examine service user experience when using a new model of working. A formulation is used to help highlight challenges to staff and teams around change within service requirements.

Chapter III illustrates a case example of an 80 year old woman suffering with symptoms of anxiety, depression and comorbid physical health issues. A detailed background history is provided and a cognitive behavioural formulation is proposed.

This is followed by examples of interventions both as an inpatient and outpatient. Strengths and challenges of working in a multidisciplinary setting are discussed.

Chapter IV illustrates the use of a single case experimental design. This is a case study which uses statistical data to look at effectiveness of therapy. This is a complex case of OCD and perfectionism which uses a CBT approach to formulate problems. Advantages and disadvantages of this method are discussed in relation to the specific case and to health services.

Chapter V is an abstract of an oral presentation of Rosie a 25 year old woman diagnosed with emotionally unstable personality disorder. The case used a Dialectical Behavioural Therapy approach to understanding her difficulties of self-harming behaviours and emotional instability.

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ACKNOWLEDGEMENTS

First and foremost, I would like to thank all those who participated in the research, directly or indirectly, without you none of this would have been possible.

I would also like to thank my parents for their continued support. You have shown a genuine interest in my learning. You have always encouraged and supported my development throughout the course. It has been an invaluable boost.

I am grateful too, to my supervisors Richard Bennett and Chris Jones for their support and time in the development, analysis and editing of the research. Your knowledge and expertise has been much appreciated.

Finally, I would like to thank my twins, Isaac and Amelia, for giving me perspective and balance to my journey.

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CHAPTER I: META-ANALYSIS

THE EFFECTIVENESS OF RATIONAL EMOTIVE BEHAVIOUR THERAPY AT REDUCING EMOTIONAL DISTRESS

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Word count: 5452

ABSTRACT

Background: Rational Emotive Behavioural Therapy (REBT) is one of the Cognitive Behavioural Therapy (CBT) approaches used to help reduce emotional distress and other problem behaviours. A number of reviews have been carried out to assess the effectiveness of this form of therapy and have found positive outcomes, however, there are limitations with the methodological approaches used.

Aim: The aim of this review is to explore the effectiveness of REBT at reducing emotional distress with improved more rigorous methodologies.

Method: A combination of electronic searches (PsycInfo, EMBASE and Medline), hand searches, as well as searching reference lists on four previous meta-analyses were carried out. Only those studies that were classified as 'well defined' standalone REBT were included and the outcome was limited to those that measured emotional distress.

Results: The results found that REBT was somewhat effective in treating emotional distress. However more research needs to be conducted for anger, better follow-ups and better quality studies are also needed. REBT was found to be equally effective when compared with other active treatments. Overall effect size ranged from medium to large.

Discussion: The findings were similar to previous reviews showing that REBT was as effective as active treatments but in some cases more effective than non-active treatments for emotional distress. This review had more rigours inclusion criteria, and the quality assurance procedures were more detailed, which may account for the more conservative effect size estimates.

1. INTRODUCTION

1.1 Overview of REBT

Cognitive Behaviour Therapy is an umbrella term describing a number of different forms of therapy, including Rational Emotive Behavioural Therapy (REBT) (Ellis, 1962). In REBT, Ellis described four types of irrational beliefs including demandingness, awfulising, low frustration tolerance (LFT), and self/other depreciation. These types of beliefs are also thought to have their own rational counterparts (e.g. preferences, anti-awfulising, high frustration tolerance (HFT), and self-acceptance), which are more flexible and logical (David, Lynn, Ellis, 2009).

Demanding beliefs tend to be described in rigid and absolutistic terms of "musts", "shoulds" and "oughts" about how life, people, or situations should be. Its rational counterpart is described in terms of preferences or desires. Awfulising beliefs are an extreme negative rating of the situation while its rational counterpart is a more balanced rating of the situation. LFT beliefs indicate that you would not be able to cope or tolerate a particular outcome rather than HFT beliefs, which acknowledge the difficulty of tolerating a situation but that it would be bearable and worth bearing. Self/other depreciation beliefs are negative over-generalised global ratings of oneself or others while their rational counterparts are the acceptance of human fallibility (Dryden and Opie, 2003).

The principle of REBT is that distress is not created by what we experience but what we believe about what we experience. Therefore it is our beliefs about situations that cause us distress or more accurately our irrational beliefs that cause us the most distress and can in turn lead to unhelpful behaviours (Dryden, 2006). There are two proposed outcomes of REBT, firstly a reduction in emotional distress and secondly a change in behaviour such that it might

be more helpful in the long term. The process of change is hypothesised to occur as a result of changes in beliefs, moving away from the rigid, dogmatic style, to the more flexible style (David, Lynn and Ellis, 2010).

A number of reviews have been conducted supporting the effectiveness of REBT with adults (DiGiuseppe, Miller and Trexler 1977; Engels, Garnefski, and Diekstra, 1993; Lyons and Woods, 1991; McGovern and Silverman, 1984) children and adolescents (Banks and Zionts, 2009; Gonzalez, Nelson, Gutkin, Sauders, Galloway and Shwery, 2004; Hajzler and Bernard, 1991) and offending population (Debidin and Dryden, 2001). A detailed overview of these reviews is discussed below in chronological order. These have been separated into those using systematic approaches and those using systematic approaches with statistical findings (e.g. meta-analysis).

1.2 Systematic review

DiGuiseppe, Miller and Trexler (1977) reviewed outcome studies of REBT[1]. These early case studies were first conducted by Albert Ellis examining his own work, with little or no methodological control. It is reported that these early reviews highlighted support and better outcomes for those receiving REBT. However, due to the lack of control conditions, poor measures of outcome, and other potential biases these studies do not provide us with reliable and valid estimates of the effectiveness of REBT. In the DiGuiseppe et al (1977) review there was some evidence supporting the use of REBT compared to other groups. However, the majority of studies used non-clinical samples, which limits the generalisability of the findings. There were also some studies that used a combination of intervention methods, which does not allow one to conclude the effective component was REBT. Furthermore the review

[1] REBT has also been known as Rational Psychotherapy and Rational Emotive Therapy in the past, although for convenience and consistency, it will be referred to using the modern form throughout this paper.

discusses the evidence of Cognitive Therapy approaches as being equivalent to that of REBT due to theoretical underpinnings being similar. This is misleading, as whilst similar, they do have some distinct differences in the hierarchical structure of irrational beliefs (Hyland, Shevlin, Adamson and Boduszek, 2013; Lorenzo, David and Montgomery, 2007).

McGovern and Silverman (1992) reviewed outcome studies in REBT from 1977 to 1982. In their review they examined the use of REBT in comparative studies and non-comparative studies. They concluded that REBT was effective when examining the non-comparative and comparative studies. Overall 31 of the 47 studies showed significant results and other studies (N=16) found improvement in post scores but not at a significant level. In those studies that compared REBT to another psychological therapy, there was no evidence suggesting other forms of treatment were more effective than REBT. The efficacy of REBT was examined across a range of problem areas and populations (outpatients, older adults, military children and offending populations), indicating that REBT can be used in a wide range of settings to positive effect. However, there was huge variability in the outcome measures (total of 61 different measures) to assess effectiveness. This raises the question as to what effects are being assessed, whether that is in the thoughts, feelings or behaviour or another subtype of outcome. In addition, the studies included in the review used multiple forms or variants of REBT including Rational Emotive Behavioural Education (REBE). REBE, while following similar principles to REBT, is used as a preventative or prophylactic intervention and as a result those individuals may not be exhibiting heightened forms of distress and/or behavioural challenges before the intervention. There was also limited information available about whether these effects are maintained in follow up as few studies investigated this issues.

1.3 Meta-analyses

Lyons and Woods (1991) conducted a meta-analysis looking at the efficacy of REBT. They found a large overall effect size for REBT (Cohen's $d = 0.95$). They compared REBT to no treatment control, waiting list, behavioural treatments, and other cognitive models with large effects sizes of $d = 0.98$, $d = 1.02$, $d = 0.30$ and $d = 0.14$ respectively. Lyons and Woods (1991) also examined differences in effect size based on differing outcome measures used. In particular they separated out the anxiety questionnaires with other more standardised measures and found the following effect sizes, $d = 0.76$ and $d = 0.813$ respectively. These were found to be the weaker effect sizes when compared to other measures such as physiological measures ($d = 3.88$). They also found that effect size improved when quality of study improved by separating those studies with low, medium, or high quality finding effects sizes of $d = 0.811$, $d = 0.818$ and $d = 1.138$ respectively. However, the main disadvantage of the Lyons and Woods review is that the authors failed to include a list of the studies in the meta-analysis and therefore it is not possible to assess the validity of their claims, the methodological quality of the evidence upon which they are based or the reliability and possible counter interpretations of the extremely large treatment effects reported in this study.

Engels, Garnefski and Diekstra (1993) conducted a meta-analysis looking at the efficacy of REBT. They concluded that REBT ($d = 1.98$) was more effective than placebo group ($d = 0.90$) but equally effective in comparison to others forms of therapy. It is reported that the difference in outcome when comparing REBT to placebo was significant for rationality but not for emotional distress. They reported an overall effect for REBT of $d = 1.62$, this included studies examining different outcomes and with different population and varied presenting problems. No difference in effect was found in a sensitivity analysis comparing different presenting problems. This review included studies that had mixed intervention

methods and therefore this limits the research findings because efficacy of therapy cannot be attributed solely to REBT. Moreover, the method of quality assurance was poor, classifying the quality of studies into three categories (low, medium, or high) based on only two criteria (randomisation procedure and dropout rates).

Gonzalez and colleagues (2004) conducted a meta-analysis looking specifically at REBT with children and adolescents examining five specific outcome measures including disruptive behaviour, irrationality, grade point average, self-concept, and anxiety. They found significant effects for REBT across all domains but the strongest effect was for disruptive behaviours (d = 2.84), when compared to irrationality (d = 1.07), grade point average (d = 1.02) and anxiety (d = 1.00) and self-concept (d = 0.78). The majority of the studies included in the review were comparing against no treatment control. The studies also included mixed intervention methods and/or variants of REBT such as REBE.

1.4 Aims

The overall aim of the current meta-analysis was to examine the effectiveness of REBT at reducing emotional distress. This can be separated into three main questions.

1. Is REBT more, equally or less effective at reducing emotional distress compared to a non-active group (e.g. waiting list control)?
2. Is REBT more, equally or less effective at reducing emotional distress compared to an active group such as other forms of treatment or therapy?
3. Does REBT maintain its effects on follow up?

2. METHODOLOGY

2.1 Inclusion / exclusion criteria

2.1.1 Type of studies

All studies had to be quantitative, providing statistical information on sample size and mean post-test scores along with standard deviation scores. This could include randomised controlled, quasi-randomised, controlled clinical trials, and cohort studies. Other forms of quantitative designs, qualitative studies, reviews and/or editorials were not included. The studies had to be included in a peer reviewed journal and be written in the English language. The criteria for included studies are illustrated in Table 1.

2.1.2 Types of participants

There was no exclusion on age or problem being addressed, whether that was physical or psychological. However, participants had to have some level of distress (see type of outcome for details).

2.1.3 Type of intervention

The intervention being examined was REBT. In order for a study to be included the intervention had to be clearly defined and it had to be a standalone form of REBT that was not amalgamated with other therapies or techniques. Adapting the procedure employed in the meta-analysis of Jones, Hacker, Cormac, Meaden, and Irving (2010), in order to be classified as 'well-defined' the intervention had to clearly demonstrate all of the components detailed below. Only those studies that were classified as 'well-defined' were included in the review.

'Well defined' Components:

1. a discrete psychological intervention using the ABC model described by Albert Ellis, which is in addition to, and separate from, other therapeutic interventions (for example, behavioural family therapy),

   AND

2. recipients establish links between activating events, thoughts and beliefs, and consequent emotional distress or problematic patterns of behaviour

   AND

3. the re-evaluation of their beliefs relating to the activating events; this may include the re-evaluation of specific "inferential" thoughts, but the primary focus is on global "evaluative" beliefs, most notably, rigid demanding beliefs and their extreme derivatives (awfulising, low frustration tolerance, and self/other/life deprecation).

2.1.4 Type of comparison

In order to be included, a study had to include a comparison group. This could be either an active or non-active comparison. An active comparison was defined as those that used treatment as usual, psycho-education and/or other forms of therapy. A non-active comparison included those allocated to waiting lists control group.

2.1.5 Type of outcome

The outcome being examined was emotional distress including all types of emotions e.g. anger, anxiety, and depression. For a study to be included, researchers had to use a formal measure of emotional distress. Assessing emotional distress on a 10-point scale was not accepted.

Table 1: Included and excluded criteria

	Inclusion	**Exclusion**
Participants	Children, Adolescents and or Adults	None
Intervention	Stand alone and well defined REBT	Interventions using combined treatments with REBT, those interventions defined as REBT but not well described or defined
Comparison	Active Groups – other therapy interventions or treatments Non Active – waiting list control, no treatment	No comparison group
Outcome	Measure of emotional distress used	Scoring emotional distress on a 1-10 scale
Study Design	Randomised Control Trials Controlled Clinical Trials Cohort (Two groups)	Cohort (one group) Case control Qualitative Studies Reviews Editorials

2.2 Search methods

The reference list of articles included in four previous meta-analyses were examined (David and Szamoskozi, 2011; Engels et al., 1993; Gonzalez et al., 2004; Lyons and Woods, 1991). Lyons and Woods were contacted as the relevant included studies were not provided in the reference list. This yielded a total of 56 potential studies of which 23 met the inclusion criteria. A hand search of the *Journal of Rational Emotive Behavioural and Cognitive Therapy* was completed scanning titles of potentially relevant articles yielding 3 potential studies.

Subsequently, three electronic databases were searched including: PsychINFO (1967-2014), EMBASE (1974-2014) and Medline (1946-2014). The search terms used are

described in Table 2. There were some slight variations in search terms due to databases allowing for differing functions. For example, in one database the terms CBT or REBT were used and crossed referenced with those articles that referenced Ellis. The aim was that by using both terms, which are sometimes used interchangeably, all relevant articles would be included in the review.

Table 2: Search terms

KEY TERMS	SUBJECT HEADING	FREE TEXT
1	Cognitive Behaviour Therapy Rational Emotive Behaviour Therapy	Cogniti* behavio* Therap* CBT Rational emotive Behavio* Therap* REBT Rational emotive therap* RET
2	Emotional States Emotional Disturbances Mental Disorders Affective Disorders	Mood Emotion* Affect* Feelings

The disadvantage is that this detailed search strategy could only be used for one database so it may be that some articles have been missed in other databases (see appendix 1 for details of syntax terms). It is hoped that the potential for exclusion of relevant articles has been avoided as a number of other search strategies were employed (as detailed above). The database searches yielded a total of 953 possible studies. The search process is visually depicted in figure 1.

Of the final 59 full articles that were examined, 43 were excluded for one of the following reasons. The studies included REBT with other interventions or REBT was not well defined, there was no measure of emotional distress outcome, the intervention focused on

REBE, they were unobtainable, or they did not have sufficient statistical data to be included for a meta-analysis. It is important to note that some articles may have been excluded for one or two of the reasons described above. Table 3 below highlights those articles that were excluded if there were duplicate reasons for exclusion; only one has been depicted in the table (see appendix 2 for references of excluded articles).

Table 3: Excluded studies and reasons

Reason	**Study**
Mixed intervention / not well defined REBT	Luskin et al. (2005) Schur et al. (2009) Holroyd (1976) Devoge (1972) Carmody (1978) Arpin-Cribbie (2012) Maccaskill & Macaskill (1996)
No measure of emotional distress	Adelman (2005) Penn & Brooks (2000) Texler & Karst (1972) Cangelosi et al. (1980) Mahigir, F. Khanehkeshi, A. & Karimi, A. (2012)
Focus on REBE	Baither & Godsey (1979) Bora et al. (2013) Cristea et al. (2006) Opre et al. (2013) Keller & Croake (1975) Greaves (1997) Joyce (1995) Lupu & Lupu (2013) Trip et al. (2010) Vaida et al. (2008) Gavita et al (2012) DiGuiseppe & Kassinove (1976) Resenbaum et al. (1991) Knaus et al (1975) Morse (1983) Thurman (1979) Kanter & Goldfried (1979) Wilde (1994)
Unobtainable	Olusakin (2000)
Insufficient statistical data	DiGuiseppe et al. (1990) Reickert & Moller (2000) Karst & Texler (1970) Emmelkamp et al. (1985) Emmelkamp et al. (1985a) Mersch et al. (1989) Mersch et al. (1991) Moller & Botha (1996) Warren, Smith & Velten (1984) Munjack et al. (1984) Staatmeyer & Watkins (1974)

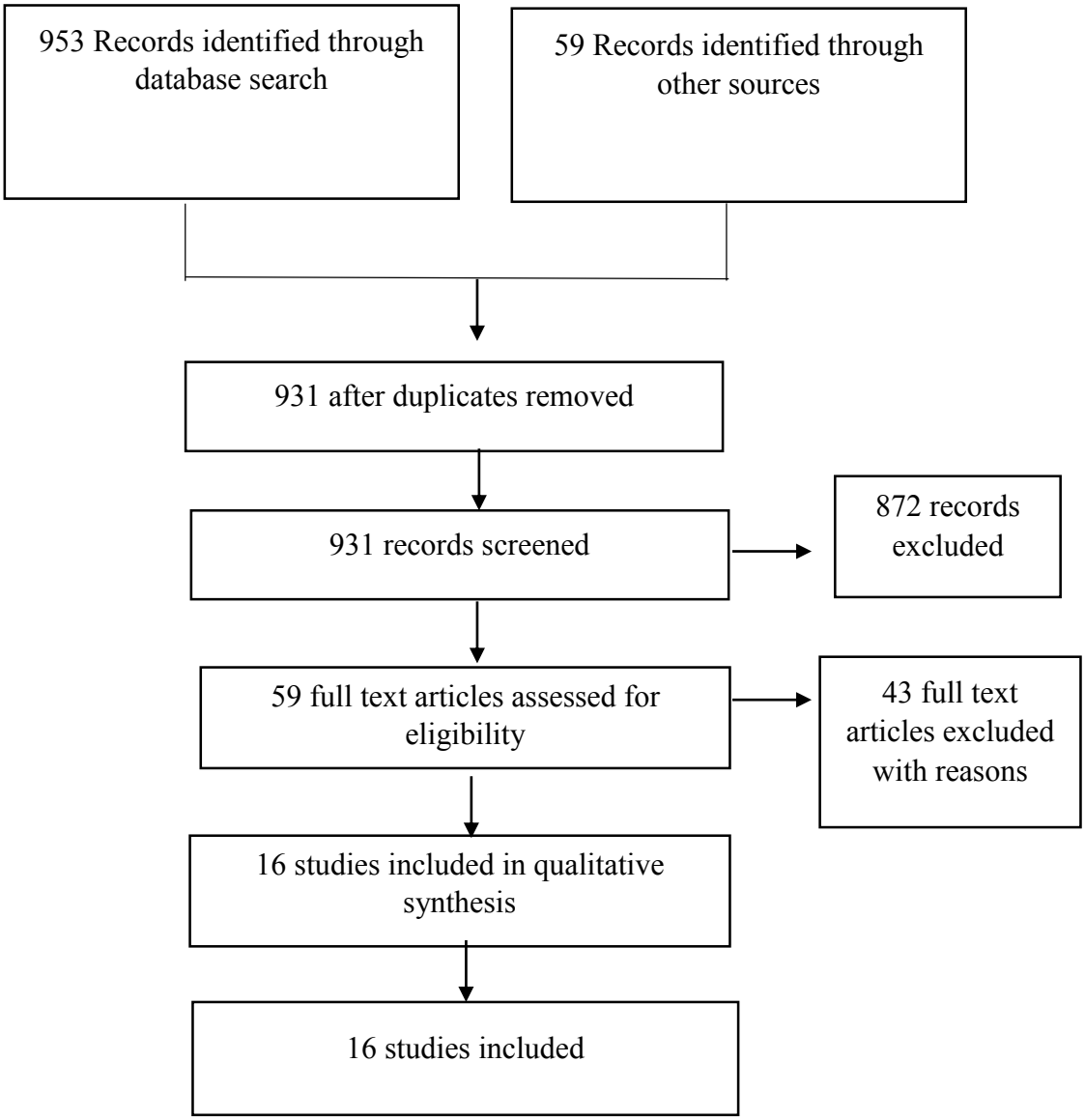


Figure 1: Study flow diagram

2.3 Data extraction

In line with recommendations (Higgins and Deeks, 2008; Russo, 2007; Shea, Grimshaw and Wells et al, 2007) a reference list and detailed extraction table was included for the remaining 16 studies (appendix 3 & 4). The following information has been included for all relevant studies; study type, recruitment procedures, characteristics of participants, outcome measures, comparison groups, therapy length, therapist qualifications, dropout rate, and statistical analysis. A brief summary of strengths and weakness has also been added.

2.4 Assessment of quality

The remaining articles were quality assured using the Effective Public Health Practice Project Quality Assessment Tool (EPHPP, 1998). The EPHPP provides a standardised approach to assess the quality of individual studies that are included in reviews. It allows the assessor to provide methodological rating (strong/moderate/weak) in six relevant subsections, including selection bias, study design, confounders, blinding, data collection methods, withdrawals and dropouts. It also examines intervention integrity and analysis of the study, although this is not rated (National Collaborating Centre for Methods and Tools (2008). Finally the assessor can provide an overall rating of the study methodology of strong, moderate, or weak. Scoring criteria are detailed in the guidelines (appendix 5). Researchers have recommended its use in systematic reviews and meta-analyses in order to improve study findings and conclusions (Deeks et al., 2003; Jackson and Waters, 2005). The Quality Assessment Tool has been found to have adequate content validity, construct validity, and intra-rater reliability ranging from 0.61 to 0.74 (Thomas, Ciliska, Dobbins et al., 1998). In order to ensure inter-rater reliability of quality assurance another researcher was employed to assess a random selection of the included studies. All assessors were provided with EPHPP

dictionary (appendix 6) to ensure equality (Jackson, 2007). The overall rating was converted to a quality index score for use in the meta-analysis. This was done by reverse scoring all items: 3 (weak) was converted to 1 and 1 (strong) was converted to 3. Subsequently, all subsections were added and divided by total possible score of 18 to produce a quality index score.

2.5 Characteristics of included studies

Out of the 16 studies, two were provided with a global rating of strong (Barekatain et al., 2005; David et al., 2008), two moderate (Malouff, Lanyon and Schutte 1988; Stevens and Florell, 1998) and twelve weak (Adomeh, 2006; Jalali, Moussavi, Yazdi and Fadardi, 2014;Jenni and Wollersheim, 1979;Kumar, 2009; Lipsky, Kassinove and Miller, 1980;Matin, Looyeh, Afrooz and Dexhkam, 2012;Maultsby and Graham, 1974;Osinowo, Olley and Adejumo, 2005;Tiegerman and Kassinove, 1977; Vestre and Judge, 1989; Warren, Deffenbacher and Brading, 1976; Warren, McLellarn, and Ponzoha, 1988). Six of the studies used a student population (Adomeh, 2006; Kumar, 2009; Stevens and Florell, 1998; Tiegerman and Kassinove, 1977; Vestre and Judge, 1989; Warren, Deffenbacher and Brading, 1976) which limits the generalizability of the findings. The remaining studies used clinical samples which allows for a more representative sample (Barekatin et al., 2005; David et al., 2008; Jalali et al., 2014; Jenni and Wollersheim, 1979; Lipsky, Kassinove and Miller, 1980; Matin et al., 2012; Maultsby and Graham, 1974; Malouff, Lanyon and Schutte 1988; Osinowo, Olley and Adejumo, 2005; Warren, McLellarn, and Ponsoha, 1988). The majority of studies did not use randomisations procedures, and if they did, it was not always adequately described (Adomeh, 2006; Jalali et al., 2014; Jenni and Wollersheim, 1979; Matin et al., 2012; Maultsby and Graham, 1974; Osinowo et al., 2005; Stevens and Florell, 1998;

Tiegerman and Kassinove, 1977; Vestre and Judge, 1989; Warren, Deffenbacher and Brading, 1976; Warren, McLellarn, and Ponsoha, 1988). Many studies did not provide sufficient information about differences between groups or when difference were present and, did not describe procedures used to control for such differences (Adomeh, 2006; Jalali et al., 2012; Kumar, 2009; Lipsky et al., 1980; Maultsby and Graham, 1974; Tiegerman and Kassinove, 1977; Vestre and Judge, 1989). Another major criticism of many of the studies was around blinding procedures. Eleven cases did not describe blinding procedures which could lead to detection and/or reporting biases (Adomeh, 2006; Jalali et al., 2014; Jenni and Wollersheim, 1979; Kumar, 2009; Lipsky, Kassinove and Miller, 1980; Matin et al., 2012; Maultsby and Graham, 1974; Malouff, Lanyon and Schutte 1988; Osinowo, Olley and Adejumo, 2005; Tiegerman and Kassinove, 1977; Vestre and Judge, 1989; Warren, McLellarn, and Ponsoha, 1988). The strongest scoring subsection was with the data collection methods which looked at the validity and reliability of measures used in the research. Nine studies reported that the measures used were valid and reliable (David et al., 2008; Jalali et al., 2014; Jenni and Wollersheim, 1979; Kumar, 2009; Matin et al., 2012; Malouff, Lanyon and Schutte 1988; Osinowo, Olley and Adejumo, 2005; Stevens and Florell, 1998; Tiegerman and Kassinove, 1977). A small handful (5 studies) reported only one element (Adomeh, 2006; Barekatain et al., 2005; Lipsky, Kassinove and Miller, 1980; Vestre and Judge, 1989; Warren, McLellarn, and Ponsoha, 1988) and two studies did not report either elements (Maultsby and Graham, 1974; Warren, Deffenbacher and Brading, 1976). A detailed description of scoring is provided in Table 4.

