Does 'acceptance' have a role to play in managing Idiopathic Insomnia? A group comparison of *beliefs, coping style* and *treatment acceptance* in Idiopathic Insomnia and Psychophysiological Insomnia and Clinical Research Portfolio

Part One

(Part two bound separately)

Laura Barrie B. A. (Hons.)

Section of Psychological Medicine

Division of Community Based Sciences

University of Glasgow

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ProQuest LLC.
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106 – 1346

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I dedicate this to my mum and dad (*keep believing*).

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Chapter One

Major Research Project Systematic Literature Review

Is Acceptance and Commitment Therapy effective for reducing Psychological Distress in an Adult Clinical Population? A Systematic Review

Prepared in accordance with requirements for submission to *Journal of Consulting and Clinical Psychology*

(see appendix 1.1 for notes to contributors).

*Address correspondence to: Laura Barrie, Section of Psychological Medicine, University of Glasgow, Division of Community Based Sciences, Academic Centre, Gartnavel Royal Hospital, 1055 Great Western Road, Glasgow, G12 0XH.

E-mail: Laura.Barrie@gcc.scot.nhs.uk

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Abstract

Acceptance and Commitment Therapy (ACT) is a recently developed therapy, focusing on promoting psychological flexibility through mindfulness and acceptance processes and commitment and behaviour change (Hayes, Strosahl and Wilson, 1999). This paper provides a systematic review of the methodological quality of ACT intervention studies and examines the available evidence for ACT to alleviate psychological distress and improve quality of life for adults with psychological and physical health problems.

Seven papers concluded ACT was effective for reducing psychological distress and three papers concluded ACT was effective for improving quality of life. One paper concluded ACT was more effective than Cognitive Behaviour Therapy. However, all research papers were subject to weak methodological design, therefore studies were inadequate to provide empirical support for ACT. Variability in setting, duration of treatment, clinical population and adherence to protocol made it difficult to synthesize and compare results.

There is insufficient evidence that ACT is effective for reducing psychological distress and increasing quality of life in a range of clinical populations. Further research comparing ACT with established psychological treatment is required. Future studies should also investigate the effectiveness of ACT in psychological disorders where Cognitive Behaviour Therapy and Cognitive Therapy have had limited success. Researchers should take into account the limitations of previous papers when designing future intervention studies.

Keywords: ***Acceptance and Commitment Therapy, Systematic Review, ACT, Intervention, Third wave.***

Setting the scene for Acceptance and Commitment Therapy: The limitations of Cognitive Behaviour Therapy

The effectiveness of Cognitive Behaviour Therapy (CBT) has been supported by numerous controlled trials and remains the treatment of choice for Anxiety, Depression, Deliberate Self-Harm, Insomnia, Obsessive-Compulsive Disorder and Post-Traumatic Stress Disorder (Department of Health, 2000; NICE, 2004: NICE, 2005; Roth and Fonagy, 2005). Recently a meta-analysis of the CBT literature derived large effect sizes for Generalised Anxiety Disorder, Panic Disorder, Post Traumatic Stress Disorder, Social Phobia and Unipolar Depression (Butler, Chapman, Forman and Beck, 2006).

Whilst the efficacy and clinical utility of CBT has been demonstrated, the limitations of this approach are well documented (Bolsover, 2002; Holmes, 2002). Holmes (2002) claims the vast evidence base for CBT is due to the relative ease in which CBT can be administered and evaluated. This is in contrast to therapies such as Psychoanalytic Psychotherapy and Systemic Therapy which focus on therapeutic processes as opposed to clinical outcomes (Perron, 2006; Whittle, 2000). Other researchers and clinicians have highlighted the limitations of CBT when applied to severe and enduring psychological problems such as Borderline Personality Disorder (Linehan, 1993) and Bulimia Nervosa (Fairburn *et al.*, 1993). Although leading cognitive therapists claim that alteration of dysfunctional thoughts are crucial for symptom alleviation and behavioural change (Beck *et al.*, 1979; Beck 1995; Hackman 1997), some studies have identified that changes in thought do not necessarily precede changes in symptoms and clinical improvement during therapy can be observed prior to cognitive intervention (Longmore and Worrell, 2006).

At present, CBT is the dominant psychological approach in the UK. Although clinical findings indicate that it can be effective for a range of disorders, definitive conclusions regarding the underlying processes and limitations within specific populations are still required.

Acceptance and Commitment Therapy

Consistent with the belief that restructuring dysfunctional thoughts may not always result in clinical improvement, Acceptance and Commitment Therapy focuses on changing the role of thoughts as opposed to altering them (Hayes, Strosahl and Wilson 1999).

ACT is one a number of 'third wave' behavioural treatments that has emerged in the last 10-15 years, alongside therapies such as Dialectical Behaviour Therapy (Linehan, 1993) and Mindfulness-based Cognitive Therapy (Segal, William & Teasdale, 2002). Third wave therapies are viewed as distinctly different from 'second wave' therapies, whereby the therapist may focus on the immediate problem and seek to challenge or change cognitions. In 'third wave' therapies, the therapist focuses on understanding and accepting cognitions within a persons' value base and there is an emphasis on concepts such as 'acceptance' and 'personal values'. This ethos also coincides with current recovery models for understanding and treating mental illness. Recovery models aim to focus on the development of a meaningful life, despite serious mental illness. Therefore, clinicians working within a recovery model framework will aim to focus away from psychiatric symptoms and steer the client towards developing hope and meaning in their life (Anthony, 1993).