Table 4: Assessment of study quality using the EPHPP tool

Author of Study	Selection Bias	Study Design	Confounders	Blinding	Data Collection Methods	Withdrawals & Dropout	Global Rating	Quality Index score
Adomeh (2006)	3 Weak	2 Moderate	3 Weak	3 Weak	2 Moderate	3 Weak	**3 WEAK**	8/18= **0.44**
	Sample not representative – students, demographics not reported % of participants who agreed unclear	Cohort Analytic two groups post scores only No randomisation	Differences between groups not reported	Blinding procedures not reported	Measure described as valid. Reliability of measure not reported	Dropouts not reported		
Barekatain et al. (2005)	2 Moderate	1 Strong	1 Strong	2 Moderate	2 Moderate	2 Moderate	**1 STRONG**	14/18= **0.78**
	Recruitment from clinic – somewhat representative % 60-79% agreement for participation	Controlled Clinical Trial Randomisation reported & appropriate	No differences between group was found	Outcome assessors not aware of intervention Participants were aware of research questions	Measure described as valid. Reliability of measure not reported	Dropout reported 60-79% completed study		

Author of Study	Selection Bias	Study Design	Confounders	Blinding	Data Collection Methods	Withdrawals & Dropout	Global Rating	Quality Index score
David et al. (2008)	2 Moderate	1 Strong	1 Strong	2 Moderate	1 Strong	1 Strong	**1 STRONG**	16/18= **0.89**
	Recruitment from clinic – somewhat representative % of participants who agreed unclear	RCT Randomisation reported & appropriate	No difference between group was found	Outcome assessors not aware of intervention Unclear if participants were aware of research questions	Measures used reported as valid and reliable	Dropout reported 80-100% completed study		
Jalali et al. (2014)	2 Moderate	2 Moderate	3 Weak	3 Weak	1 Strong	1 Strong	**3 WEAK**	12/18= **0.67**
	Recruitment from clinic – somewhat representative % of participants who agreed unclear	Cohort Analytic Two groups pre and post scores No randomisation	Differences between groups not reported	Blinding procedures not reported	Measures used reported as valid and reliable	Dropout reported 80-100% completed study		

Author of Study	Selection Bias	Study Design	Confounders	Blinding	Data Collection Methods	Withdrawals & Dropout	Global Rating	Quality Index score
Jenni & Wollersheim (1979)	**2 Moderate**	2 Moderate	2 Moderate	3 Weak	1 Strong	3 Weak	**3 WEAK**	11/18= **0.61**
	Recruitment from adverts & referred by physician – somewhat representative % of participants who agreed unclear	Cohort Analytic two groups (pre-post) Randomly assigned but not described	Participants matched based on age & High on Type A traits	Blinding procedures not reported	Measures used reported as valid and reliable	Dropout reported Less than 60% completed		
Kumar (2009)	2 Moderate	2 Moderate	3 Weak	3 Weak	1 Strong	3 Weak	**3 WEAK**	10/18= **0.56**
	Stratified random sample of students from different schools & colleges – somewhat representative 80% - 100% of participants agreed to participate	Cohort Analytic Two groups (pre-post) Randomisation not reported Stratified random sample	Differences between groups not reported	Blinding procedures not reported	Measures used reported as valid and reliable	Dropout not reported % completers unclear		

Author of Study	Selection Bias	Study Design	Confounders	Blinding	Data Collection Methods	Withdrawals & Dropout	Global Rating	Quality Index score
Lipsky et al. (1980)	2 Moderate	2 Moderate	3 Weak	3 Weak	2 Moderate	3 Weak	**3 WEAK**	9/18= **0.5**
	Outpatient Community Clinic- Recruitment somewhat representative % of participants who agreed unclear	Cohort Analytic – five groups (pre post) Randomly assigned but not described	Differences between groups reported but unclear % of confounders controlled for.	Blinding procedures not reported	Measure described as valid. Reliability of measure not reported	Dropout reported % of completer not clear		
Matin et al. (2012)	3 Weak	2 Moderate	3 Weak	3 Weak	1 Strong	3 Weak	**3 WEAK**	9/18= **0.5**
	Recruitment procedures not known % of participants who agreed unclear	Cohort Analytic Two groups (pre post) Random allocation to experiment or control but not described.	Matched based on score on measure prior to randomisation	Blinding procedures not reported	Measures used reported as valid and reliable	Dropout not reported and % of completers unknown		

Author of Study	Selection Bias	Study Design	Confounders	Blinding	Data Collection Methods	Withdrawals & Dropout	Global Rating	Quality Index score
Maultsby & Graham (1974)	2 Moderate	2 Moderate	3 Weak	3 Weak	3 Weak	1 Strong	**3 WEAK**	10/18= 0.56
	Outpatient Clinic - somewhat representative 80 -100% of participants agreed to participate	Cohort Analytic Two groups (pre post) Randomisation not reported	Differences reported but unclear % of confounders controlled for	Blinding procedures not reported	Validity and reliability of measures not reported	Dropouts reported 80-100% completers		
Malouff et al. (1988)	2 Moderate	2 Moderate	1 Strong	3 Weak	1 Strong	1 Strong	**2 MODERATE**	14/18 **0.78**
	Recruitment sample unclear 80-100% agreed to participate	Cohort Analytic (pre-post) Matched in triplets on BDI scores & randomly assigned to groups	No differences between groups found	Blinding procedures not reported	Measures reported to be valid and reliable	Dropouts reported 80-100% completers		

Author of Study	Selection Bias	Study Design	Confounders	Blinding	Data Collection Methods	Withdrawals & Dropout	Global Rating	Quality Index score
Osinowo et al. (2005)	2 Moderate	2 Moderate	3 Weak	3 Weak	1 Strong	3 Weak	**3 WEAK**	10/18= **0.56**
	Elective surgical patients - Somewhat representative 80-100% agreed to participate	Cohort Analytic (pre-post) Random sampling but not described	Differences between groups not reported	Blinding procedures not reported	Measures reported as valid and reliable	Dropout not reported % completers unclear		
Stevens & Florell (1998)	3 Weak	2 Moderate	1 Strong	1 Strong	1 Strong	2 Moderate	**2 MODERATE**	14/18= **0.78**
	Student sample – not likely to be representative 80-100% agreed to participate	Cohort Analytic (pre-post) Randomisation not reported	No differences between groups found	Outcome assessors not aware of intervention Participants not aware of research question	Measure reported as valid and reliable	Dropouts reported 60-79% completers		

Author of Study	Selection Bias	Study Design	Confounders	Blinding	Data Collection Methods	Withdrawals & Dropout	Global Rating	Quality Index score
Tiegerman & Kassinove (1977)	3 Weak	2 Moderate	3 Weak	3 Weak	1 Strong	1 Strong	**3 WEAK**	11/18= **0.61**
	College students - Not likely to be representative 60- 79% agreed to participate	Cohort Analytic – multiple groups (pre-post) Randomisation not reported	Differences between groups not reported and if present not clear if controlled for	Blinding procedures not reported	Measures described as valid and reliable	Dropout reported 80-100% completers		
Vestre & Judge (1989)	3 Weak	2 Moderate	3 Weak	3 Weak	2 Moderate	1 Strong	**3 WEAK**	10/18= **0.56**
	Student sample - Not likely representative % of participants who agreed unclear	Cohort Analytic – multiple groups (pre-post) Randomisation reported but not described	Differences between groups not reported and if present not clear if controlled for	Blinding procedures not reported	Measures reported as reliable but not valid	Dropouts reported 80-100% completers		

Author of Study	Selection Bias	Study Design	Confounders	Blinding	Data Collection Methods	Withdrawals & Dropout	Global Rating	Quality Index score
Warren et al. (1976)	3 Weak	2 Moderate	1 Strong	2 Moderate	3 Weak	2 moderate	**3 WEAK**	11/18= **0.61**
	Schools students - Not likely representative 80-100% agreed to participate	Cohort Analytic two groups (pre-post) Randomly assigned	Matching on sex and grades No differences between groups found	Assessors not aware of participant allocation Unclear if participants aware of research question	Validity and reliability of measures not reported	Dropouts reported 80-100% of completers		
Warren et al. (1988)	3 Weak	2 Moderate	1 Strong	3 Weak	1 Strong	1 Strong	**3 WEAK**	13/18= **0.72**
	Advert to participate from newspaper - Not likely representative % of participants who agreed unclear	Cohort Analytic two groups (pre-post)	No difference between groups found	Blinding procedures not reported	Measures were reported as valid and reliable	Dropout reported 80-100% completers		

3.0 RESULTS

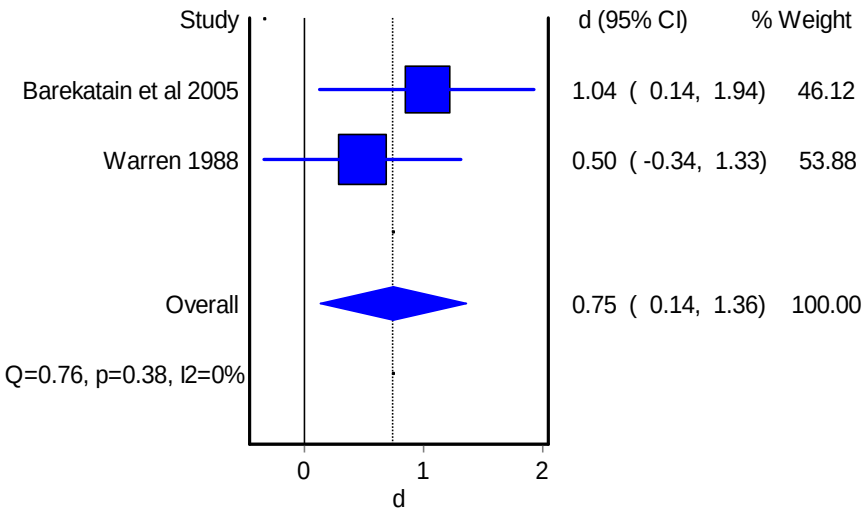
It is common for meta-analyses to calculate effect size using the fixed effects model (in which all of the between study variance is attributed to the treatment effect) or the random effects model, which controls for between study variation reflecting both treatment effect and factors extraneous to treatment (e.g. suboptimal methodologies). Given that the studies in this review are all of variable methodological quality, the random effects model has been employed to calculate the treatment effect throughout. In addition, a quality effects model based on methodological quality ratings was calculated. Here, the weightings are derived from both the quality index score derived from the EPHPP (as report above) and the study's sample size. In situations where the random effects model and the quality effects model produced different conclusions, the most conservative conclusion was accepted.

Statistical heterogeneity was assessed by visual inspection of forest plots and is supplemented by consideration of the I^2 statistic (Higgins, 2003). The I^2 statistic provides an estimate of the percentage of variability due to inter-study heterogeneity (i.e. variance attributable to uncontrolled factors within the studies) rather than random variation due to chance alone (i.e., sampling error). Accordingly, I^2 is often interpreted as the degree of inconsistency across studies in a meta-analysis. Where substantial inter-study inconsistency is identified (i.e., where the I^2 index is greater than 75%) then outlying studies were identified by visual inspection and the random effects model was recalculated with these studies removed.

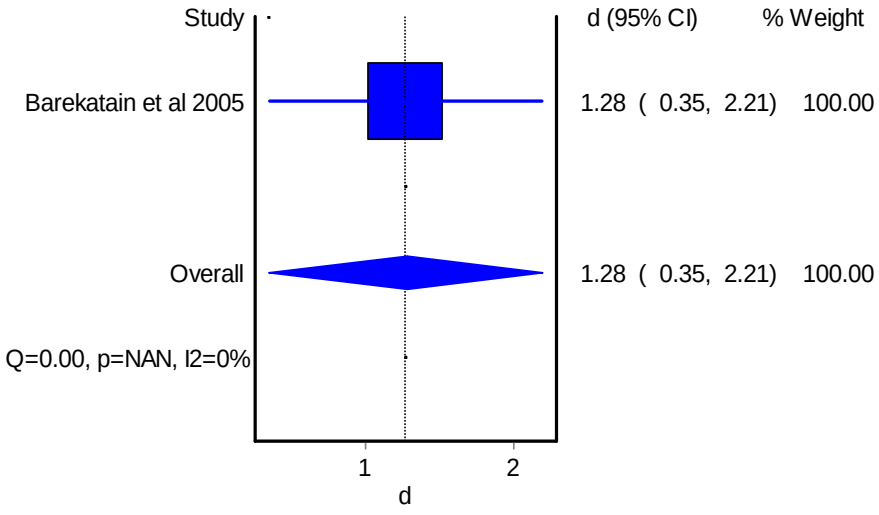
3.1 Anger: REBT versus non-active and active treatments

A total of two studies report outcomes relating to the experience and expression of anger (Barekatain, Taghavi, Salehi and Hasanzadeh 2005; Warren, McLellarn and Ponzoha 1988). Anger was measured using the Aggression Questionnaire and the Novaco Provocation Index.

REBT was compared to waiting list controls and active treatments (Barekatain, et al., 2005; Warren, McLellarn and Ponzoha 1988). Comparison treatments included relaxation (Barekatain, et al., 2005) and general CBT (Warren, McLellarn and Ponzoha, 1988). Outcomes were reported at the end of therapy and at follow-up. These outcomes are depicted in Figures 2.



a

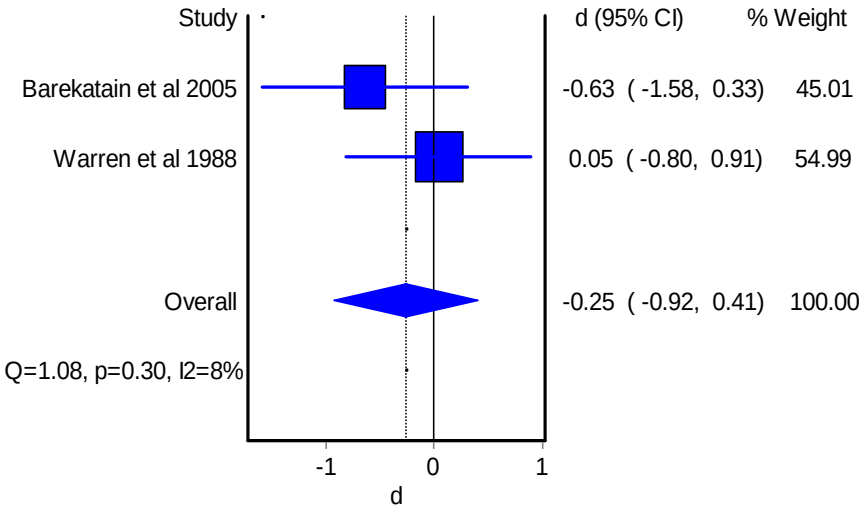


b

Figure 2: REBT vs non active at (a) end of therapy and (b) follow up (< 6 months) for anger

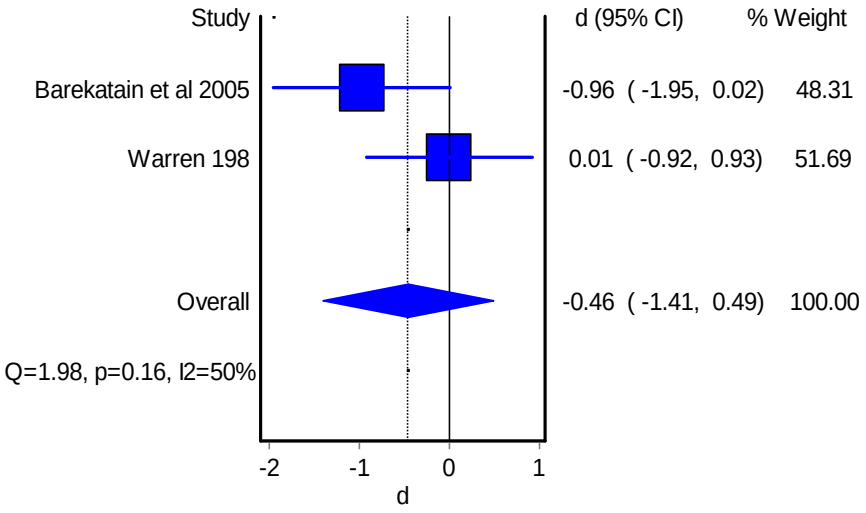
There was a statistically significant effect favouring REBT compared to non-active treatments at the end of therapy (2 studies, n = 45, *d* = 0.75 [0.14 to 1.36]). This observation was maintained at follow-up (1 study, n = 22, *d* = 1.28 [0.35 to 2.21]). This advantage for REBT was maintained when the meta-analysis was weighted by methodological quality (*d* = 0.76 [0.15 to 1.38] and *d* = 1.28 [0.35 to 2.21] for end of treatment and follow up respectively).

When compared to active treatments no significant advantage was observed for REBT at end of therapy (2 studies, n = 39, *d* = -0.25 [-0.92 to 0.41]), or at follow-up (2 studies, n = 36, *d* = -0.46 [-1.41 to 0.49]).



a

Figure 3: REBT vs active treatment at end of therapy for anger

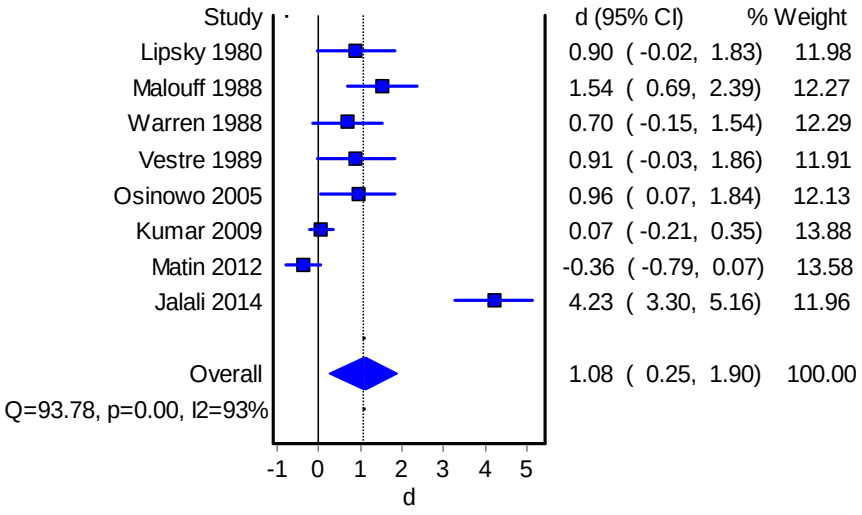


b

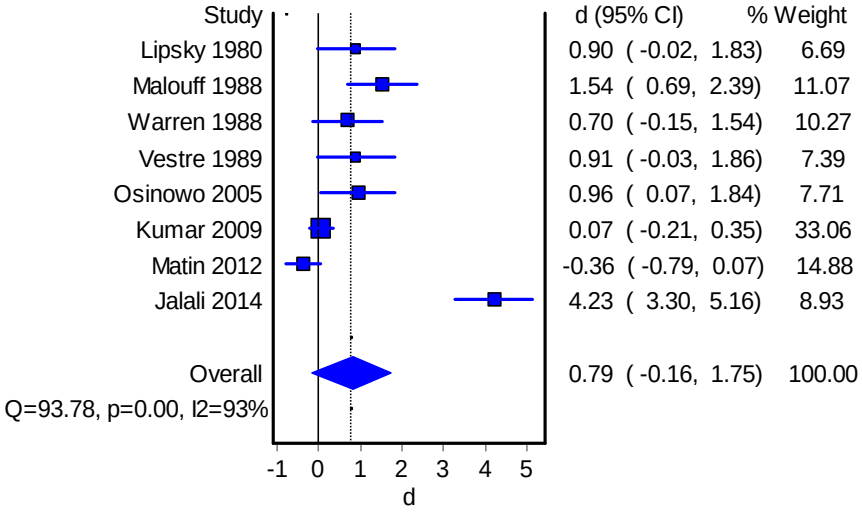
Figure 4: REBT vs active treatment follow-up (< 6 months) for anger

3.2 Depression: REBT versus non-active treatment controls

Eight studies reported outcomes relating to depression compared to non-active treatments (Jalali, Moussavi, Yazdi and Fadardi, 2014; Kumar, 2009; Lipsky, Kssinove and Miller, 1980; Matin et al., 2012; Malouff, Lanyon and Schutte, 1988; Osinowo, Olley and Adejumo, 2005; Vestre and Judge, 1989; Warren, McLellarn and Ponsoha, 1988). Depression was measured using a variety of different measures including the Beck Depression Inventory, the Hospital Anxiety and Depression Scale, the Hopkins Symptom Checklist, the Depression Anxiety and Stress Scale, the Munsh Mental Health Self Evaluation, the Youth Self Report and the Multiple Affect Adjective Checklist.



a



b

Figure 5: REBT compared to non-active treatment at (a) end of therapy random effect model and (b) end of therapy quality effects model for depression

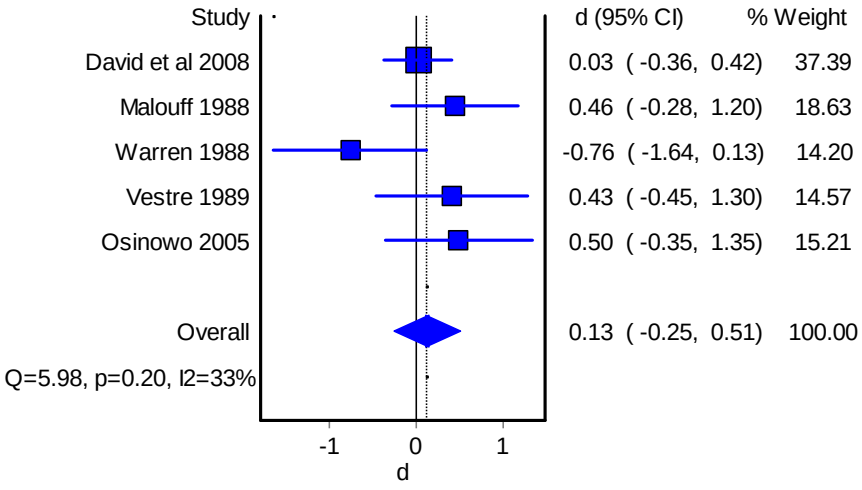
A statistically significant effect favouring REBT was observed at the end of therapy (8 studies, n = 466, *d* = 1.08 [0.25 to 1.90]). The overall effect suggests that the REBT group had improved by slightly more than one standard deviation relative to the non-active treatment group. When this analysis was weighted by the methodological quality of the

included studies there was no longer a statistically significant advantage favouring REBT (8 studies, n= 466, d = 0.79 [-0.16 to 1.75]). As can be seen from Figure 3, the difference in the conclusions from the random effects model and the quality effects model results from the way in which the studies by Martin (2012) and Kumar (2009) are weighted in each of the analyses. In the quality effects model the outcomes reported by Martin (2012) and Kumar (2009) were weighted on the basis of methodological quality and sample size, whereas in the random effects model weighting is based on sample size alone. This difference in the way in which studies were weighted resulted in the outcomes reported by Martin (2012) and Kumar (2009) being given more prominence in the quality effects model.

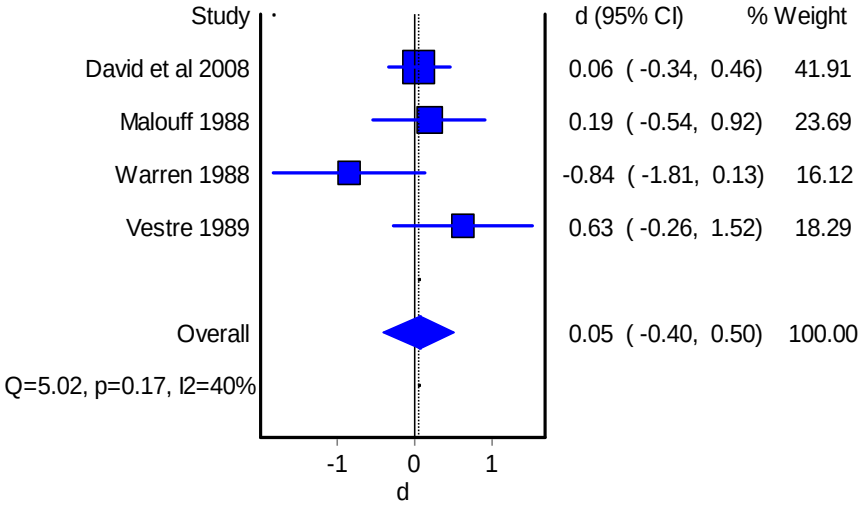
Two studies reported depression outcomes at follow-up (Jalali et al., 2014; Vestre and Judge, 1989). No significant effect was observed (2 studies, n = 79, *d* = 2.82, [-1.14 to 6.78]).

3.3 Depression: REBT vs active treatment controls

Five studies examined REBT when compared to other psychological therapies (David et al., 2008; Malouff, Lanyon and Schutte, 1988; Osinowo, Olley and Adejumo, 2005; Vestre and Judge, 1989; Warren, McLellarn and Ponsoha, 1988). The types of therapy comparison included Cognitive therapy (David et al., 2008), problem solving (Malouff, Lanyon and Schutte, 1988), General CBT (Warren, McLellarn and Ponsoha, 1988), self-administered REBT (Vestre and Judge, 1989) and self-instructional training (Osinowo, Olley and Adejumo, 2005). Depression was measured using three different measures; the Beck Depression Inventory, the Hospital Anxiety and Depression Scale, the Hopkins Symptom Checklist.



a



b

Figure 6: REBT compared to active therapy at end of treatment at (a) end of therapy and (b) follow-up (< 6months) for depression

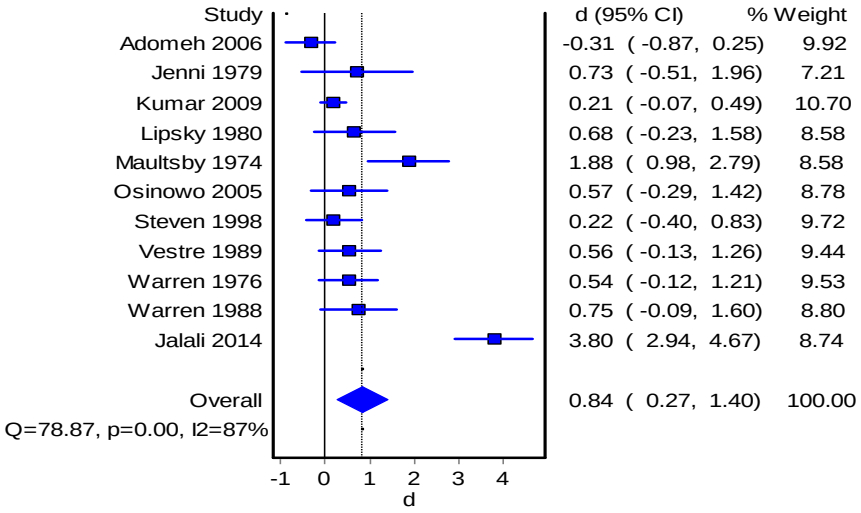
There was no statistically significant advantage for REBT when compared to the other treatments at end of therapy (5 studies, n= 195, *d* = 0.13 [-0.25 to 0.51]) or at follow-up (4 studies, n= 165, *d* = 0.05 [-0.40 to 0.50]).

3.4 Anxiety: REBT versus non-active treatment

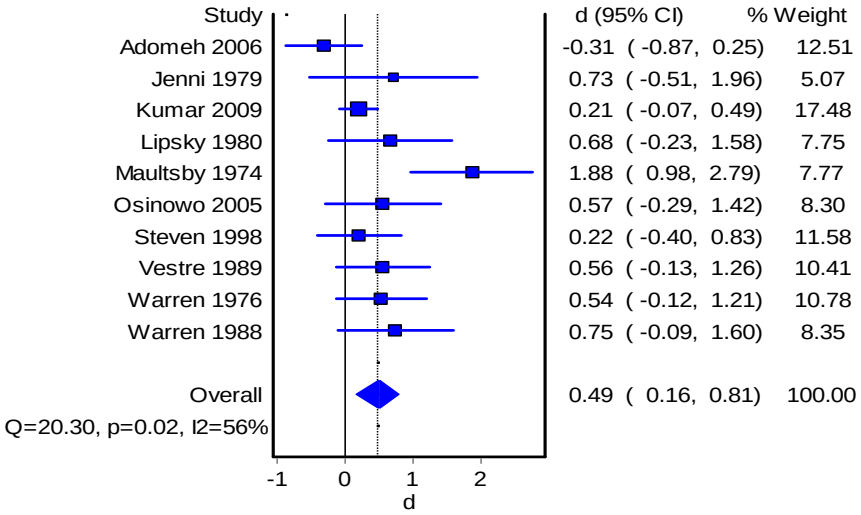
Eleven studies report outcomes relating to anxiety (Adomeh, 2006; Jalali, Moussavi, Yazdi and Fadardi, 2014; Jenni and Wollersheim, 1979; Kumar, 2009; Lipsky, Kassinove and Miller, 1980Maultsby and Graham 1974; Osinowo, Olley and Adejumo, 2005; Stevens and Florell, 1999; Vestre and Judge, 1989; Warren, Deffenbacher and Brading, 1976; Warren, McLellarn and Ponsoha, 1988). Anxiety was measured using the Depression Anxiety and Stress Scale, State –Trait Anxiety Inventory (full and subscale scores), Test Anxiety Inventory, Test Anxiety Scale, Taylor Manifest Anxiety Scale, Hopkins Symptom Checklist, Odebunmi Anxiety Depression Stress Scale, Youth Self report (Anxiety Subscale).

There was a significant large effect observed favouring REBT at the end of therapy (11 studies, n = 524, *d* = 0.84 [0.27 to 1.40]), and this effect was maintained when the meta-analysis was weighted by the methodological quality of the studies (*d* = 0.68 [0.01 to 1.35]). These eleven studies showed a Higgins I^2 index of 87%, indicating heterogeneity in the reported outcomes. Visual inspection of the forest plot suggests that Jalali (2014) reported an advantage for REBT that was disproportionate to the effects reported in other studies. When this study was removed from the meta-analysis (see Figure 5) the significant advantage for REBT was maintained (10 studies, n= 465, *d* = 0.49 [0.16 to 0.81]), although the effect size was reduced by approximately 58%. This suggests that the significant advantage for REBT is not dependent upon the disproportionately positive results reported by Jalali (2014).

The sensitivity of this finding to sample population was examined by comparing studies reporting student populations with studies reporting clinical samples. The results for the clinical sample demonstrated a significant large effect favouring REBT (6 studies, n = 166, *d* = 1.41 [0.35 to 2.48]) and the student sample reported a non-significant effect (5 studies, n= 358, *d* = 0.21 [-0.06 to 0.47]).



a



b

Figure 7: REBT compared to non-active treatments at (a) end of therapy, (b) with the outcomes reported by Jalali (2014) removed from the meta-analysis for end of therapy for anxiety

No statistically significant advantage was found with REBT when compared with non-active treatments at follow up (2 studies n = 79 *d* = 2.42 [-0.61 to 5.46]).

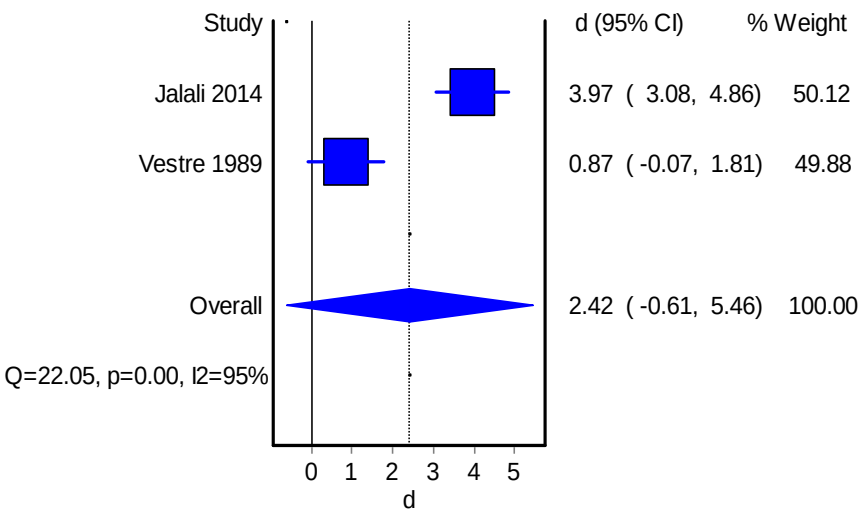
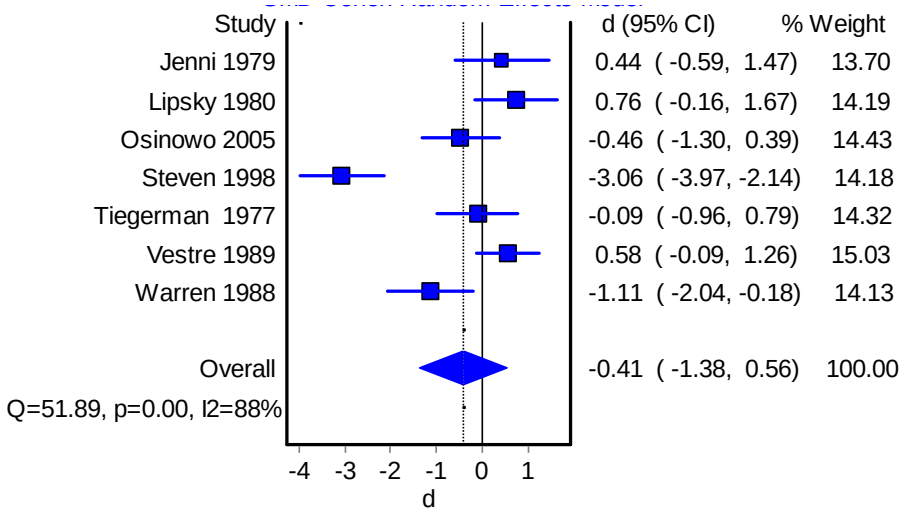


Figure 8: REBT compared to non-active treatments at follow-up (< 6 months) for anxiety

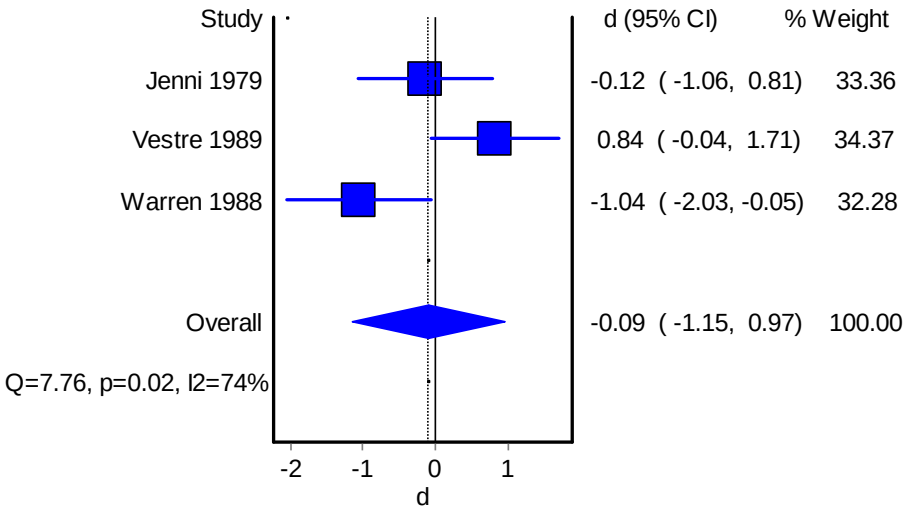
3.5 Anxiety: REBT versus active treatment groups

Seven studies examined the effectiveness of REBT compared with other treatments for anxiety (Jenni and Wollersheim, 1979; Lipsky, Kassinove and Miller, 1980; Osinowo, Olley and Adejumo, 2005; Stevens and Florell, 1999; Tiegerman and Kassinove, 1977; Vestre and Judge, 1989; Warren, McLellarn, Ponzoha, 1988). The types of therapy comparison included stress management (Jenni and Wollersheim, 1979), attention alternating treatment (Lipsky, Kassinove and Miller, 1980), self-instructional training (Osinowo, Olley and Adejumo, 2005), assertive training (Tiegerman and Kassinove, 1977); self-administered REBT (Vestre and Judge, 1989) and general CBT (Warren, McLellarn, Ponzoha, 1988).

No statistically significant advantage was found with REBT compared with other psychological treatments at end of therapy (7 studies, n =178, *d* = -0.41 [-1.38 to 0.56]) or at follow-up (3 studies n = 59 *d* = -0.09 [-1.15 to 0.97]).



a



b

Figure 9: REBT compared to active treatments at (a) end of therapy and (b) follow-up (< 6 months) for anxiety

4.0 DISCUSSION

There are mixed results around the effectiveness of REBT in treating emotional distress. There was no significant effect favouring REBT when examining depression using the weighted methodological quality model. This highlights the importance of good quality studies being conducted as the results are only as reliable and valid as the methods used. There was very limited evidence for the effectiveness of REBT in treating anger. Although significant effect was found favouring REBT with anger compared to non-active treatments (d = 0.75), the results only compared two studies at the end of treatment. This is not a true meta-analysis where a series of studies are used to provide more reliable and valid conclusions. More research needs to be conducted looking at anger to assess its effectiveness as at present there is currently insufficient information available to draw any reliable or valid conclusions.

There was a significant effect favouring REBT when compared to non-active treatments for anxiety using the methodological model (d = 0.68). A sensitivity analysis examining the difference in effectiveness between clinical and student samples for anxiety found that REBT was advantageous for the clinical sample (d = 1.41) but not for the student sample. This suggests that REBT would be an efficacious treatment for those in clinical settings suffering from anxiety. There were limited results on follow up, many studies did not follow up at all and those that did were followed up over a period of less than 3 months. The effectiveness for REBT was not maintained at follow up for anxiety or depression when compared to non-active treatments. Only one study followed up for anger and therefore it was not possible to assess the effectiveness of anger at follow up. There was no effect for REBT when comparing it to other therapies suggesting it is equally effective. This is a similar finding to previous research studies (Cuijpers, Van Straten, Andersson, Van Oppen, 2008; Glass and Smith 1977; Wampold, Mondin, Moody, Stitch, Benson and Ahn, 1997).

The analysis demonstrates some support for using REBT, with effect sizes ranging from medium to large. The largest effect size (d = 1.41) was found when comparing REBT with non-active treatment of anxiety in a clinical sample. This was higher than reported by Lyons and Woods (1991) who reported an effect size of d = 1.004 for a clinical sample. It should be noted that Lyon and Woods (1991) did find an effect in the student sample, which was contrary to our findings. One possible explanation for this might be due to the outcome being assessed. In the current review the outcome was specifically for anxiety whereas in other reviews the outcomes have on occasion been combined. When examining the overall sample for the treatment of anger and anxiety the effect sizes were in the medium range which is more conservative than some of the previous reviews, which reported effect sizes in the medium to large range (d = 0.76 to d = 1.00) for emotional outcomes (Gonzales et al. 2004; Lyons and Woods, 1991). It may be that the difference in results is an impact of low quality methodologies, which inflated the previous results. All studies included in this review were quality assured with the EPHPP, whereas the previous reviews rated quality based on a few arbitrarily selected criteria. The EPHPP measure has been shown to rate quality more negatively when compared to other measures such as the Guide to Community Preventative Services (GCPS) Instrument (Thomas et al., 1998). This impact on quality was visible when examining depression. In a random effects model there was a significant effect for REBT, however, when the quality effects model was employed the significance was no longer present.

Another factor that may have resulted in the discrepancies is the type of outcome measured. In this review outcome was limited to emotional distress as measured by a self-report questionnaire. However, previous reviews have also examined other outcomes such as behaviour and physiology, finding very large effect sizes of d = 2.84 and d = 3.88,

respectively. It may be that these outcomes are more susceptible to change and that an individual's ability to self-report is poor or that the measure of emotional distress lacks validity and reliability. However, it may be that these other outcomes are also more prone to produce biases with poor quality methodologies. The majority of the included studies did not report on blinding procedures, which may have an impact on the results.

Another factor for the difference in results may be due to the stringent criteria imposed in this review, which only included studies with a standalone form of REBT. Whilst this may have reduced effect size, the conclusion that REBT is efficacious has greater validity when compared to other meta-analyses, which included studies with mixed intervention. In addition, this review only included studies that reported basic statistics such as mean, sample size, and standard deviation, thereby avoiding the need to compute data with algorithms. This reduced the number of included studies but ensured that those included had been reported with greater rigour. There were some exceptions with this. One study included in the analysis reported results that were not clearly presented. It is hoped that the data inputted was accurate (Osinowo, Olley and Adejumo, 2003). For another study, the follow up results were not distinguished between groups and therefore were not included in the analysis (Stevens and Florell, 1999). A request for clarification was sought but no reply was received.

There are some limitations in this review. Firstly, only one outcome has been measured to assess effectiveness, namely emotional distress, and there may have been other outcomes that could have been measured. Moreover, this review fails to take into account other factors that have been found to be associated with positive outcomes in therapy such as the therapeutic alliance (Arditio and Rabellino, 2011; Horvath and Symonds, 1991; Lambert and Barley, 2001). In fact, the therapeutic alliance has been found to be a predictor of positive outcomes

in treatment irrespective of the psychotherapeutic approach measured (Arditio and Rabellino, 2011; Horvath and Symonds, 1991).

The sample size of the included studies varied from 5 to 100, with the majority having small numbers in each group. There were a large variety of measures used, and although all purported to measure an emotional distress (e.g. depression, anxiety, and anger), there are still issues with comparability of results. Overall, the results demonstrate that REBT is effective when compared to a 'no treatment' control and equally effective when compared to other active interventions. The findings also highlight the need for REBT outcome research to adopt better quality methodologies. It is promising to see a randomised controlled trial included in this review, which is hopefully a sign of progression in the area of REBT research.

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Cuijpers, P., Van Straten, A., Andersson, G., & Van Oppen, P. (2008) Psychotherapy for Depression in Adults: A meta-analysis of comparative outcome studies. *Journal of consulting and Clinical Psychology*, 76, 909-922.

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CHAPTER II: EMPIRICAL PAPER

THEORETICAL UNDERPINNINGS OF RATIONAL EMOTIVE BEHAVIOUR THERAPY AND COGNITIVE THERAPY

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Word count: 6216

ABSTRACT

Background: Rational Emotive Behavioural Therapy (REBT) and Cognitive Therapy (CT) are both forms of Cognitive Behavioural Therapy (CBT). Both assert that irrational thinking leads to emotional distress and dysfunctional behaviour. However, they differ in the theoretical underpinnings. REBT suggests that primary appraisals (e.g. demands) followed by other negative evaluative beliefs (e.g. self-downing) leads to distress, whilst CT would suggest that core beliefs (e.g. beliefs of self, others and future) are the primary appraisal mechanisms.

Aim: The aim of this review is to explore the hierarchical structure of the two CBT models for depression using a clinical and student sample.

Method: Participants were recruited from an undergraduate university programme and the National Health Service. They were required to complete two questionnaires, one on thinking styles (SGABS) and another on emotional distress (BDI II and POMS-SV).

Results: The results found that implicit demands were more important than self-depreciation beliefs when examining the student sample providing support for the REBT framework. However, a hierarchical structure between the CT and REBT model could not be distinguished when examining a clinical sample.

Discussion: The findings provide some evidence for the two different theoretical approaches of REBT and CT. However, not all the theoretical elements could be tested due to the issues inherent with measures used to assess beliefs. Future research would benefit from exploring whether similar patterns exist for other emotions e.g. anger and anxiety.

1.0 INTRODUCTION

Cognitive Behavioural Therapy (CBT) has developed and changed over the years. It originates in behaviour therapy (1st wave) back in the 1940s when psychologists were examining the human capacity to learn. This learnt behaviour was often a reaction to emotional stimuli and was learnt by association (classical conditioning) and by consequences (operant conditioning) (Pavlov, 1927; Skinner, 1938). The 2nd wave of CBT introduced a new dimension to behaviour therapy examining thoughts and cognitions and their link to emotional distress and behaviour consequences. Two different founders of CBT were Ellis (1962) with Rational Emotive Behaviour Therapy (REBT) and Beck (1976) with Cognitive Therapy (CT). Finally 3rd wave CBT used similar theoretical groundings but the intervention focus moved from a change approach to a notion of acceptance of uncomfortable thoughts and feelings. Whilst 2nd wave approaches suggested changing negative thinking, 3rd wave approaches suggest changing our reactions to our thoughts, not necessarily the thoughts themselves. Such approaches include Acceptance and Commitment Therapy (ACT) and Dialectical Behavioural Therapy (DBT) (Hayes, 2004; Linehan, 1987).

CBT models posit that interpretations of events can be rational/adaptive and irrational/maladaptive, which can lead to functional or dysfunctional consequences in emotions and behaviour. Moreover, both models would support the notion that irrational beliefs are fixed, global, rigid and inflexible (Beck, 2011; Ellis, 1962; David, Lynn, Ellis, 2010; Grant et al., 2008). Research has found an association between irrational thinking and emotional distress. More specifically an association has been found suggesting that the greater the irrational thinking the more severe the emotional distress. Irrational thinking has also been linked to psychiatric disorders (Chang and Bridewell, 1998; Chang and DiZurilla,

1996; Cristea, Montgomery, Szamoskozi and David, 2013; David, Ghinea, Macavei, Kallay, 2005; DiLorenzo, David and Montgomery, 2007; Harris, Davies and Dryden, 2006; Hayland, Shevlin, Admson and Boduszek, 2013a; Macavei, 2005; Muran, Kassinove, Ross and Muran, 1989; Williams and Garland, 2002).

The challenge for researchers and clinicians in understanding these concepts in greater depth is around the measurement of beliefs or thoughts. Smith (1982) reported that measures assessing beliefs needed to be both valid and reliable. Validity would suggest that the measures were assessing a particular construct (e.g. irrationality) while reliability refers to the consistency of the measure. For a detailed overview of belief measures see Terjesen, Salhany and Sciutto (2009) and Bridges and Harnish (2010). The measures available can sometimes convolute the cognitive processes with content issues. Constructs, in the REBT model described later, such as demands, preferences, Low Frustration Tolerance, and High Frustration Tolerance are cognitive processes, which are often combined with a content specific focus (DiGiuseppe, Leaf, Exner & Robin, 1988; Lindner, Kirkby, Wertheim & Birch, 1999). In addition, measures purporting to measure irrationality sometimes convolute these items with emotional elements resulting in poor validity of irrational beliefs (Davies, 2003; DiGiuseppe et al., 1988; Lindner et al., 1999; Zurawski and Smith, 1987). Some researchers have attempted to separate these two distinct ideas using confirmatory factor analysis (Fulop, 2007; Hyland, Shevlin, Adamson and Boduszek, 2013b).

However, some items on measurement scales may measure both an implicit and explicit cognitive process. Research has been conducted around the notion of implicit and explicit attitudes, and the interaction with one another and their behaviour (Perugini, 2005). Three theories are proposed; firstly, that explicit attitudes predict behaviour, secondly, that implicit attitudes are linked to spontaneous or uncontrolled behaviour that is impulsive while explicit

attitudes are linked to deliberate behaviours (Wilson, Lindsey and Schooler, 2000), and finally, that the implicit and explicit behaviours interact to predict behaviour (Perugini, 2005). Measures may not be particularly sensitive in measuring the notion of congruence or incongruence of these implicit and explicit beliefs. In the literature on attitudes, the more congruent the implicit and explicit attitude type the stronger the influence on behaviour. This notion of congruence and incongruence is highlighted in areas around secure and defensive self-esteem. The former is a congruence of both high explicit and implicit self-esteem leading to functional behaviour, while the latter is the incongruence of high explicit and low implicit self-esteem which may lead to problems in functioning and emotional distress (Bosson, Brown, Zeigler-Hill, and Swann, 2003; Jordan, Spencer, Zanna, Hoshino-Browne and Correll, 2003). Incongruence in explicit and implicit beliefs (e.g. "*I must or must not*" rather than implicit "why can't I feel/ be better?") may explain why some emotional problems persist and are maintained. It follows that one of the demand types may be more accessible than another, as is hypothesised with attitudes and therefore more likely to be targeted for change (Wilson, Lindsey and Schooler, 2000). In fact, this notion of increasing awareness of our beliefs is common in the third wave CBT approaches (Hayes, 2004; Linehan, 1987). However, there is contradictory evidence in the literature around the stability or susceptibility to change for both implicit and explicit attitudes (Blair, 2002; Gawronski and Strack, 2004; Olson and Fazio, 2006). To our knowledge, the notion of change in implicit and explicit demands has not been investigated, although these areas of implicit or explicit intent are often looked at when conducting risk assessments for suicide (Beck and Lester, 1976). It is possible to hypothesise that explicit beliefs are more likely to be targeted in treatment, and in fact more likely to be assessed in specific measures, leading to a possible incongruence with implicit and explicit demands. If there is incongruence in the implicit and explicit demands post treatment it could

lead to a lesser strength of change, and could maintain the emotional distress.

Despite these challenges in the use of specific measures to assess beliefs researchers have attempted to find evidence for the differing theoretical frameworks. At present there is no measure available that assesses the distinct REBT processes or the CT cognitive triad, which is possibly why there is still debate about the different theoretical frameworks (Davies, 2003). This may explain some of the challenges and mixed evidence linked to the framework of REBT (Bond & Dryden, 2000; DiLorenzo, David and Montgomery, 2007; Haaga & Davison, 1993; Hyland et al., 2013a; Kendall et al., 1995; MacInnes, 2004; Neenan, 2001).

As mentioned earlier the CT model and the REBT model have many similarities, however they differ in the theoretical hierarchy of the appraisal mechanisms. In REBT, Ellis describes four types of irrational beliefs including demandingness, awfulising, low frustration tolerance (LFT), and self/other depreciation. These types of beliefs are also thought to have their own rational counterparts (e.g. preferences, anti-awfulising, high frustration tolerance (HFT), and self/other-acceptance) that are more flexible and logical (David, Lynn, Ellis, 2010; Ellis, 1962). Demanding beliefs tend to be described in inflexible and absolutistic terms of "musts", "shoulds" and "oughts" about how life, people or situations should be. Awfulising beliefs are an extreme and catastrophic negative rating of the situation. LFT beliefs focus on ones inability to cope and/or tolerate a particular outcome. Self/other depreciating beliefs are negative over-generalised global rating of self or others. Their rational counterpart is described in terms of preferences or desires rather than rigid demands. Anti-awfulising beliefs are more balanced ratings of a negative situation. HFT beliefs acknowledge the difficulty of tolerating a situation but emphasise that it would not be impossible and that it would be beneficial in the long term. Self and other acceptance beliefs focus on humans as being fallible and global ratings as illogical ratings for a person's

transgressors and/or mistakes (Dryden and Opie, 2003).

In an REBT framework explicit beliefs can be both the demands (e.g. *I must/ must not*) and the irrational evaluative beliefs such as LFT, awfulising and self or other downing. However, there also may be implicit demands such as "why can't I feel/do better?" with the answer being linked to an implicit demand. REBT would suggest that it is both the explicit and implicit demands that lead to the opportunity for negative evaluative beliefs and subsequent distress. This highlights the need for both types of demands to be a target for treatment in order for changes in behaviour and or a reduction in emotional distress to occur. Trower and Jones (2015) discuss two types of beliefs known as preferences, which can be incongruent; the "oughts" and the "wants", which could both transgress to implicit demands in the context of other, more directly expressed irrational beliefs. From clinical experience, demanding beliefs can also be seen in other areas of psychopathology such as perfectionism and eating disorder, which may also be linked to emotional difficulties such as anxiety and depression (Garner and Bernis, 1982; Shafran, Cooper & Fairburn, 2002). In summary the REBT framework proposes that demand based beliefs are the primary appraisal mechanism, which leads to further irrational evaluative beliefs (e.g. LFT, awfulising and self or other downing) and subsequent distress.

In contrast, CT suggests that our perceptions and inferences are influenced predominantly, but not exclusively, by our early experiences, leading to adaptive and maladaptive schemas or core beliefs (Beck, 1976; Beck et al., 1979; Grant et al., 2008). These core beliefs concern the self, the world, and the future and are thought to operate in depression. They are frequently referred to as the cognitive triad (Beck, et al., 1979; Beck, 2011; Grant et al., 2008). These beliefs predict the development of rigid "underlying assumptions" about life (Beck 2011; Grant et al., 2008). This can result in further biased

interpretations or negative automatic thoughts (NATS) that can be triggered by internal and external factors (Beck, 2011). The NATS are influenced by a number of different processing biases e.g. arbitrary influences (jumping to conclusions), selective abstraction (focusing on one detail), overgeneralization, magnification and minimising, personalisation and dichotomous thinking (black and white thinking). These lead to both emotional and physiological changes which further impact on behaviour. In summary the CT model proposes that core beliefs, associated with the self, other and the world, are the primary appraisal mechanisms, which lead to demands, further evaluative beliefs and subsequent distress

In REBT, the demanding beliefs are described as the primary appraisal mechanism while the other three evaluative beliefs are considered to be secondary appraisals leading to emotional distress. In CT the primary appraisal mechanisms are thought to be the core beliefs, which might be construed as 'deprecating' beliefs about the self, the world and future. These lead to secondary appraisals or assumptions, often described as "*If..... then....."* and *"I should....or I ought……"* rules, which REBT would hypothesis as being more akin to demand based beliefs. In REBT terms if one did not demand things or situations to be a certain way than there would be no need for further evaluative beliefs. However, in CT terms this process is somewhat reversed as it is the core beliefs, or evaluative deprecating beliefs about the self, other and world which lead to further demands. For a detailed account of the difference with CT and REBT see Hyland and Boduszek (2012).

Williams and Garland (2002) reviewed the characteristics of thoughts in relation to a number of different emotions and reported that demands were relevant for anger and guilt but not for anxiety, depression, or shame. However, in the REBT model it is hypothesised that the demand based beliefs are what differentiates individuals in terms of the quality of emotion

they experience and the level of distress they report. For example those expressing preferences rather than demands with other rational evaluative beliefs may find they experience emotions at a lesser degree such as concern rather than anxiety or sadness rather than depression (Ellis, 1987; Ellis, 1997; Trower and Jones 2015). Some researchers have investigated this specific hierarchical structure and found support for the REBT model when examining PTSD and emotional distress (DiLorenzo, David and Montgomery, 2007; Hyland et al., 2013a) but other reviews have not (MacInnes, 2004). The subsequent research study aimed to investigate the hierarchical structure of beliefs using the two theoretical frameworks, CT and REBT, as a reference.

1.1 Aim

A preliminary aim was to establish whether irrational beliefs had an impact on emotional distress. Previous research had found an association between these two variables and it was hypothesized that similar results would be found in this study. Based on the findings from the above a further aim was to investigate whether there was a hierarchical structure associated with the different types of irrational beliefs using two differing models, the CT and REBT models of understanding distress. The CT model of distress would propose that primary appraisals are those associated with beliefs about self, others and future which leads to further demand based beliefs, while the REBT model would propose that demand based beliefs are the primary appraisal leading to further negative evaluations about self and others. Therefore the aim was to establish whether the different relationship pathways between beliefs accounted for more variance in explaining distress, in this case symptoms of depression.

2.0 METHODOLOGY

2.1 Design

The relationship between the two appraisal mechanisms was investigated using a cross sectional design in two samples: a student sample vulnerable to experiencing distress during an exam period and a clinical sample recruited via an NHS therapy service. Individuals suffering from depressive symptoms were invited to participate in the research, however, individuals with co morbidity (dual diagnosis) were included.

2.2 Participants

2.2.1 Student Sample

The student sample was recruited from an Undergraduate Psychology course at a local University. The mean age of the student sample was 19.51 (SD = 1.43, range 18 to 28). There were 62 females (89.9%) and 7 males (7%). The participants were in there 1st (25, 36.2%) and 2nd year (44, 63.9%) of the course. The majority were White British (54, 78.3 %), and the remaining identified as Asian British (6, 8.7%), Mixed Race (3, 4.3%), Black British African (2, 2.9%), Black British Caribbean (2, 2.9%), Chinese (1, 1.4%) and Turkish (1, 1.4%).

2.2.2 Clinical Sample

The clinical sample was recruited from an NHS primary care therapy service providing psychological treatment to individuals. The mean age of the clinical sample was 40.8 (SD = 14.15, range 17 to 71). There were 46 (63%) female and 26 (35.6%) male. The majority were white British (51, 69.9 %) with the remaining identifying as Asian British (8,

10.9 %), Black British (3, 4.1 %), White Irish (2, 2.7%) or Mixed Race (1, 1.4%). The majority were receiving treatment for depression (40, 54.9%), anxiety and depression (15, 20.5%), anxiety (9, 12.3%) with a handful of targets for panic (2, 2.7%), stress (5, 6.8%) and long term conditions (2, 2.7%).

2.3 Measures

2.3.1 Shortened General Attitude and Belief Scale (SGABS) (Lindner, Kirkby, Wertheim and Birch, 1999)

This is a self-report scale that measures rational and irrational beliefs. It is a 26-item questionnaire consisting of statements about different styles of rational and irrational thinking. Each item is scored using a 5-point Likert Scale ranging from 1 (strongly disagree) to 5 (strongly agree). It produces an overall score on irrationality and scores on irrationality subscales self-downing, need for achievement, need for approval, need for comfort, need for fairness and other-downing, as well as a subscale for rationality. Research has found that the measure has good validity and reliability (MacInnes, 2003; Terjesen, Salhany and Sciutto, 2009).

2.3.2 Beck Depression Inventory II (BDI-II) (Beck, Steer and Brown, 1996)

The BDI-II is a 21-item self-report questionnaire designed to measure the severity of depression in adults. The BDI-II is a widely used measure of clinical depression both in routine clinical practice and research. It should be noted that the BDI-II is not an instrument for specifying clinical diagnosis, but was developed as an indicator of the presence and degree of depressive symptoms consistent with DSM IV. Arnau et al. (2001) found very good reliability and validity with this measure.

2.3.3 The Profile of Mood States 2– Short Version (POMS2-SV) (Heuchert, Douglas and McNair, 2012)

This 35-item questionnaire examines differing levels of distress. Individuals are required to rate their mood (over the last four weeks) using a number of mood adjectives and rate them on a 4-point Likert Scale. This yields six subscale scores and a total distress score. The POMS2-SV has very good reliability and good validity (Curran, Andrykowski, Studts, 1995; Shachman, 1983).

2.4 Procedures

Ethical approval was sought and obtained from the Research Governance and ethics committee and from the National Health Service (Appendix 1). After ethical approval was obtained the following procedures were completed for each sample.

2.4.1 Student Sample

The research study was posted on the University Research Participation Scheme (RPS) allowing students to sign up to the research at different time slots. In order to participate in the research students had to be scheduled for an exam within two weeks subsequent to them completing the research. Once participants had signed up to the research, information sheets (Appendix 2) were sent electronically providing them with a 48-hour period to decide if they wanted to participate. Participation was voluntary, however, those that did participate received participation credit in line with the University of Birmingham protocol for undergraduate participation. On the day of the research study, participants were asked to read and sign the consent form (Appendix 3), following which they completed the

SGABS and the POMS SV, which took approximately 20 minutes. No identifiable information was provided on the questionnaires, and each participant was provided with a unique participation number allowing them to remain anonymous and withdraw their data up until the point of data analysis. Research indicates that exam periods have been found to be a stressful time and may impact on emotional health (Cristea et al., 2013; DiLorenzo et al., 2007; Malouff et al., 1992).

2.4.2 Clinical Sample

An initial visit was conducted at three venues of the therapy service, providing details of the research to each team. Subsequently, individuals who had scores of 10 or higher on the Physical Health Questionnaire (PHQ9), a measure used to examine depressive symptoms, were approached by their therapist about the possibility of participating in the research and were given an information sheet (Appendix 4) describing the research. Individuals were allowed 48 hours to decide if they wanted to participate and discuss issues with family members. On receiving confirmation of participation agreement, the researcher met with individuals or groups and provided them with an opportunity to ask questions. Subsequently, participants were required to complete a consent form (Appendix 5) and complete the SGABS and the BDI-II. No identifiable information was provided on the questionnaires. Each participant was provided with a participation number to ensure anonymity and so that they could withdraw from the research up until the point of data analysis. Questionnaires were checked and information in relation to the risk question (e.g. BDI-II item 9: Suicidal thoughts or wishes) were reported to the participants' therapist.

1.0 RESULTS

Prior to conducting the main analysis, a reliability analysis was conducted on all measures (BDI II, POMS, and SGABS) used for the student and clinical samples. The details are illustrated in Table 1. The total score on the BDI II demonstrated an α = 0.874 (N = 70), the POMS Total Mood Disturbance demonstrated an α = 0.920 (N= 69), and the SGABS Irrationality total score demonstrated an α = 0.887 (N= 72) for clinical sample and an α = 0.907 (N= 69) for the student sample. It can be seen from Table 1 that most scores were above 0.70 with the exception of the reliability subscale in the SGABS, which was 0.454 and 0.673 for the clinical and student samples respectively. This was not used in any subsequent analysis.

Prior to conducting any formal analysis all scores were converted to standardised Z scores, which gives the variable a mean of 0 and a standard deviation of 1 allowing for direct comparisons between parameter estimates. Subsequently, a correlational analysis and mediation analysis was conducted for both samples. A bootstrap method allows comparisons to be made between parametric and bootstrap estimates. If differences are evident then the bootstrap method is the more robust estimate to be used.

Table 11: Cronbachs Alpha for assessment measure and subscales

Sample	Measure & Subscales	Cronbachs Alpha (α)	Number of Items	N
Clinical				
	BDI II Total Score	0.874	21	70
	SGABS			
	Irrationality	0.887	22	72
	Rationality	0.454	4	72
	Self-downing	0.924	4	73
	Need for Achievement	0.836	4	73
	Other Downing	0.78	3	73
	Demand for Fairness	0.768	4	73
	Need for Approval	0.74	3	73
	Need for Comfort	0.721	4	72
Student				
	POMS SV			
	Total Mood Disturbance	0.92	30	69
	Negative Mood States	0.942	25	69
	Tension- Anxiety	0.901	5	69
	Depression- Dejection	0.898	5	69
	Anger-Hostility	0.842	5	69
	Fatigue Inertia	0.842	5	69
	Confusion Bewilderment	0.789	5	69
	Vigour-Anxiety	0.766	5	69
	Friendliness	0.739	5	69
	SGABS			
	Irrationality	0.907	22	69
	Rationality	0.673	4	69
	Self-Downing	0.917	4	69
	Other Downing	0.841	3	69
	Need for Achievement	0.818	4	69
	Need for Comfort	0.762	4	69
	Demand for Fairness	0.735	4	69
	Need for Approval	0.723	3	69

3.1 Student Results

A correlational analysis was conducted looking at the relationship between scores on the POMS2-SV depression subscale, and SGABS rational and irrational beliefs. These are illustrated in Table 2. There was a negative significant correlation with depression and rationality ($r=-0.488$, $p<0.01$). This suggests that as scores on the depression subscale increased, the rationality scores decreased and vice versa. All other associations with the depression subscale were found to have a positive correlation including irrationality ($r = 0.542$, $P<0.01$), self-downing ($r=0.674$, $p<0.01$), need for approval ($r=0.376$, $p<0.01$), need for comfort ($r=0.372$, $p<0.01$) and need for achievement ($r=0.369$, $p<0.01$). This suggests that as the scores on the irrationality subscales increase so do the depression scores and vice versa.

Table 12: Pearson correlation between POMS2-SV Depression-Dejection Subscale, and SGABS rational and irrational beliefs (n=69)

	Pearson Correlation	Sig. (2-tailed)	Bootstrap			
			Bias	Std. Error	95% Confidence Interval	
					Lower	Upper
Rationality	-.488	.000	.003	.083	-.640	-.307
Irrationality	.542	.000	.001	.086	.338	.685
Self-downing	.674	.000	-.005	.069	.507	.780
Need for approval	.376	.001	-.004	.096	.159	.533
Need for comfort	.372	.002	.004	.097	.174	.557
Need for achievement	.369	.001	.000	.089	.215	.554
Other downing	.208	.087	.004	.140	-.070	.474
Demand for fairness	.208	.086	.002	.112	-.015	.410

The two models (REBT and CT) were tested using mediation analysis (Preacher and Hayes, 2008). A diagrammatical representation of the two models can be seen in Figure 7. X is the predictor variable, M1 is the mediator and Y represents the outcome. Only those variables that were found to have a significant association were included in the mediation analysis.

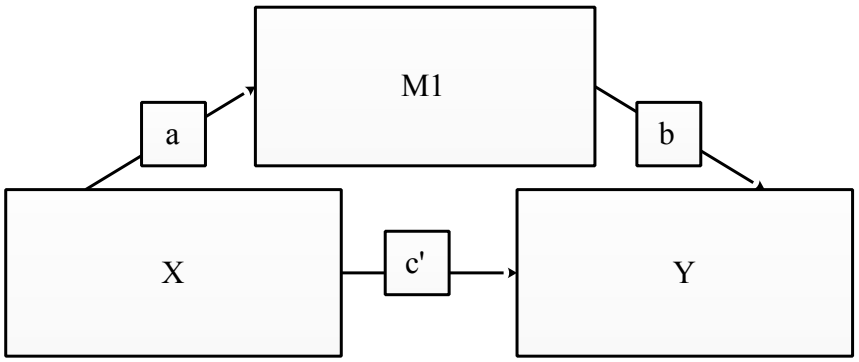


Figure 6: Mediation model being tested

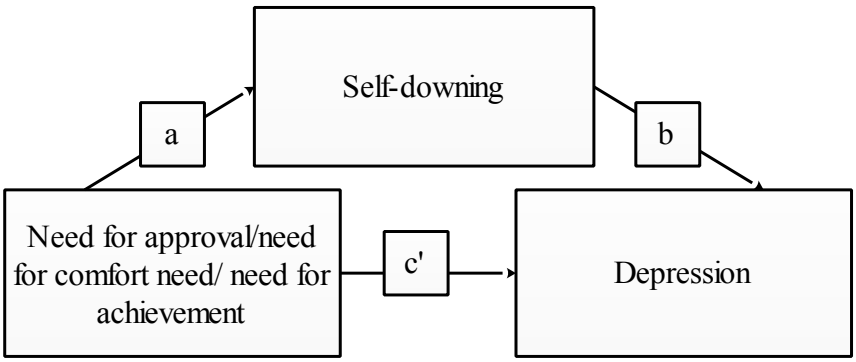


Figure 7: REBT mediation model being tested

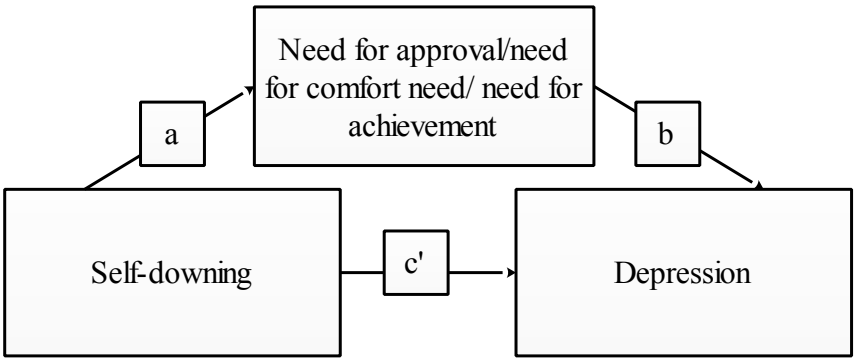


Figure 8: CT mediation model being tested

For the REBT model the M1 variable is self-downing, whilst this is the X variable in the CT model. The X variable in the REBT model is need for approval, need for comfort and need for achievement, which is the M1 variable in the CT model. These models are analogous to the theoretical assumptions made in the two different models. Six mediation comparisons were completed, three for REBT, and three for CT. The first mediation analysis looked at the need for approval and self-downing variables. The details are provided in Table 3.

With respect to the REBT model, there was a significant association between need for approval and depression before the effects of mediation were considered (β=0.376, 95% CI 0.149 to 0.602). When the mediator (self-downing) was included in the analysis this direct association reduced to β =.09, indicating that the effect of the mediated variable accounted for approximately 76% of the original relationship between need for approval and depression (β = 0.287, 95% CI 0.128 to 0.466). Significant path coefficients were reported for both the path to the mediator variable (β= 0.452, 95% CI 0.235 to 0.669) and from the mediator variable to the distress (β=0.634, 95% CI 0.432 to 0.836). Accordingly, a partial mediation effect was observed.

Table 13: Mediation Analysis for REBT and CT model using two variables (need for approval and self-downing) in student sample

	Path Estimate	**Standard Error**	**Lower 95% Bootstrap Confidence Interval**	**Upper 95% Bootstrap Confidence Interval**
REBT Model: Need for Approval -> Self Downing -> Depression/Dejection				
Direct effect in the Unmediated Model	.376	.113	.149	.602
Direct effect in the Mediated Model	.089	.101	-.113	.291
Mediator (Self Downing)	.287	.083	.128	.466
Path to mediator	.452	.109	.235	.669
Path from mediator	.634	.101	.432	.836
CT Model: Self Downing -> Need for Approval -> Depression/Dejection				
Direct effect in the Unmediated Model	.674	.090	.494	.854
Direct effect in the Mediated Model	.634	.101	.432	.836
Mediator (Need for Approval)	.040	.040	-.033	.129
Path to mediator	.452	.109	.235	.669
Path from mediator	.089	.101	-.113	.291

With respect to the CT model, there was a significant association between self-downing and depression before the effects of mediation were considered (β=0.674, 95% CI 0.494 to 0.854). When the mediator (need for approval) was included in the analysis the direct association reduced to β =0.634, indicating that the effect of the mediated variable accounted for approximately 5% of the original relationship between self-downing and depression (β = 0.040, 95% CI -0.033 to 0.129). Significant path coefficient was reported for the path to the mediator variable (β = 0.452, 95% CI 0.235 to 0.669) but not from the mediator variable to the distress (β = 0.089, 95% CI -0.113 to 0.291). As the path coefficients for the B1 and mediator were not significant no mediation occurred in the CT model.

The second mediation analysis examined the variables, need for comfort and self-downing. Table 14 illustrates the findings. With respect to the REBT model, there was a significant association between need for comfort and depression before the effects of mediation were considered (β = 0.372, 95% CI 0.146 to 0.598). When the mediator (self-downing) was included in the analysis this direct association reduced to β = 0.180, indicating that the effect of the mediated variable accounted for approximately 51% of the original relationship between need for comfort and depression (β = 0.192, 95% CI 0.035 to 0.406). Significant path coefficients were reported for both the path to the mediator variable (β= 0.311, 95% CI 0.079 to 0.542) and from the mediator variable to the distress (β=0.618, 95% CI 0.433 to 0.804). Accordingly, a partial mediation effect was observed.

Table 14 Mediation Analysis for REBT and CT model using two variable (need for comfort and self-downing) in student sample

	Path Estimate	**Standard Error**	**Lower 95% Bootstrap Confidence Interval**	**Upper 95% Bootstrap Confidence Interval**
REBT Model: Need for Comfort -> Self Downing -> Depression/Dejection				
Direct effect in the Unmediated Model	.372	.113	.146	.598
Direct effect in the Mediated Model	.180	.093	-.0061	.366
Mediator (Self Downing)	.192	.089	.035	.406
Path to mediator	.311	.116	.079	.542
Path from mediator	.618	.093	.433	.804
CT Model: Self Downing -> Need for Comfort-> Depression/Dejection				
Direct effect in the Unmediated Model	.674	.090	.494	.854
Direct effect in the Mediated Model	.618	.093	.433	.804
Mediator (Need for Comfort)	.056	.034	.008	.153
Path to mediator	.311	.116	.079	.542
Path from mediator	.180	.093	-.006	.366

With respect to the CT model, there was a significant association between self-downing and depression before the effects of mediation were considered (β = 0.674, 95% CI 0.494 to 0.854). When the mediator (need for comfort) was included in the analysis this direct association reduced to β = 0.618, indicating that the effect of the mediated variable accounted for approximately 8% of the original relationship between self-downing and depression (β = 0.056, 95% CI 0.008 to 0.153). Significant path co-efficient was reported for the path to the mediator variable (β= 0.311, 95% CI 0.079 to 0.542) but not from the mediator variable to the distress (β= 0.180, 95% CI -0.006 to 0.366). As the path coefficients for the B1 was not significant no mediation occurred in the CT model.

Table 15: Mediation Analysis for REBT and CT model using two variable (need for achievement and self-downing) in student sample

	Path Estimate	**Standard Error**	**Lower 95% Bootstrap Confidence Interval**	**Upper 95% Bootstrap Confidence Interval**
REBT Model: Need for Achievement -> Self Downing -> Depression/Dejection				
Direct effect in the Unmediated Model	.396	.112	.172	.620
Direct effect in the Mediated Model	.109	.102	-.093	.312
Mediator (Self Downing)	.287	.084	.137	.466
Path to mediator	.460	.109	.243	.676
Path from mediator	.624	.102	.421	.827
CT Model: Self Downing -> Need for Achievement -> Depression/Dejection				
Direct effect in the Unmediated Model	.674	.090	.494	.854
Direct effect in the Mediated Model	.624	.102	.421	.827
Mediator (Need for achievement)	.050	.043	-.0283	.140
Path to mediator	.460	.109	.243	.676
Path from mediator	.109	.102	-.093	.312

Finally a mediation analysis was completed with need for achievement and self-downing comparing the REBT and CT models. Table 5 provides details of the analysis. With respect to the REBT model, there was a significant association between need for achievement and depression before the effects of mediation were considered (β=0.396, 95% CI 0.172 to 0.620). When the mediator (self-downing) was included in the analysis this direct association reduced to β = 0.109, indicating that the effect of the mediated variable accounted for approximately 72% of the original relationship between need for achievement and depression (β = 0.287, 95% CI 0.137 to 0.466). Significant path coefficients were reported for both the path to the mediator variable (β= 0.460, 95% CI 0.243 to 0.676) and from the mediator variable to the distress (β=0.624, 95% CI 0.421 to 0.827). Accordingly, a partial mediation effect was observed.

With respect to the CT model, there was a significant association between self-downing and depression before the effects of mediation were considered (β= 0.674, 95% CI 0.494 to 0.854). When the mediator (need for achievement) was included in the analysis this direct association reduced to β =0.624, indicating that the effect of the mediated variable accounted for approximately 7% of the original relationship between self-downing and depression but was not significant (β = 0.050, 95% CI -0.028 to 0.140). Significant path co-efficient was reported for the path to the mediator variable (β= 0.460, 95% CI 0.243 to 0.676) but not from the mediator variable to the distress (β= 0.109, 95% CI -0.093 to 0.312). As before the findings on the CT model were not significant as the B1 and mediator pathway coefficient were not significant suggesting that no mediation occurred.

A partial mediation was found for all the REBT models and this mediated variable accounted for between 51% and 71% of the original relationship. However, the CT models

did not find a significant mediation. A summary of the presence of mediation is detailed in Table 16.

Table 16: Summary of presence of mediation for REBT and CT models in student sample

REBT Model	Full/Partial/ No Mediation	CT Model	Full/Partial/ No Mediation
Need for Approval -> Self Downing -> Depression/Dejection	Partial	Self-Downing -> Need for Approval -> Depression/Dejection	No
Need for Comfort -> Self Downing -> Depression/Dejection	Partial	Self-Downing -> Need for Comfort-> Depression/Dejection	No
Need for Achievement -> Self Downing -> Depression/Dejection	Partial	Self-Downing -> Need for Achievement -> Depression/Dejection	No

Figure 9 illustrates the differences in the two models, blue depicts the REBT mediation model and red depicts the CT mediation model. All REBT models show a significant partial mediation but this was not visible in the CT models.

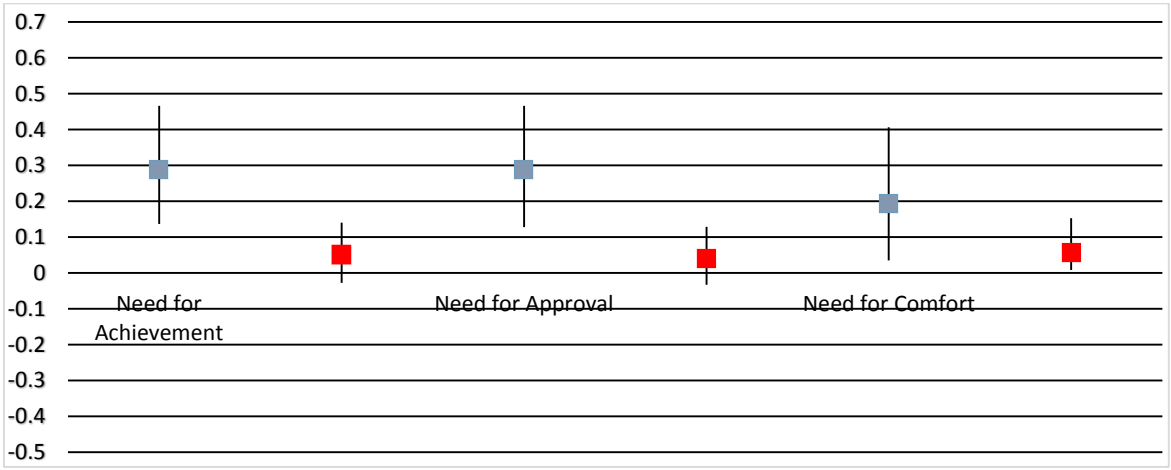


Figure 9: Graph illustrating the mediated path and 95% confidence interval for both the REBT and CT models in student sample

3.2 Clinical Results

A correlational analysis was conducted examining the relationship between depression scores (BDI-II) and irrational and rational beliefs (SGABS). Table 7 illustrates the findings. There was a negative correlation with rationality and depression ($r=-0.457$, $p<0.01$). This suggests that as the rational belief increases the depression scores decrease and vice versa. All other correlations with depression score were positive for irrationality ($r=0.279$, $p<0.05$), need for achievement ($r=0.440$, $p< 0.01$), need for comfort ($r=0.0323$, $p<0.01$). This suggests that as the scores on depression increase so do the scores on the irrational subscales.

Table 17: Pearson correlation between BDI-II Total Score, and SGABS rational and irrational beliefs (n=73)

	Pearson Correlation	p	Bootstrap			
			Bias	Std. Error	95% Confidence Interval	
					Lower	Upper
Rationality	-.457	.000	.001	.090	-.625	-.267
Irrationality	.279	.018	.000	.081	.108	.429
Need for achievement	.440	.000	-.001	.084	.246	.604
Self-downing	.439	.000	.000	.081	.261	.598
Need for comfort	.323	.006	.000	.093	.112	.503
Need for approval	-.104	.387	-.001	.088	-.278	.078
Demand for fairness	.030	.801	.001	.094	-.162	.217
Other downing	-.018	.880	-.001	.087	-.192	.151

Subsequently, four mediation analyses were conducted, two for the REBT model and two for the CT model. The structure was as described earlier (see Figure 7). The first mediation was conducted using the variables need for achievement and self-downing. The findings are detailed in Table 18.

With respect to the REBT model, there was a significant association between need for achievement and distress before the effects of mediation were considered (β=.432, 95% CI 0.22 to 0.65). When the mediator (self-downing) was included in the analysis this direct association reduced to β =.268, indicating that the effect of the mediated variable accounted for approximately 38% of the original relationship between need for achievement and distress (β =0.16, 95% CI 0.04 to 0.38). Significant path coefficients were reported for both the path to the mediator variable (β=0.62, 95% CI 0.43 to 0.80) and from the mediator variable to the distress (β=0.27, 95% CI .001 to 0.53). Accordingly, a partial mediation effect was observed. Table 18 illustrates the findings.

Table 18: Mediation Analysis for REBT and CT model using two variables (need for achievement and self-downing) in the clinical sample

	Path Estimate	Standard Error	Lower 95% Bootstrap Confidence Interval	Upper 95% Bootstrap Confidence Interval
REBT Model: Need for Achievement -> Self Downing -> Distress				
Direct effect in the Unmediated Model	.432	.107	.219	.645
Direct effect in the Mediated Model	.268	.133	.003	.534
Mediator (Self Downing)	.164	.080	.043	.377
Path to mediator	.616	.093	.430	.803
Path from mediator	.266	.133	.001	.532
CT Model: Self Downing -> Need for Achievement -> Distress				
Direct effect in the Unmediated Model	.431	.107	.218	.645
Direct effect in the Mediated Model	.266	.133	.001	.532
Mediator (Need for achievement)	.165	.073	.048	.338
Path to mediator	.616	.093	.430	.803
Path from mediator	.268	.133	.002	.534

With respect to the CT model, there was a significant association between self-downing and distress before the effects of mediation were considered (β=.431, 95% CI .22 to .645). When the mediator (need for achievement) was included in the analysis this direct association reduced to β =.27, indicating that the effect of the mediated variable accounted for approximately 38% of the original relationship between self-downing and distress (β =0.17, 95% CI .048 to .34. Significant path coefficients were reported for both the path to the mediator variable (β=0.62, 95% CI 0.43 to 0.80) and from the mediator variable to the distress (β=.27, 95% CI .002 to .53). Accordingly, a partial mediation effect was observed. A final mediation was conducted for the variables need for comfort and self-downing. The findings are illustrated in Table 19.

Table 19: Mediation Analysis for REBT and CT model using two variables (need for comfort and self-downing) in the clinical sample

	Path Estimate	**Standard Error**	**Lower 95% Bootstrap Confidence Interval**	**Upper 95% Bootstrap Confidence Interval**
REBT Model: Need for Comfort -> Self Downing -> Distress				
Direct effect in the Unmediated Model	.321	.112	.097	.545
Direct effect in the Mediated Model	-.012	.165	-.341	.317
Mediator (Self Downing)	.333	.099	.173	.582
Path to mediator	.756	.078	.602	.911
Path from mediator	.440	.165	.112	.769
CT Model: Self Downing -> Need for Comfort -> Distress				
Direct effect in the Unmediated Model	.431	.107	.218	.645
Direct effect in the Mediated Model	.440	.165	.112	.769
Mediator (Need for Comfort)	-.009	.099	-.184	.217
Path to mediator	.756	.078	.602	.911
Path from mediator	-.012	.165	-.341	.317

With respect to the REBT model, there was a significant association between need for comfort and distress before the effects of mediation were considered (β=.321, 95% CI .097 to .545). When the mediator (self-downing) was included in the analysis this direct association reduced to β =-.012, indicating that the effect of the mediated variable accounted for approximately 96% of the original relationship between need for comfort and distress (β =.333, 95% CI 0.17 to 0.58). Significant path coefficients were reported for both the path to the mediator variable (β= 0.44, 95% CI 0.11 to 0.77) and from the mediator variable to the distress (β=0.27, 95% CI .001 to 0.53). Accordingly, a partial mediation effect was observed.

With respect to the CT model, there was a significant association between self-downing and distress before the effects of mediation were considered (β=.431, 95% CI .22 to .645). When the mediator (need for comfort) was included in the analysis this direct association increased to β =.44, indicating that the effect of the mediated variable accounted for approximately 2% of the original relationship between self-downing and distress (β = -0.009, 95% CI -0.18 to 0.22). Significant path co-efficient was reported for the path to the mediator variable (β= 0.76, 95% CI 0.60 to 0.91) but not from the mediator variable to the distress (β=-0.01, 95% CI -0.34 to 0.32). The CT model was not significant as the B1 and mediator pathway coefficient were not significant, suggesting that no mediation occurred.

In summary a partial mediation occurred in both the REBT and CT models. The REBT model mediated variable accounted for 39% and 96% of the original relationship, need for achievement and need for comfort respectively. The CT model mediated variable accounted for 38% of the original relationship, need for achievement and no mediation was observed with need for comfort. A summary of the presence of mediation can be seen in Table 20.

Table 20: Summary of presence of mediation for REBT and CT models in clinical sample

REBT Model	Full/Partial/ No Mediation	CT Model	Full/Partial/ No Mediation
Need for achievement -> Self Downing -> Depression/Dejection	Partial	Self-Downing -> Need for achievement -> Depression/Dejection	Partial
Need for Comfort -> Self Downing -> Depression/Dejection	Partial	Self-Downing -> Need for Comfort-> Depression/Dejection	No

Figure 10 illustrates the differences between mediated paths in the two models, blue depicts REBT and red depicts CT. In this graph the REBT and CT models, both partial mediation (need for achievement) are very similar, as indicated by the overlap of confidence interval.

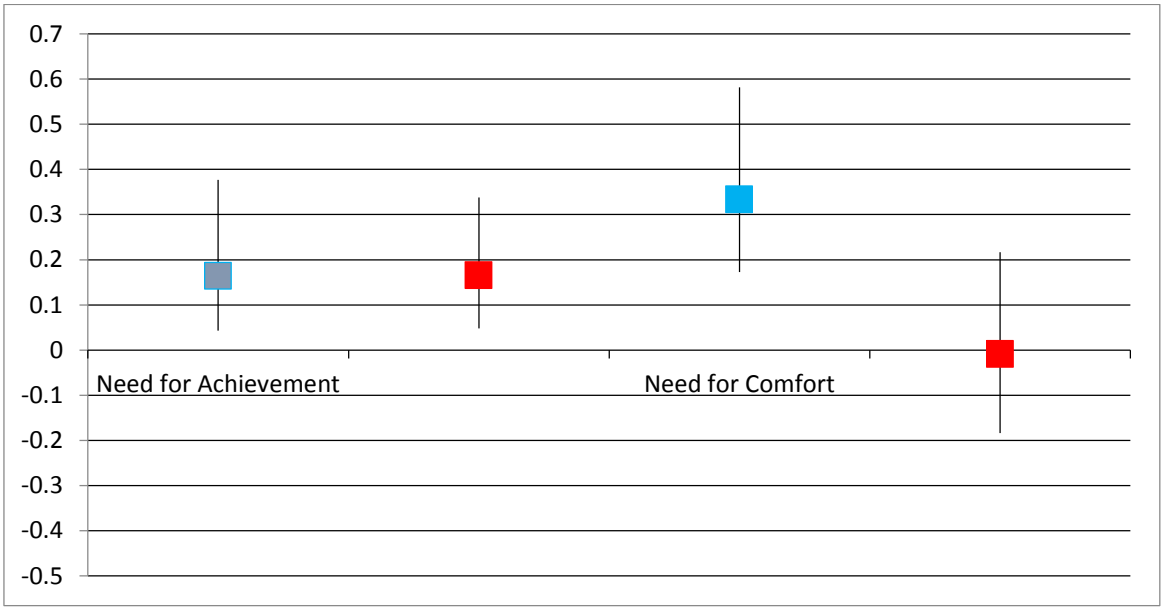


Figure 10: Graph illustrating the mediated path and 95% confidence interval for both the REBT and CT models in clinical sample

4.0 DISCUSSION

Correlational analysis was conducted, examining the association between distress and beliefs. A positive correlation was found with the non-clinical sample between distress and irrationality, self-downing, need for approval, need for comfort and need for achievement. A similar result was found for the clinical sample indicating a positive correlation between distress and irrationality, self- downing, need for comfort and need for achievement. Both samples found that rationality was negatively correlated with distress. These findings are comparable to previous research around these beliefs and emotional distress (Chang and Bridewell, 1998; Chang and DiZurilla, 1996; Cristea, Montgomery, Szamoskozi and David, 2013; David, Ghinea, Macavei, Kallay, 2005; DiLorenzo, David and Montgomery, 2007; Harris, Davies and Dryden, 2006; Hyland, Shevlin, Adamson and Boduszek, 2013; Macavei, 2005; Muran, Kassinove, Ross and Muran, 1989; Williams and Garland, 2002).

Ten mediation models were tested comparing the REBT and CT framework, six in the non-clinical sample and four in the clinical sample. Of these, partial mediation was found for all REBT models and for one CT model. In the non-clinical sample a partial mediation for REBT was found but no mediation was found for the CT model in all three mediation models (need for achievement, approval and comfort). This may provide support for the notion of implicit demands, inherent in the content specific items, as being more important than the self-depreciation beliefs, consistent with REBT theory. This pattern was found in all cases of the non-clinical sample. It is important to note that the precise theoretical structure of REBT was unable to be tested in that the SGABS items conflate implicit demands and other 'secondary' explicit evaluative processes such as LFT and awfulising. These secondary processes could not be easily distinguished within and between the various demandingness subscales. For example, the need for comfort subscale included implicit demands of "*I should*

not have to…" as well as LFT process (e.g. It's unbearable being uncomfortable, tense or nervous and I can't stand it when I am) and awfulising process (e.g. It's awful to have hassles in one's life and it is a catastrophe to be hassled). Given these limitations, one cannot conclude that implicit demands are the primary appraisal mechanism. However, it could suggest that demands, LFT, and awfulising are more prominent processes in the development of distress than self-depreciation beliefs. It may also highlight the notion that demands do not always need to be explicit and often implicit demands are superimposed within the explicit negative evaluative processes.

For the clinical sample the results were less clear. Out of the two mediation models one showed similar results to the non-clinical sample in that a partial mediation effect was found for the REBT model but not the CT model when the content item of need for comfort was examined. The other mediation (need for achievement) found that the two mediation models were comparable and there was no difference between the REBT and CT models. Whilst it is impossible to generalise these findings based on these contradictory results, it may be that in more extreme levels of distress the two models, REBT and CT, were not distinguishable, suggesting that implicit demands, LFT, awfulising, and self-depreciation beliefs are not separated into a meaningful hierarchical structure. This may suggest that both these processes are important in high distressed individuals and therefore, both represent justifiable targets for intervention.

Other research has found support for demands in REBT being a primary appraisal mechanism in both student and clinical samples (DiLorenzo, David and Montgomery, 2007; Hyland et al., 2013a) but prior to these dates a review of the literature did not find support for the hierarchical structure (MacInnes, 2004). The research reporting support for the REBT hierarchy of beliefs had similar procedures to those employed in this research but used

different methodologies and statistics. In order to disentangle the content specific items and process items they used confirmatory factors analysis (Fulop, 2007; Hyland et al., 2013b). This was not possible in this research due to small sample size. In addition, Hyland et al.'s (2013a) statistical procedure, structural equation modelling, to investigate the REBT hierarchy was not possible due to the need for large sample size. The procedure used in this research is the Preacher and Hayes (2008) model of mediation, which is a more advanced method than that of Baron and Kenny (1986). The Preacher and Hayes (2008) model of mediation analysis tests overall goodness of fit in direct and mediated pathways, which is an advance on the existing literature in which direct and indirect pathways are calculated separately. There is an advantage of separating out REBT processes as it allows for greater clarity in understanding the hierarchical structure. As this was not possible in this research it is a disadvantage and does not allow for a full explanation of the theoretical structure of beliefs in REBT. However, it was possible in some cases to show that implicit demands, LFT, and awfulising have an important influence on distress and that this is mediated by self-downing beliefs. In fact, it has also highlighted the potential importance of implicit demands which are not often discussed in research and may not always be targeted in treatment protocols. Understanding the effects of both implicit and explicit demands is likely to provide some useful information for assessment, formulation and treatment targets. It may be that similar findings will be found in the literature around attitudes. Research has found differences in the susceptibility of changes in implicit and explicit attitudes as well as the effects that such attitudes might have on changes in behaviour (Blair, 2002; Gawronski and Strack, 2004; Olson and Fazio, 2006; Perugini, 2005; Wilson, Lindsey and Schooler, 2000).

One of the main limitations in this research is the measure that was used to assess the cognitive processes at play in understanding distress. As mentioned previously, the SGABS

lacks specificity around processes, and certain items conflate process with content issues, and /or explicit and implicit beliefs (Davies, 2003). Moreover, there are issues about the reliability and validity of questionnaires measuring thoughts and cognitions, for example, the ability of self-report measures to capture underlying belief structures that may not be part of conscious awareness (Bridges and Harnsih, 2010; Smith, 1982; Terjesen, Shalhanny and Sciutto, 2009). Such measures may not only lack specificity in measuring thoughts at a single time point but might also lack specificity at measuring change. In fact, some have described 'thoughts' to be a mid-level construct that does not capture thoughts per se but measures only a proxy of the processes that variants of 2nd wave CBT purport to target (Meehl, 1978). Furthermore, some have suggested that targeting change in such theorised cognitive mechanism is not a critical factor for the amelioration of distress, thus providing support for the outcomes evidenced by third wave CBT treatments (Hayes, 2004; Linehan, 1987; Longmore and Worrell, 2007). However, others have found support for the view that cognitive changes can have an impact on levels of distress (Gonzalez et al., 2004; Hofman, 2004; Trip, Vernon & McMahon, 2007). Another limitation of the research is that only one part of CT's negative cognitive triad was tested in this research. There was no association with distress and other downing (the closest SGABS subscale to the construct of core beliefs about the world) and there was no measure examining core beliefs about the future. Finally, the representations for both samples was unevenly distributed based on gender, with a greater proportion being female than male and therefore it is difficult to generalise our findings.

Future research could benefit from examining whether there is evidence of implicit demands being linked to other emotional difficulties such as anxiety and anger. In fact, in the non-clinical sample it would be of benefit to look at other subscales (e.g. anger-hostility, confusion-bewilderment, and tension-anxiety) and their association with both process related

beliefs and content related beliefs. A similar analysis could be completed for the clinical sample, but rather than examining depression it could examine anxiety and the association with different beliefs. Furthermore, future research may benefit from gaining a better understanding of implicit and explicit demands, their relationship to distress, and their susceptibility to restructuring and/or acceptance based interventions. This may help our understanding around the benefits of both 2nd and 3rd wave therapies. In order to do this, a better measure of cognitive processes would need to be developed which is able to disentangle the two forms of demand based beliefs and be more representative of the REBT and CT theories (Terjesen, Salhany and Sciutto, 2009).

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CHAPTER III:

PUBLIC DOMAIN BREIFING PAPER

CLINICAL AND THEORETICAL APPLICATIONS OF RATIONAL EMOTIVE BEHAVIOURAL THERAPY

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META-ANALYSIS

The Effectiveness of Rational Emotive Behaviour Therapy at Reducing Emotional Distress

Background: Rational Emotive Behavioural Therapy (REBT) (Ellis, 1962) is one of the Cognitive Behavioural Therapy (CBT) approaches used to help reduce emotional distress and other problem behaviours. The theory of the model suggests that individuals become disturbed by having fixed rigid beliefs about life (e.g. demands) and when these are not met the experience is evaluated as being negative (e.g. Awfulising, Low Frustration Tolerance and Self or Other Downing) leading to emotional disturbance and maladaptive behaviours (David, Lynn and Ellis, 2010). A number of reviews have been carried out to assess the effectiveness of this form of therapy and have found positive outcomes, however, there are limitations with the methodological approaches used (Banks and Zionts, 2009; DiGiuseppe, Miller and Trexler 1977; Engels, Garnefski, and Diekstra, 1993; Gonzalez, Nelson, Gutkin, Sauders, Galloway and Shwery, 2004; Lyons and Woods, 1991; McGovern and Silverman, 1984).

Aim: The aim of the meta-analysis was to examine whether REBT was an effective form of treatment at reducing emotional distress compared to non-active and active treatments and whether these effects were maintained at follow up.

Method: A combination of electronic searches (PsycInfo, EMBASE and Medline), hand searches, as well as searching reference lists on four previous meta-analyses were carried out. Only those studies that were classified as 'well defined' standalone REBT were included and these were compared to another comparison group (e.g. waiting list or other therapy). The studies had to include an outcome measure examining emotional distress. Finally, the studies needed to ensure that a minimum level of statistical information (e.g. mean post-test and

standard deviation scores) was provided. All included articles were quality assured using the Effective Public Health Practice Project Quality Assessment Tool (EPHPP, 1998).

Results: There were mixed results around the effectiveness of REBT in treating emotional distress. There was no significant effect favouring REBT when examining depression using the weighted methodological quality model. There was a significant effect favouring REBT when compared to non-active treatments for anxiety using the methodological model (d = 0.68). There was very limited evidence for the effectiveness of REBT in treating anger. Although significant effect was found favouring REBT with anger compared to non-active treatments (d = 0.75), the results only compared two studies at the end of treatment.

Discussion: The findings were similar to previous reviews showing that REBT was as effective as active treatments but more effective than non-active treatments for when considering anxiety. More research using good quality studies needs to be examined for effectiveness of REBT when considering depression and anger. This review had more rigours inclusion criteria, and the quality assurance procedures were more detailed, which may account for the more conservative effect size estimates ranging from moderate to large.

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EMPIRICAL PAPER

Theoretical Underpinnings of Rational Emotive Behaviour Therapy and Cognitive Therapy

Background: Rational Emotive Behavioural Therapy (REBT) (Ellis, 1962) and Cognitive Therapy (CT) (Beck, 1976) are both forms of Cognitive Behavioural Therapy (CBT). Both assert that irrational thinking leads to emotional distress and dysfunctional behaviour. However, they differ in the theoretical underpinnings. REBT suggests that primary appraisals (e.g. demands) followed by other negative evaluative beliefs (e.g. self-downing) lead to distress, whilst CT would suggest that core beliefs (e.g. beliefs of self, others and future) are the primary appraisal mechanisms. The research evidence of the hierarchical structure in REBT, where demands (both explicit and implicit) are the primary appraisal mechanism, is mixed (DiLorenzo, David and Montgomery, 2007; Hyland et al., 2013; MacInnes, 2004).

Aim: The aim of this review is to explore whether irrational beliefs are associated with emotional distress and whether there is a direct or indirect relationship between them.

Method: Participants were recruited from an undergraduate university programme, during exam period, and the National Health Service, receiving treatment in primary care services. They were required to complete two questionnaires, one on thinking styles (SGABS; Lindner, Kirkby, Wertheim and Birch, 1999) and another on emotional distress (BDI II; Beck, Steer and Brown, 1996 and POMS-SV; Heuchert, Douglas and McNair, 2012).

Results: The results found that implicit demands and other evaluative processes were more important than evaluative process of self-downing beliefs when examining the student sample, providing some support for the REBT framework. However, a hierarchical structure

between the CT and REBT model could not be distinguished when examining a clinical sample as the results were contradictory.

Discussion: The findings provide some evidence in support of the REBT model but these findings cannot be generalised. One of the limitations of the research was an inability to test all the theoretical elements due to issues inherent with measures used to assess beliefs. Future research could benefit from exploring whether similar patterns exist for other emotions e.g. anger and anxiety. Moreover, future research may benefit from understanding the relationship between implicit and explicit demands and their influence on emotional distress in more detail.

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APPENDICES

I: META-ANALYSIS

The Effectiveness of Rational Emotive Behaviour Therapy at Reducing Emotional Distress

Appendix 1: Search Terms

1. exp Cognitive Behavior Therapy/
2. exp Rational Emotive Behavior Therapy/
3. Cogniti* behavio* therap*.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
4. rational emotive behavio* therap*.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
5. rational emotive therap*.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
6. CBT.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
7. REBT.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
8. RET.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
9. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8
10. exp Emotional States/
11. exp Emotional Disturbances/
12. exp Mental Disorders/
13. exp Affective Disorders/
14. mood.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
15. emotion*.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
16. affect.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
17. feelings.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
18. 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17
19. 9 and 18
20. Ellis.ct.
21. 19 and 20
22. limit 21 to all journals

Appendix 2: References of Excluded articles

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Appendix 4: Extraction Table

Author/ Date	Study type	Recruitment procedures	Characteristics of participants	Outcome measure & validity	Comparison groups	Therapy Length	Therapist Qualification	Drop Out & retention	Statistics Used	Strengths & Weaknesses
Adomeh 2006	Experimental	Adolescents – secondary school	Adolescents (demographics not reported)	Odebunmi (1991) anxiety, depression and stress scale	Control Group	2 x week, 6 weeks, session 1hr	Not specified	No drop out reported	T- test No significant difference between groups with depression, anxiety and stress	**Weakness** No details about randomisation No details of demographics of participants Not detailed what type of control group used

Author/ Date	Study type	Recruitment procedures	Characteristics of participants	Outcome measure & validity	Comparison groups	Therapy Length	Therapist Qualification	Drop out & retention	Statistics Used	Strengths & Weaknesses
Barekatin, Taghavi, Salehi & Hasanzadeh, 2005	Experimental study	Outpatient – Health Deputy of War Veterans Foundation, Iran	36 Male adolescents of father with PTSD, age between 11-19 years Exclusion criteria - no psychiatric disorder for mother or father Composite Diagnostic Interview to confirm PTSD diagnosis	Aggression Questionnaire (AGQ) Minimum score of 42.5 T1: Start of intervention T2:End of group therapies T3: Two months follow up	Block Randomised (6 patients per block). Blind to investigator REBT group therapy (12) Relaxation group therapy (12) Waiting list group (12)	10 group sessions, once/week1hr	M.S. degree clinical psychologist co-therapist (second author) was a resident of psychiatry.	2 drop out in REBT group 4 drop out in relaxation group Omitted from study	Two way repeated ANOVA Sig difference between treatment groups (REBT & RT) and waiting list No sig difference between treatments	**Weakness** Small sample size Male only participants Short duration of follow up Outcome limited to AGQ

Author/ Date	Study type	Recruitment procedures	Characteristics of participants	Outcome measure & validity	Comparison groups	Therapy Length	Therapist Qualification	Drop out & retention	Statistics Used	Strengths & Weaknesses
David, Szentagotai, Lupu and Cosman, 2008	RCT	From public clinics, research institutes & private practices and by public service announcements	170 participants 113 women 57 men Age range 21-57yrs Exclusion criteria - No comorbidity, currently receiving treatment Major Depressive Disorder	BDI (20 or higher) Hamilton Rating scale (14 or higher) Baseline, middle (week 7) end (week 14) and at 6 month follow up. Research assistant blind to condition	CT Group (20 Sessions) REBT group (20 sessions) Medical treatment (Fluoxetine - Prozac) Random allocation to group Matching on number of previous episodes of depression, presence of absence of dysthymia, gender, marital status	20 Sessions, 1 hr	8 experienced therapists 6 psychologists |& 2 psychiatrists (all certified in CBT/REBT) Protocol adherence – Randomly audiotaped therapy sessions checked (15%)	Completed therapy at least 12 sessions of treatment Attrition rate 14% medication 10% CT 9% REBT CT & REBT : 3 booster sessions during 6 months period after treatment completion ITT	**ANOVA** No sig difference at posttreatment between treatment on improvement/recovery rates in any of three groups 6 months follow up – relapsed patients higher in medication group than REBT and CT	

Author/ Date	Study type	Recruitment procedures	Characteristics of participants	Outcome measure & validity	Comparison groups	Therapy Length	Therapist Qualification	Drop out & retention	Statistics Used	Strengths & Weaknesses
Jalali et al 2014	Experimental	Clients from blinds rehabilitation and training centre and blinds NGOs of Mashhad	Age range 20 - 30 years	Depression Anxiety, Stress Scale (DASS)	REBT Control group – details unknown	Unknown	Unknown	1 lost in post-test and follow up reasons unknown	T-test	Limited information about demographics Limited information about length of treatment or therapist No information about control assume waiting list control

Author/ Date	Study type	Recruitment procedures	Characteristics of participants	Outcome measure & validity	Comparison groups	Therapy Length	Therapist Qualification	Drop out & retention	Statistics Used	Strengths & Weaknesses
Jenni & Wollersheim 1979	Experimental	Adverts for people suffering from stress & referred by physician	16 High Type A; 26 persons Moderate Type A 27 men and 15 women, ages 29 to 58 (X = 42.5)	State-Trait Anxiety Inventory	REBT Stress Management Training Waiting list Control	90-mins sessions, 6 weeks	Adherence: experimenter monitored parts of session	<u>Drop outs</u> 9 REBT 6 Stress Management Training 7 Waiting List Control	ANOVA	Weakness Small sample High drop out Strength Compared to active and non-active

Author/ Date	Study type	Recruitment procedures	Characteristics of participants	Outcome measure & validity	Comparison groups	Therapy Length	Therapist Qualification	Drop out & retention	Statistics Used	Strengths & Weaknesses
Kumar 2009	Pre and post Experimental and control Group	Stratified random sample from Schools Mysore City, India	Aged 11- 18 yrs. 50 girls and boys in each group	Youth Self report – Affective and anxiety Problems	Stratified random sample control received no REBT sessions	7 sessions over 7 weeks	No details of therapist qualifications	No drop outs	ANOVA	**Weaknesses** Indian sample not generalizable No information about therapist information **Strengths** Large sample

Author/ Date	**Study type**	**Recruitment procedures**	**Characteristics of participants**	**Outcome measure & validity**	**Comparison groups**	**Therapy Length**	**Therapist Qualifications**	**Drop out & retention**	**Statistics Used**	**Strengths & Weaknesses**
Lipsky et al. (1980)	Pre and post 5 x 2 design	Outpatient community mental health centre in Nassau County, New York	50 adults (37 females and 13 males), aged 21-60 years *(M* = 33.3)	State-Trait Anxiety Inventory: Trait Anxiety scale.	RET RET and Rational Role Reversal (RRR) RET and Rational Emotive Imagery (REI) Waiting list Control Attention Control Group - supportive therapy and deep muscle relaxation training	12 weeks, 45 min session , once per week	Therapists 2 plus years training and supervised clinical experience in RET & behaviour therapy.	No drop outs	T-test and ANOVA	**Weaknesses** Measure not details as reliable No detail of random allocation **Strengths** Clinical Sample Valid measure reported

Author/ Date	Study type	Recruitment procedures	Characteristics of participants	Outcome measure & validity	Comparison groups	Therapy Length	Therapist Qualifications	Drop out & retention	Statistics Used	Strengths & Weaknesses
Matin, looyeh, Afrooz, Dezhkam, 2012	Pre-test post-test experimental design with control group	Recruitment unknown	60 mothers of children with special needs, demographics not reported	Munsh Mental health self-evaluation scale. Validity & internal consistency up from 85%.	Random allocation to experimentor control Matched prior to allocation based on Mental health self-evaluation scale 30 sample Experimental group REBT Control –no treatment, 30 Sample	10, 90 mins sessions once a week (group work)		Not mentioned.	T-tests Significant difference with mental health scores post treatment compared to control	**Weaknesses** Recruit procedures not known Only females Demographics not reported No details of dropout or attrition Only compared to non-active controls

Author/ Date	Study type	Recruitment procedures	Characteristics of participants	Outcome measure & validity	Comparison groups	Therapy Length	Therapist Qualifications	Drop out & retention	Statistics Used	Strengths & Weaknesses
Maultsby & Graham 1974	**Controlled study**	Psychiatric out patients table of random numbers to allocated to immediate or delayed treatment	44 patients RET Group (IT) 8 males, 7 females, average age 25.7 yrs. No treatment (DT) 5 males, 10 females, average age 22.4 yrs.	Taylor Manifest Anxiety Scale (TMAS)	RET (IT) Vs No Treatment (DT)	Four 30 min session in 1st two weeks, followed by one 30 min session plus one 2hr group per week	**Unknown**	6 drop outs (1IT, 5 DT)	Mann Whitney U test	**Weaknesses** No blinding procedures specified Demographics limited to gender and age Small sample size Poor follow up on RET group (IT) **Strengths** Clinical sample

Author/ Date	Study type	Recruitment procedures	Characteristics of participants	Outcome measure & validity	Comparison groups	Therapy Length	Therapist Qualifications	Drop out & retention	Statistics Used	Strengths & Weaknesses
Malouff, Lanyon & Schutte 1988	Controlled trial	Telephone screening procedure Matched in triplets on BDI score Randomly assigned to one of three conditions	53, 35 female, 18 male, mean age 39.08 yrs.	Beck Depression Inventory; Profile of Mood States One month follow up	RET Group Vs Problem Solving Vs Waiting list control	4 weekly, 90 min sessions	Advance graduate students in clinical psychology	1 in RET Group 5 problem solving Group, 4 waiting list control	**ANOVA**	**Weaknesses** Recruitment unclear Blinding unclear No follow up for waiting list control **Strengths** Clinical sample

Author/ Date	Study type	Recruitment procedures	Characteristics of participants	Outcome measure & validity	Comparison groups	Therapy Length	Therapist Qualifications	Drop out & retention	Statistics Used	Strengths & Weaknesses
Osinowo et al 2005	Controlled trial	Surgical Patients Randomly divided into 3 groups	Mean age 32.72 yrs. 18 males, 15 females	Steinberger State Trait Anxiety Inventory Hospital Anxiety & Depression measure	Self-Instructional Training RET Control Group – no treatment	2 sessions – time and duration unclear	Not specified	None reported	T-Test Anova	Weakness Duration of therapy sessions unclear Results reported unclear No blinding procedures No qualifications reported No Follow up

Author/ Date	Study type	Recruitment procedures	Characteristics of participants	Outcome measure & validity	Comparison groups	Therapy Length	Therapist Qualifications	Drop out & retention	Statistics Used	Strengths & Weaknesses
Stevens & Florell, 1998	Controlled trial	Undergraduates – test anxiety	62 students (14 men and 48 women) Age range 18 to 50, mean 32 17 yrs.	Test Anxiety Inventory	EMDR (21) RET (20) Information only (21)	Unclear	EMDR level I and II training RET Graduate training in RET Blind to study hypothesis	None reported	MANCOVA	Weaknesses Follow up groups combined Length of therapy unclear Small sample Query statistics for Post EMDR score SD is greater than mean

Author/ Date	Study type	Recruitment procedures	Characteristics of participants	Outcome measure & validity	Comparison groups	Length of therapy	Therapist Qualifications	Drop out & retention	Statistics Used	Strengths & Weaknesses
Tiegerman & Kassinove 1977	Analogue study	College Students n = 51	Male n = 27 Female n = 24	Taylor Manifest Anxiety Scale	RET Assertive Training Combined treatment Controls: Attention & no contact	12 1hr sessions, once per week	Not reported	No drop out reported	ANOVA 5 X 2	**Weaknesses** No blinding reported No follow up Small sample Student sample **Strengths** Comparison with non-active and active treatments

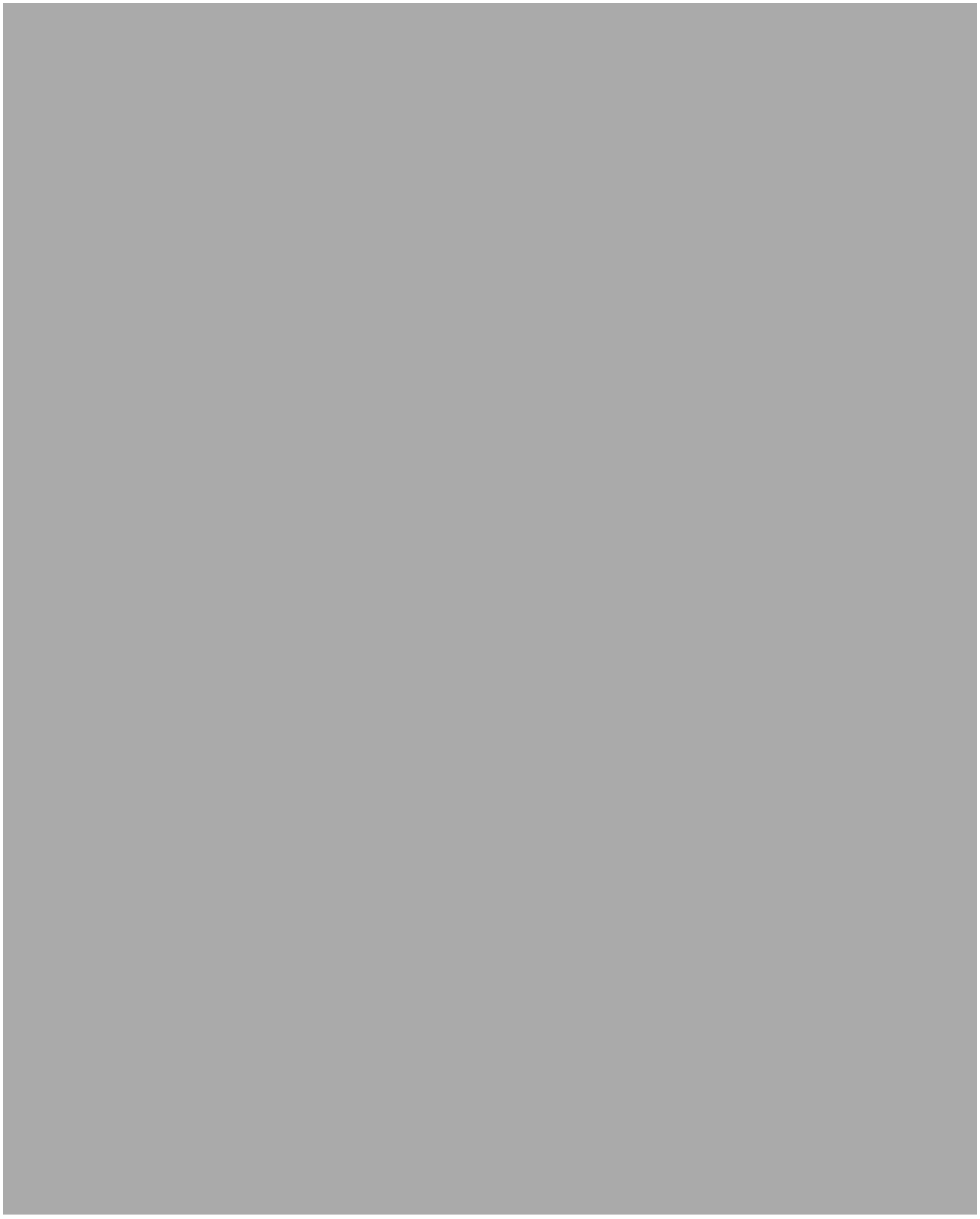
Author/ Date	Study type	Recruitment procedures	Characteristics of participants	Outcome measure & validity	Comparison groups	Length of therapy	Therapist Qualifications	Drop out & retention	Statistics Used	Strengths & Weaknesses
Vestre & Judge 1989	Cohort study	Students – University	81, 58 female and 23 male	Hopkins Symptom Checklist	REBT Groups: therapist, minimal contact, self & no treatment	5 week, 1 hours	Authors conducted therapy - One experienced in RET and another familiar with model and some experience	Drop-out rates reported	MANOVA	**Weaknesses** Student sample Small sample Blinding no detailed No Follow up **Strengths** Compared to active and non-active treatments

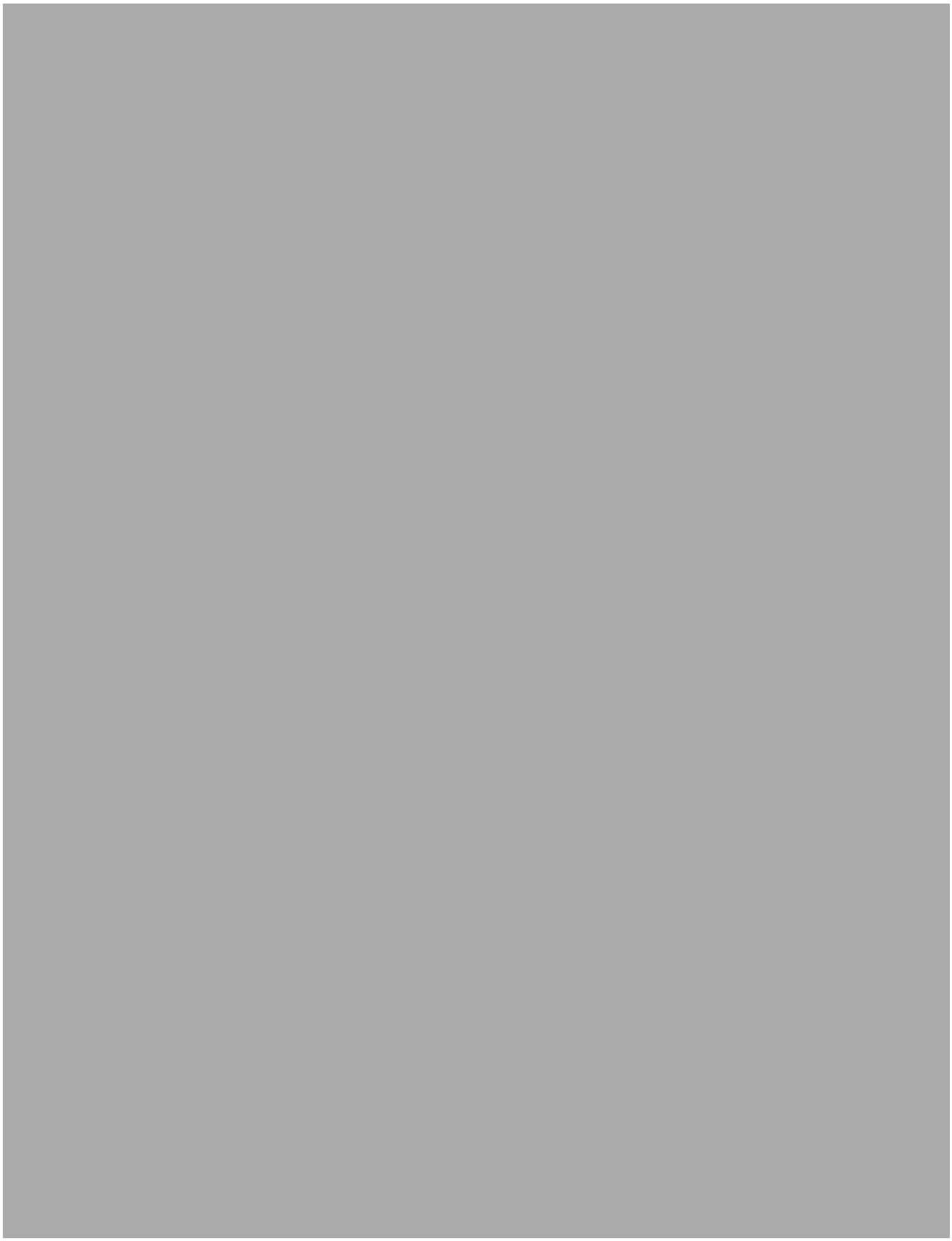
Author/ Date	Study type	Recruitment procedures	Characteristics of participants	Outcome measure & validity	Comparison groups	Length of Therapy	Therapist Qualifications	Drop out & retention	Statistics Used	Strengths & Weaknesses
Warren, Deffenbacher & Brading 1976	Controlled trial	Elementary school students	36 (18 boys, 14 girls) Predominantly white middle class	General Anxiety scale for children	RET No treatment control	7 30 min sessions over 5 weeks	Masters level student in counselling	No drop out reported	T- test	**Weaknesses** Small sample Comparison to non-active group only No follow up Blinding not described

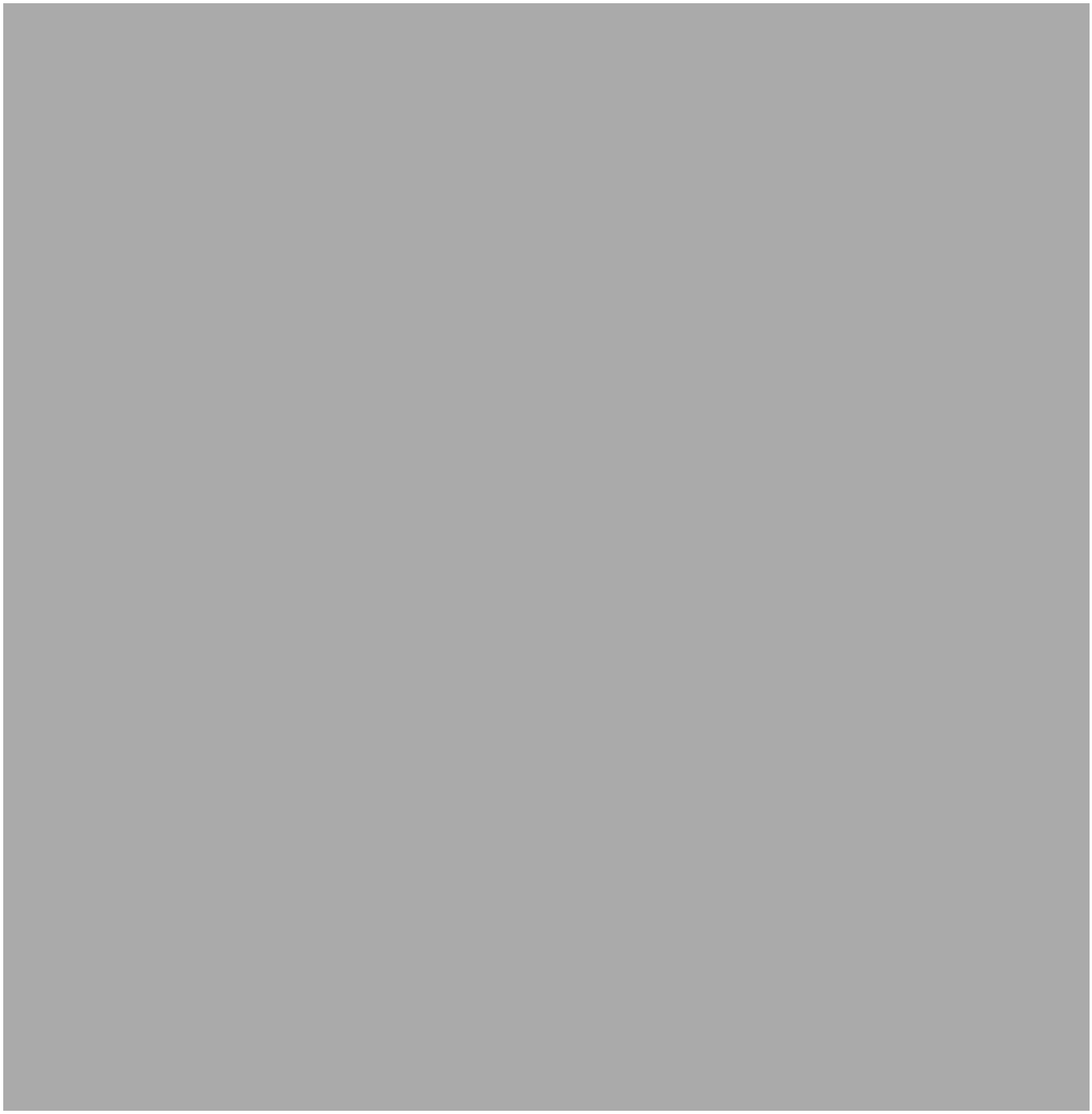
Author/ Date	Study type	Recruitment procedures	Characteristics of participants	Outcome measure & validity	Comparison groups	Length of Therapy	Therapist Qualifications	Drop out & retention	Statistics Used	Strengths & Weaknesses
Warren, Mclellarn & Ponzoha, 1988	Controlled trial	Newspaper advert	36 selected with lowest self-esteem score 19 females 14 males	Beck Depression Inventory (BDI) State-Trait Anxiety Inventory: Trait Anxiety Scale (STAI) Novaco Provocation Inventory (NPI)	RET CBT Waiting list control	8 weekly, 1hr 30mins group sessions	Conducted by first, 10 yrs. experience of RET and CBT, and third authors student in master counselling programme. Primary certificate in REBT	Drop out reported	**ANOVA**	**Weaknesses** Small sample No follow up for WLC group **Strengths** Follow up for active comparisons Compared active and non-active groups

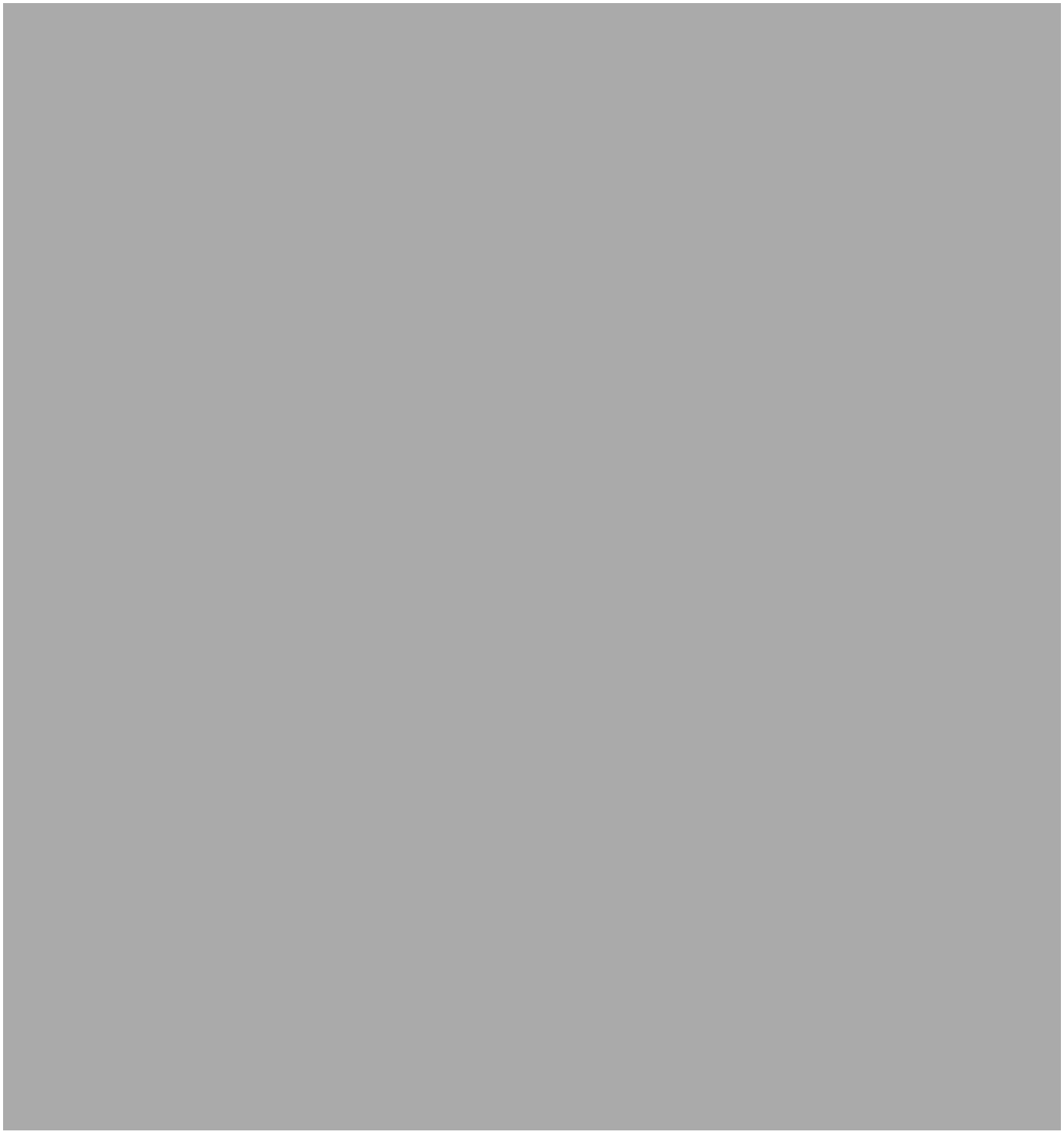
Appendix 5: EPHPP QUALITY TOOL

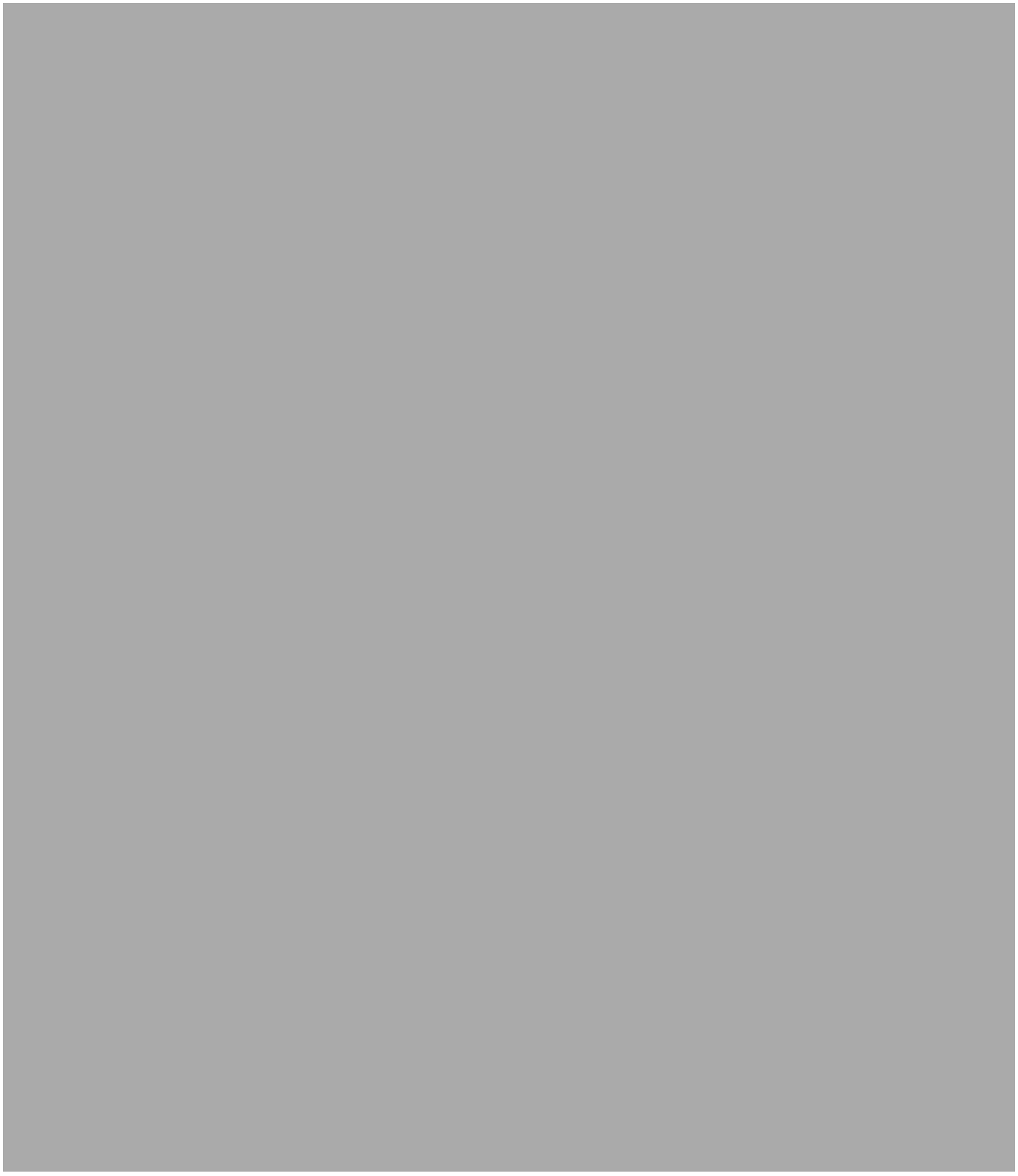
QUALITY ASSESSMENT TOOL FOR QUANTITATIVE STUDIES





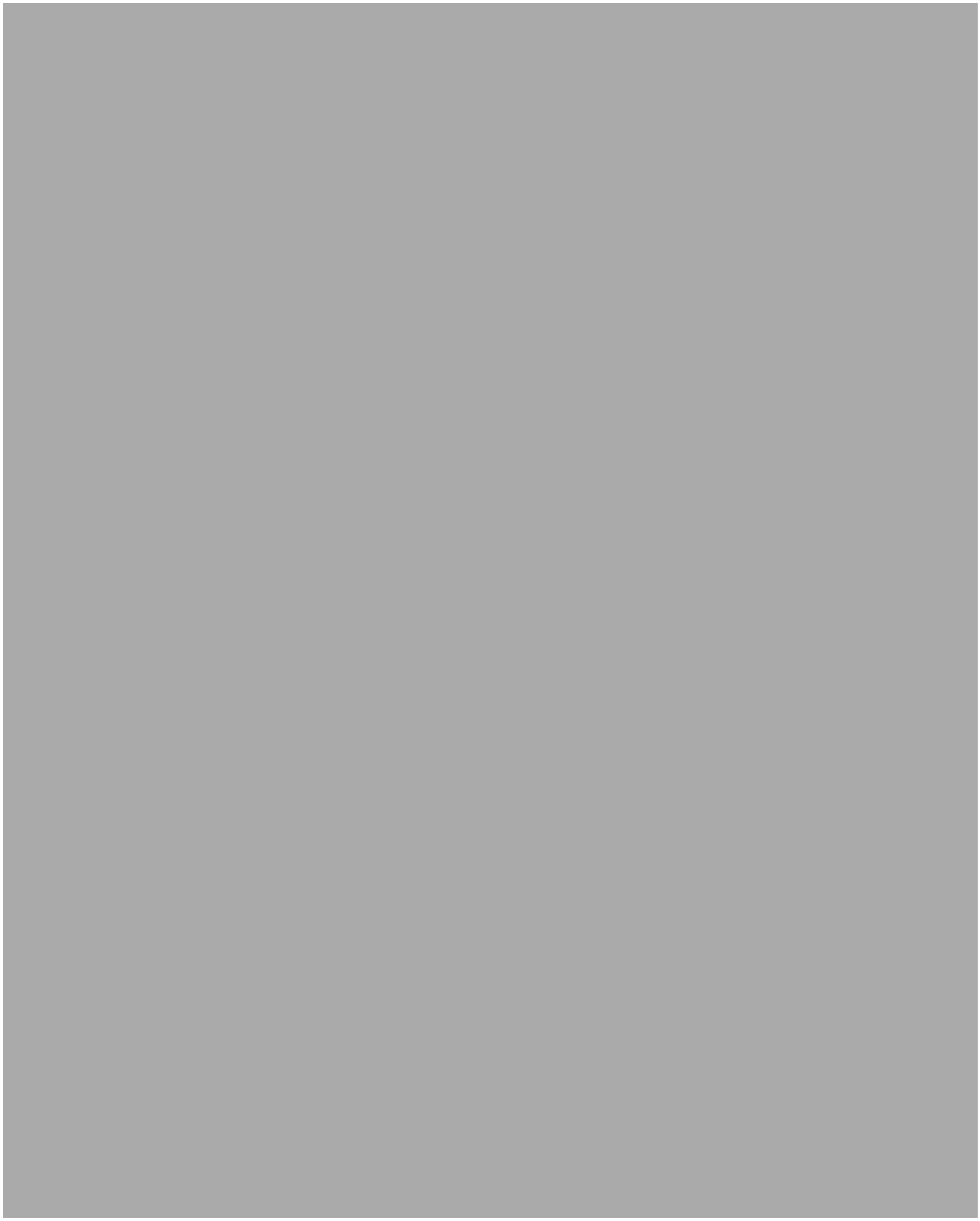


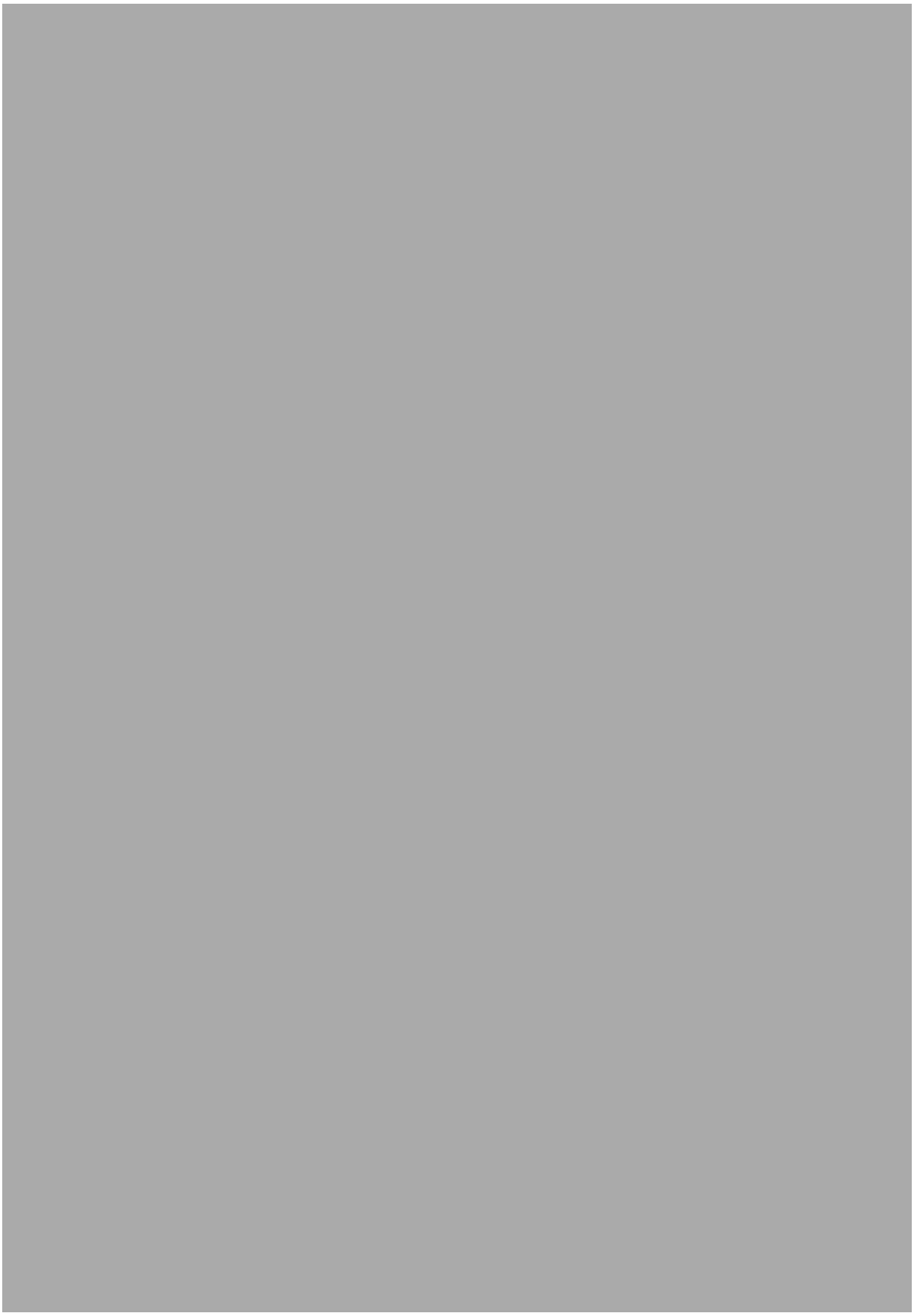


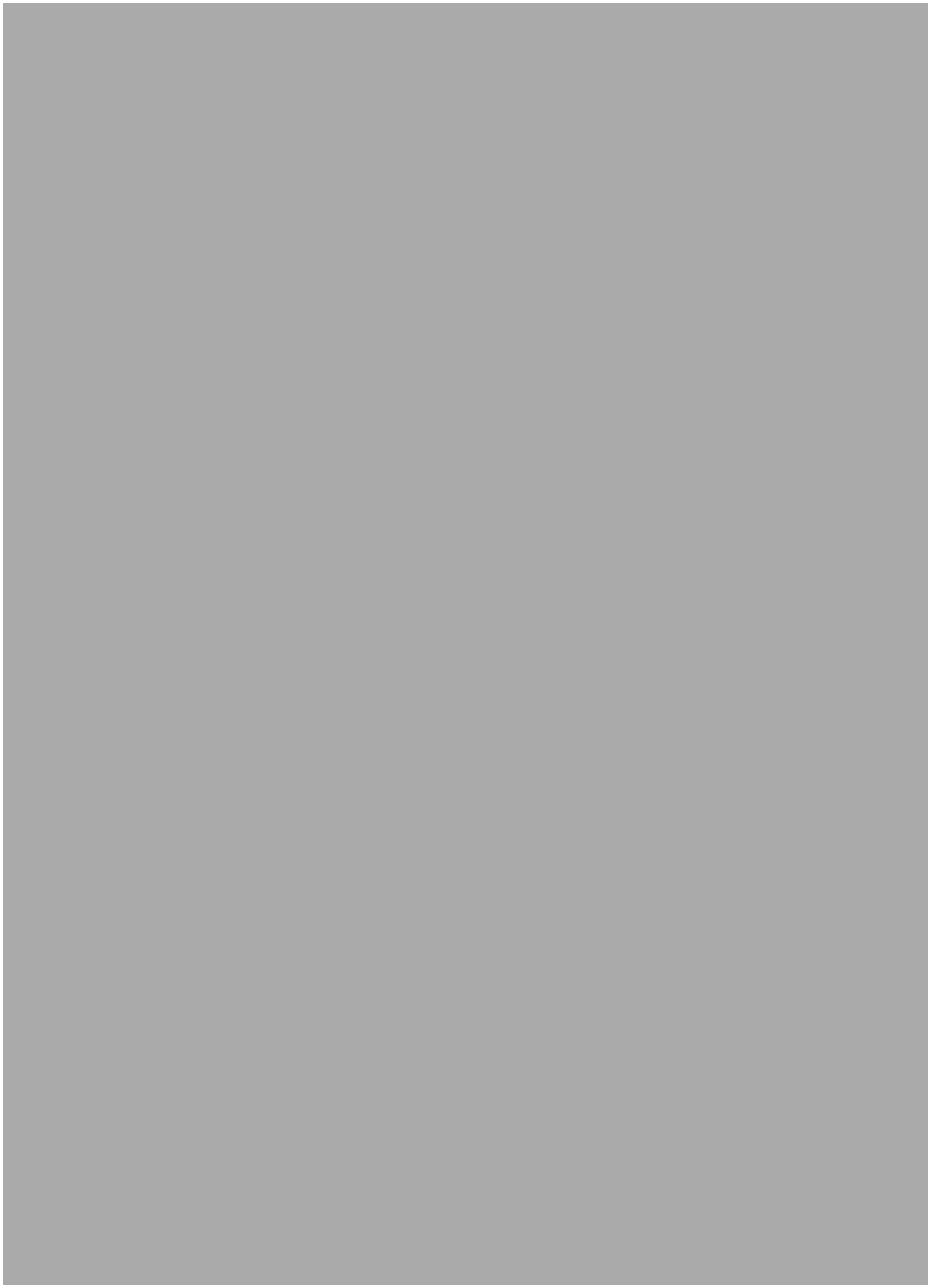


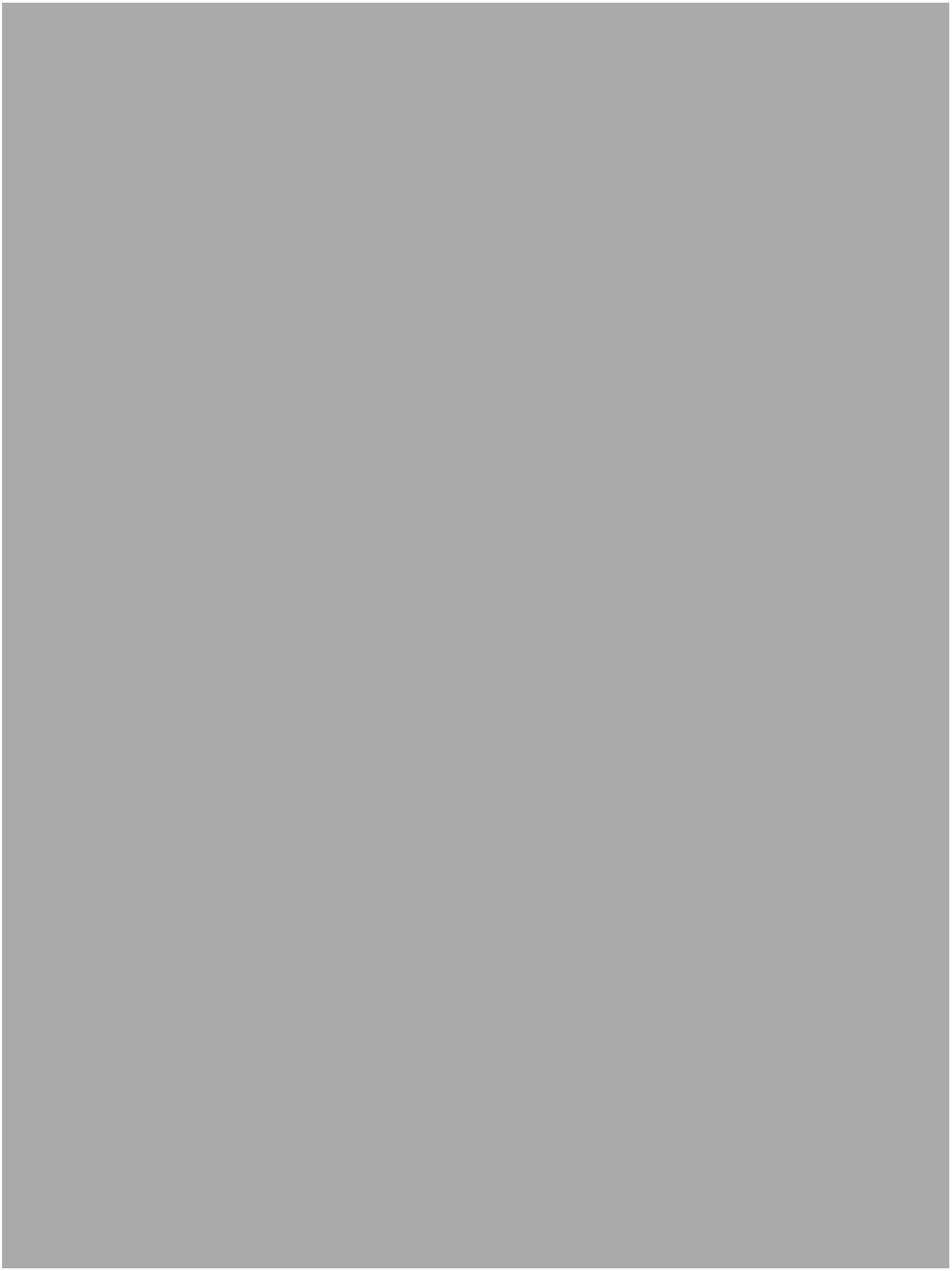
Appendix 6: EPHPP dictionary

EFFECTIVE PUBLIC HEALTH PRACTICE PROJECT (EPHPP)







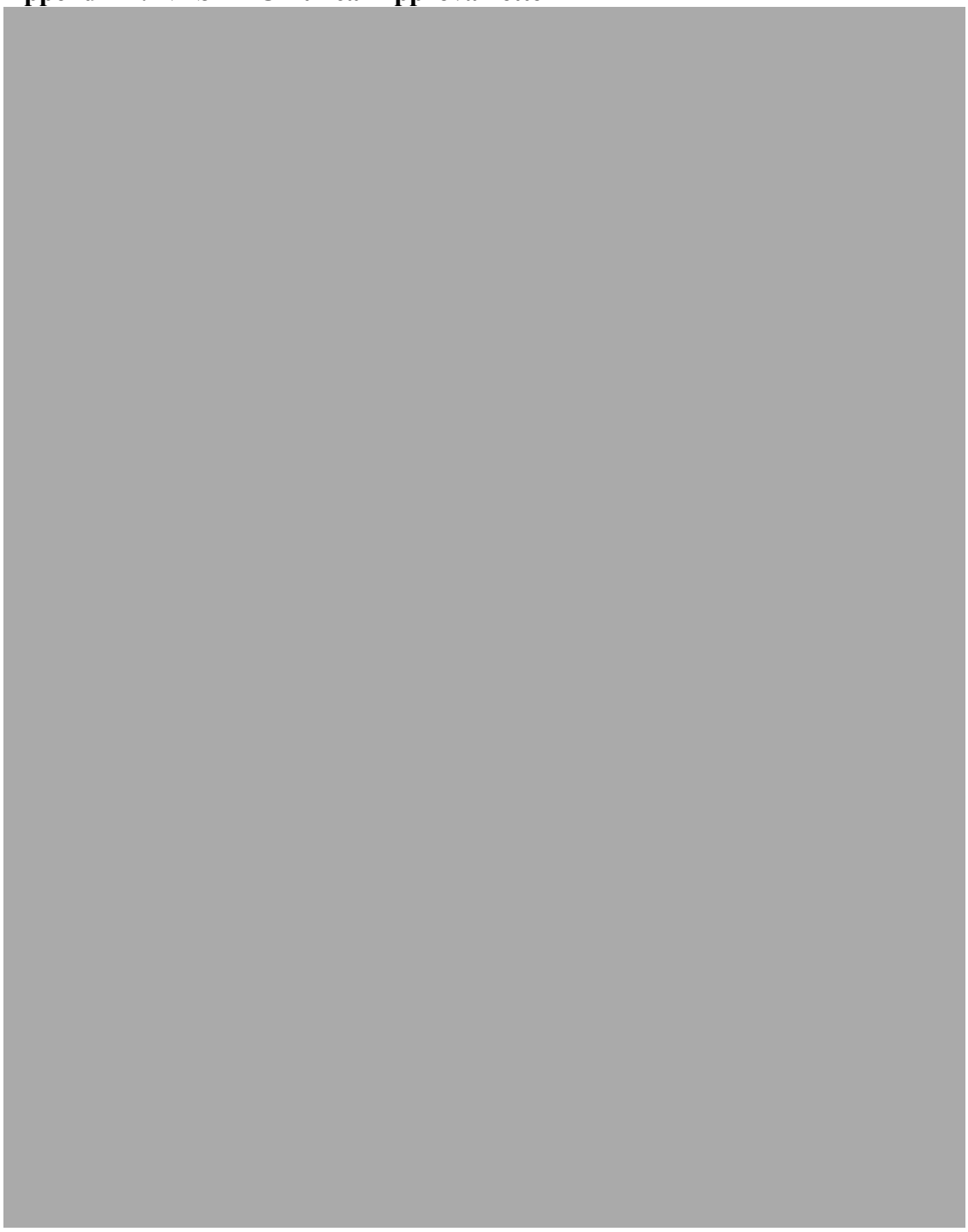


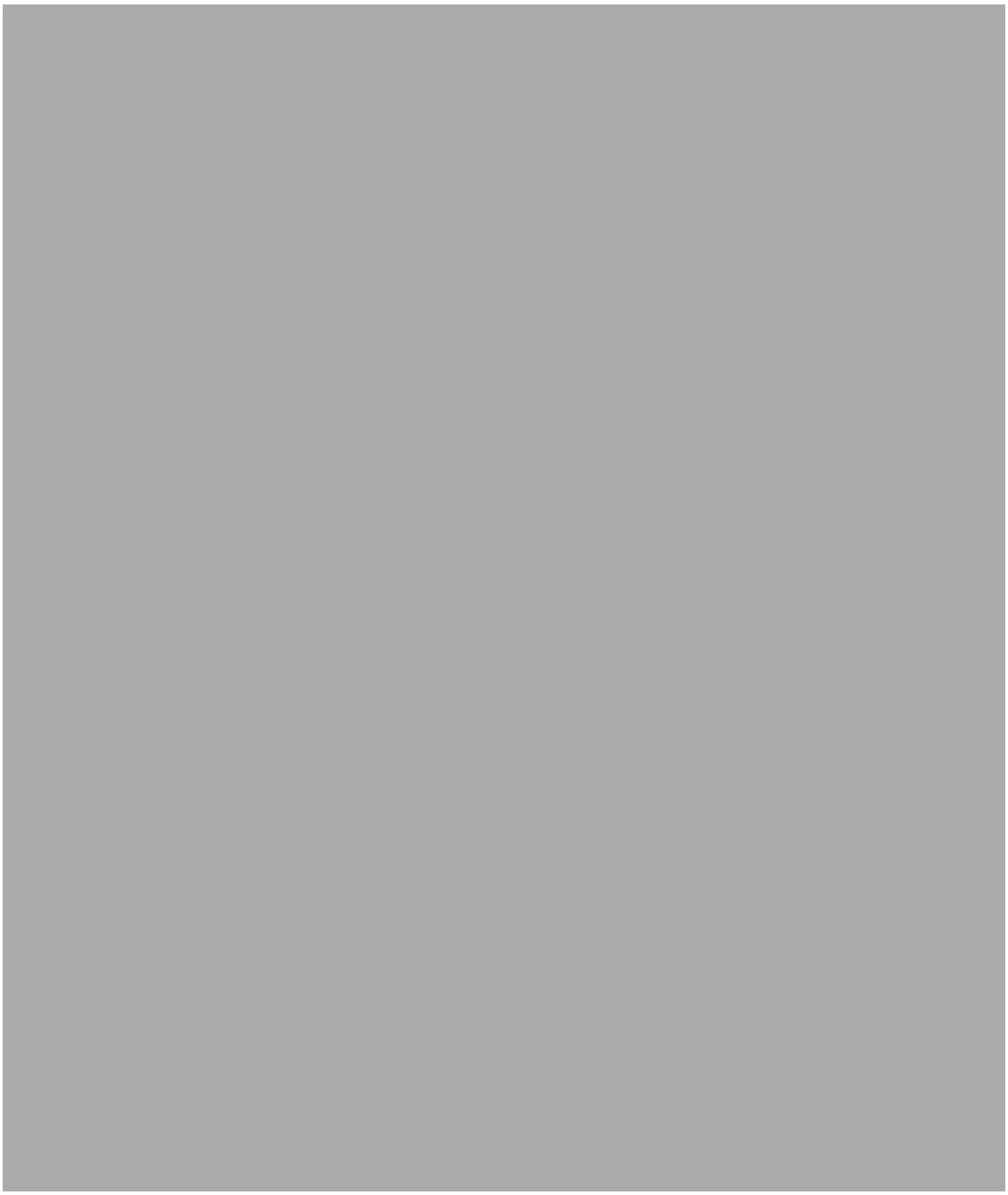


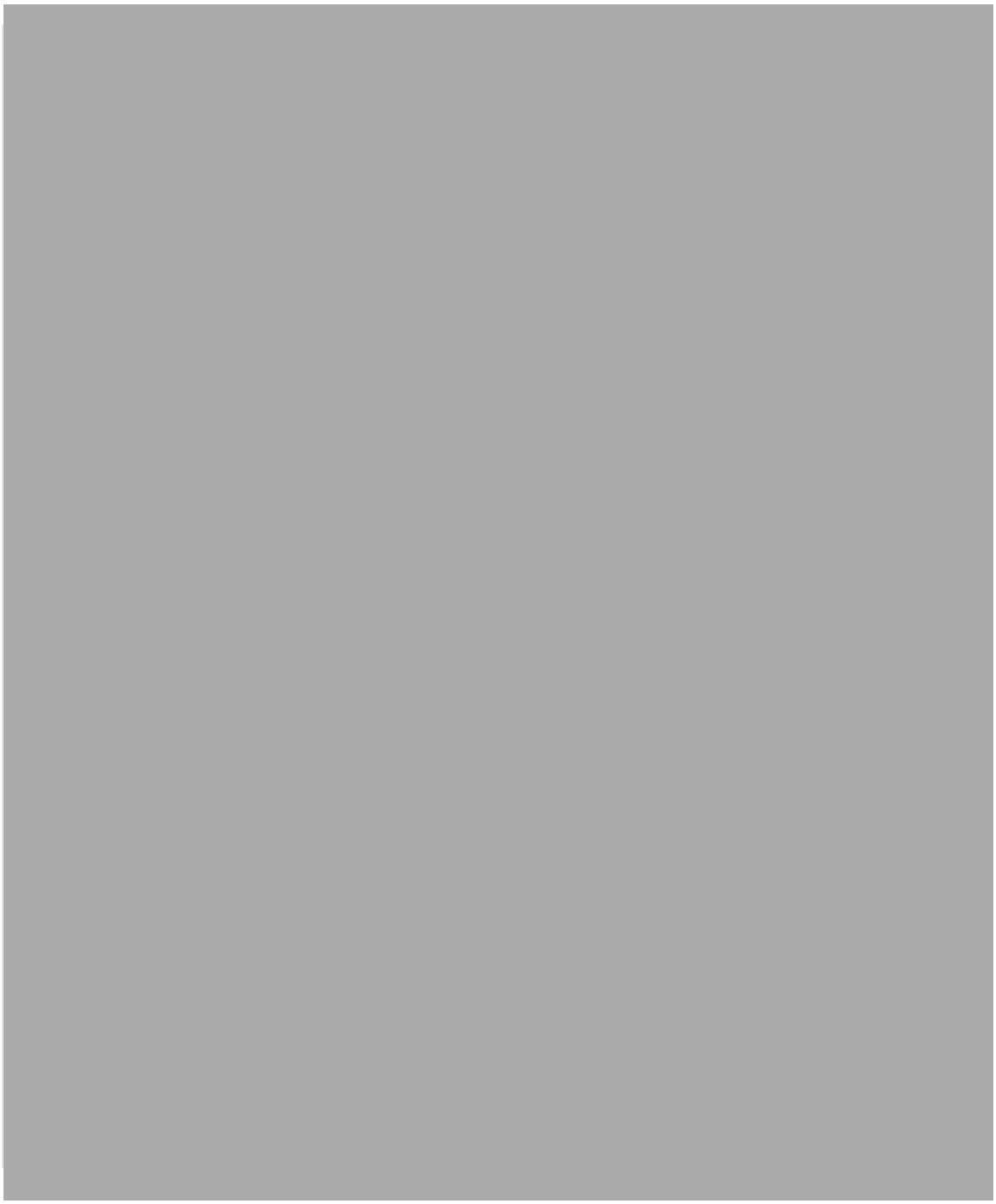
II: EMPIRICAL PAPER

Theoretical Underpinnings of Rational Emotive Behaviour Therapy and Cognitive Therapy

Appendix 1: NHS REC Ethical Approval letter









Appendix 2: Information Sheet – Student sample

UNIVERSITY OF BIRMINGHAM
College of Life and Environmental Sciences
School of Psychology

Researcher: Dr Eleanor Haddock

Address: School of Psychology,
University of Birmingham,
Edgbaston,
Birmingham,
B15 2TT

Telephone:
Email:

Student Sample

Participant Information Sheet
Version 3; July 2014

PARTICIPANT INFORMATION SHEET

Title of Project: Theoretical Underpinning of CBT & REBT

Researchers: Eleanor Haddock

- **What is the purpose of this research?**

The purpose of the research is to examine the connection between thinking styles and emotional distress. In order to do this we need to examine a large number of people experience some form of distress e.g. exam period and monitor their thinking styles in order to help us better understand the connections between the two.

- **Why have I been invited to take part?**

People invited to this study are currently enrolled in an undergraduate course at the University of Birmingham. Student are being asked to participate in the study near to exam period (a period of emotional distress) and are being asked to complete two questionnaires.

- **Do I have to take part?**

Your participation in this research study is completely voluntary and you do not have to take part if you do not wish to.

- **What will happen to me if I take part**

If you decide to take part in this research study, you will be asked to sign a consent form and you will be provided with a participation number.

University of Birmingham Edgbaston Birmingham B15 2TT United Kingdom
T: +44 (0)121 414 4932 F: +44 (0)121 414 4897 W: www.birmingham.ac.uk

You will then complete two questionnaires which will take approximately 30 minutes. Your questionnaire will be linked to you participation number and there will be no identifiable information on the form. The questionnaire will ask you about how you have been thinking and feelings. There are no right or wrong answers for this task.

You are free to withdraw at any time, up to the point of data analysis, without giving a reason. It will not be feasibly possible to remove data past the point of data analysis which will start in autumn 2014. If you decide to withdraw your data you must do so before this time. Whether or not you provide your consent for participation in this research study will have no effect on your current or future relationship with the University of Birmingham.

You will also be provided with an opportunity to attend a feedback session where the research will talk to you about the findings of the research and you can ask for a personalised interpretations of the results if you choose.

What are the possible disadvantages and risks of taking part?

During participation in this study, you may feel uncertain, anxious or frustrated about answering some questions but this is likely to only last for the short term. It is important to note that there are no right or wrong answers. The questions ask about how you have been feeling and what kinds of thoughts you have had and therefore they are unique to you. However, if you feel uncomfortable at anytime we encourage you to talk to someone such as the researcher to raise your concerns.

In the unlikely event that you still feel anxious there are a number of helplines you can call in confidentially should you need, some are provided below:

Samaritans
Website: www.samaritans.org
Tel: 08457 90 90 90

Get Connected
Website: www.getconnected.org.uk
Tel: 0808 808 4994

What are the possible benefits of taking part?

Your participation may provide beneficial information to help guide treatments for those who are in distress.

What happens when the research study stops?

I will not contact you after completion of the questionnaires however, there will be an optional session where you can ask me questions and I will be

happy to provide you with a report of the study findings when it is finished. If you would like a copy of the summary or any other details regarding the study, please contact me using the details below.

What if there is a problem?

Please feel free to contact the investigators with any problems or queries associated with the research using the details below.

Will my taking part in the study be kept confidential and anonymous?

Yes. All records related to your involvement in this research study will be stored in a locked filing cabinet. Data gathered from this study will be maintained as long as required by regulations, which is up to 10 years following the publication of the results or communications describing the results of the study.

Your responses will be anonymous. Your identity will not be recorded as part of your data, and will not be revealed in any publication that may result from this study. All information you provide will be kept confidential and anonymous. You will not be asked to write your name anywhere on the questionnaires.

What will happen if I do not want to carry on with the study?

You are free to withdraw at any time, up to the point of data analysis, without giving a reason. It will not be feasibly possible to remove data past the point of data analysis which will start in autumn 2014. If you choose to withdraw prior to this date any data collected from you will be located and destroyed.

If you decide to fill out the questionnaire, you will provided with a participation number. Should you decide to withdraw your data you should contact the investigator with the participation number asking for your data to be withdrawn.

What will happen to the results of the research study?

The anonymous results of this study will form part of my degree programme research and may be published in an academic journal.

Thank you for your time.

Appendix 3: Consent form – Student sample

Researcher: Dr Eleanor Haddock

Address: School of Psychology,
University of Birmingham,
Edgbaston,
Birmingham,
B15 2TT

Telephone:
Email:

UNIVERSITY OF BIRMINGHAM

College of Life and Environmental Sciences

School of Psychology

STUDENT CONSENT FORM
Version 3; July 2014

Research site: .....
Study Number & Title:.....
Participant Identification Number:..... .....

Title of Project: Theoretical Underpinning of CBT & REBT

Researcher: Eleanor Haddock

Please initial box

1. I (print name).....have read and understood the information sheet dated (Month, Year for the above study and have had the opportunity to ask questions. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time during the research, up to the point of data analysis, without giving any reason, without effecting my current or future relationship with the University of Birmingham. ☐
3. I understand that the completion of questionnaire will be complete at one time point and should take approximately 30 minutes. ☐
4. I understand that the data collected during this study will be looked at by the researcher and relevant others at the University of Birmingham to ensure that the analysis is a fair and reasonable representation of the data. ☐
5. I agree to take part in the above study. ☐

.....	.....	.....
Name of participant	Date	Signature
.....	.....	.....
Name of researcher	Date	Signature

University of Birmingham Edgbaston Birmingham B15 2TT United Kingdom
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Appendix 4: Information Sheet – Clinical Sample

Researcher: Dr Eleanor Haddock

Address: School of Psychology,
University of Birmingham,
Edgbaston,
Birmingham,
B15 2TT

Telephone:
Email:

UNIVERSITY OF BIRMINGHAM

College of Life and Environmental Sciences

School of Psychology

Clinical Sample

Participant Information Sheet
Version 4; July 2014

PARTICIPANT INFORMATION SHEET

Title of Project: Theoretical Underpinnings of CBT and REBT

Researchers: Eleanor Haddock

- **What is the purpose of this research?**

The purpose of the research is to examine the connection between thinking styles and depression. In order to do this we need to examine a large number of people experiencing depression and monitor their thinking styles in order to help us better understand the connections between the two.

- **Why have I been invited to take part?**

People invited to this study are currently receiving treatment at and who may be exhibiting symptoms of depression.

- **Do I have to take part?**

Your participation in this research study is completely voluntary and you do not have to take part if you do not wish to. It will have no effect on you current or future care in the trust or with your relationship with the University of Birmingham.

- **What will happen to me if I take part**

If you decide to take part in this research study, you will be asked to sign a consent form and you will be provided with a participation number. You will also be asked whether you are happy for you GP to be informed of your participation. If you agree for your GP to be contacted a short letter will be sent notifying them of your participation.

You will then complete two questionnaires which will take approximately 20-30 minutes. There will be a number of options available to you on when and how you complete the questionnaire. This could include doing it online, by post, face to face or over the telephone. Your questionnaire will be linked to you participation number and there will be no identifiable information on the form. The questionnaire will ask you about how you have been thinking and feeling. There are no right or wrong answers for this task.

You are free to withdraw at any time, up to the point of data analysis, without giving a reason. It will not be feasibly possible to remove data past the point of data analysis which will start in autumn 2014. Whether or not you provide your consent for participation in this research study will have no effect on your current or future care in the trust or with your relationship with the University of Birmingham.

You will also be provided with an opportunity to attend a feedback session where the research will talk to you about the findings of the research and you can ask for a personalised interpretations of the results if you choose. If you decide to receive a personalized profile a copy will also be sent to your therapist in order to help and support the therapeutic intervention.

What are the possible disadvantages and risks of taking part?

During participation in this study, you may feel uncertain, anxious or frustrated about answering some questions but this is likely to only last for the short term. It is important to note that there are no right or wrong answers. The questions ask about how you have been feeling and what kinds of thoughts you have had and therefore they are unique to you. However, you are likely to find that the questionnaires are similar to previous questionnaires you have completed as part of your therapy sessions and therefore should pose minimal difficulties. However, if you feel uncomfortable at any time we encourage you to talk to your therapist and/ or the researcher to raise your concerns.

If in the unlikely event that you still feel anxious, there are a number of helplines you can call should you need, some are provided below:

Samaritans
Website: www.samaritans.org
Tel: 08457 90 90 90

Sane
Website: www.sane.org.uk
Tel: 0845 767 8000

What are the possible benefits from taking part?

There are no direct benefits for taking part in the research. Your participation may, however, provide beneficial information to help guide treatments for those who suffering with symptoms of depression.

What happens when the research study stops?

I will not contact you after completion of the questionnaires however, there will be an optional session where you can ask me questions and I will be happy to provide you with a report of the study findings when it is finished. If you would like a copy of the summary or any other details regarding the study, please contact me using the details below.

What if there is a problem?

Please feel free to contact the investigators with any problems or queries associated with the research using the details below.

Will my taking part in the study be kept confidential and anonymous?

Yes. All records related to your involvement in this research study will be stored in a locked filing cabinet. Data gathered from this study will be maintained as long as required by regulations, which is up to 10 years following the publication of the results or communications describing the results of the study.

Your responses will be anonymous. Your identity will not be recorded as part of your data, and will not be revealed in any publication that may result from this study. All information you provide will be kept confidential and anonymous. You will not be asked to write your name anywhere on the questionnaires.

What will happen if I do not want to carry on with the study?

You are free to withdraw at any time, up to the point of data analysis, without giving a reason. It will not be feasibly possible to remove data past the point of data analysis which will start in autumn 2014. If you choose to withdraw prior to this date any data collected from you will be located and destroyed.

If you decide to fill out the questionnaire, you will be provided with a participation number. Should you decide to withdraw your data you should contact the investigator with the participation number asking for your data to be withdrawn.

What will happen to the results of the research study?

The anonymous results of this study will form part of my degree programme research and may be published in an academic journal.

Thank you for your time.

Appendix 5: Consent form – Clinical Sample

Researcher: Dr Eleanor Haddock

Address: School of Psychology,
University of Birmingham,
Edgbaston,
Birmingham,
B15 2TT

Telephone: [redacted]
Email: [redacted]

UNIVERSITY OF BIRMINGHAM
College of Life and Environmental Sciences
School of Psychology

CLINICAL CONSENT FORM
Version 3: July 2014

Research site: .....
Study Number & Title:.....
Participant Identification Number:..... .....

CONSENT FORM

Title of Project: Theoretical Underpinning of CBT & REBT

Researcher: Eleanor Haddock

Please initial box

1. I (print name).....have read and understood the information sheet dated (Month, Year) for the above study and have had the opportunity to ask questions. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time during the research, up to the point of data analysis, without giving any reason, without my care in the NHS being effected now or in the future. ☐
3. I understand that my GP will be informed of my participation should I choose to take part in the research ☐
4. I understand that the completion of questionnaire will be complete at one time point and should take approximately 30 minutes. ☐
5. I understand that the data collected during this study will be looked at by the researcher and relevant others at the University of Birmingham to ensure that the analysis is a fair and reasonable representation of the data. Parts of the data may also be made available to the NHS team responsible for me or my family member's care but only if any previously undisclosed issues of risk to me or my family member's safety should be disclosed. ☐
6. I agree to take part in the above study. ☐

.....	.....	.....
Name of participant	Date	Signature
.....	.....	.....
Name of researcher	Date	Signature

University of Birmingham Edgbaston Birmingham B15 2TT United Kingdom
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Appendix 6: Shortened General Attitude and Belief Scale (SGABS)

Lindner, Kirkby, Wertheim, & Birch (1999)

(The GABS was developed through a series of investigations by Burgess, 1986; DiGiuseppe et al., 1988; & Bernard, 1990)