Acceptance and Commitment Therapy (ACT) has developed from principles of Functional Contextualism (Biglan and Hayes, 1996) and Relational Frame Therapy (Hayes, 2004) and is based on the belief that thoughts and feelings are regulated by context. Individuals should therefore not change thoughts themselves, but instead change the context and function of thoughts (Hayes, Luoma, Bond, Masuda and Lillis, 2006). Hayes *et al.*, (1999) claims that this reduces the power of the dysfunctional thoughts that cause psychological distress.

(Insert Table 1 here)

The aim of ACT is to increase psychological flexibility. ACT aims to do this via six core principles: *acceptance, cognitive defusion, being present, self as context, values* and *committed action* (Table 1). Although processes interrelate, they can be grouped into *Mindfulness* and *Acceptance* processes (acceptance, cognitive diffusion, being present, self as context) and *Commitment* and *Behaviour Change* processes (values, committed action).

The evidence-base for ACT

Over the last decade, ACT interventions have been applied to a broadening range of psychological and physical health conditions including: Addictions (Hayes *et al.*, 2004); Anxiety and Depression (Lappalainen, Lehtonen, Skarp, Ojanen and Hayes, 2007); Diabetes (Gregg, Callaghan, Hayes and Glenn-Lawson, 2007); Epilepsy (Lundgren, Dahl, Melin and Kies, 2006); Pain (Wicksell, Melin and Olsson 2007); Psychosis (Guadiano and Herbert 2006, Bond and Bunce 2000; Bach and Hayes 2002); Social Anxiety (Dalrymple and Herbert, 2007) and Trichotillomania (Woods, Wetterneck and Flessner, 2006). This has coincided with detailed descriptions and strategies for delivering ACT (Chantry, 2007). A number of studies have also examined ACT processes and results indicate that potential mechanisms of change

are different from Cognitive Therapy (CT) and CBT (Feldner, Zvolensky, Eifert, and Spira, 2003; Hayes *et al.*, 2006).

Whilst the literature may convey the impression that ACT is a promising alternative to established psychological therapies, there is debate within the scientific community regarding the evidence base for this approach. Dougher (2002) questions the theoretical basis that language is at the core of all human suffering, as this does not explain the high percentage of verbally competent adults who do not suffer from a psychological disorder to some extent. Some clinicians and theorists also claim that ACT is simply a modernised version of CBT (Hofmann and Asmundson, 2008).

In a meta-analysis of ACT intervention studies (Hayes, Luoma, Bond, Masuda and Lillis, 2006) when ACT was compared with waiting list or treatment-as-usual, a relative effect size of 0.99 at post and 0.71 at follow-up was obtained. When compared to structured interventions, ACT achieved a relative effect size of 0.48 at post and 0.63 at follow-up. Surprisingly an effect size of 0.73 at post and 0.83 at follow-up was reported when ACT was compared directly to CBT or CT. However the latter analysis included only four papers, two of which were studies that combined ACT with another treatment. Nonetheless, Hayes *et al.*, (2006) claimed that the meta-analysis supported the ACT model and although further intervention studies with placebo control groups were required to validate preliminary findings, it was suggested there was growing evidence that ACT was effective for reducing psychological distress and improving the quality of life in a range of psychological and physical health problems.

However, the conclusions of Hayes *et al.*, (2006) should be interpreted with caution, due to a number of important limitations. Firstly, the review did not examine the methodological robustness of ACT intervention studies. Secondly, it did not account for the variation in treatment protocol and delivery of ACT. This makes comparison of results more problematic as treatment outcomes may be directly related to non-specific aspects of treatment, such as duration of therapist contact and clinical setting. Thirdly, the review included participants from non-treatment seeking populations, such as students reporting maths anxiety (Zettle, 2003) and employment based initiatives for reducing stress at work (Bond and Bunce, 2000). Consequently findings from these studies cannot be generalised to clinical populations. Finally, and as previously discussed, Hayes *et al.*, (2006) included studies where ACT had been delivered in combination with other treatments namely: behavioural techniques for seizure management (Lundgren, Dahl, Melin and Kies, 2006); Habit Reversal Training for Trichotillomania (Woods, Wetterneck and Flessner; 2006) and Dialectical Behaviour Therapy for women with Borderline Personality Disorder (Gratz and Gunderson, 2006). While this demonstrates the potential for ACT to be a flexible and additional treatment component to other established therapies, it limits the examination of ACT as a standalone treatment.

A recent meta-analysis of third wave behaviour therapies reported a relative effect size of 0.68 for ACT (Ost, 2008)[1]. Control conditions included placebo treatment, treatment as usual, waitlist control and structured interventions that had been included to specifically target symptoms. Whilst Ost (2008) paid particular attention to the lack of scientific rigour of ACT

[1] Ost (2008) was published towards the latter stages of this present review and after the results section had been completed. The author included this paper in the final draft which enabled the author to compare and contrast findings.

intervention studies, the effect size was calculated using the main outcome of the study as identified by study authors (e.g. glycated haemoglobin results for Type 2 diabetes; drug intake for polysubstance abusing adults) and therefore did not look specifically at measures of psychological distress and quality of life. Therefore only tentative conclusions may be drawn regarding the effectiveness of ACT in reducing psychological distress and improving quality of life. In addition, Ost (2008) suffered similar limitations to that of Hayes *et al.*, (2006) in terms of over inclusiveness. Ost (2008) also included non-treatment seeking populations and studies where ACT was combined with another intervention.

Taking into account the limitations of Hayes *et al.*, (2006) and Ost (2008), there is a need to obtain a clear sense of the effectiveness of ACT to reduce psychological distress and increase quality of life in treatment seeking populations. This requires an evaluation of the methodological quality of standalone ACT intervention studies. In addition, three intervention studies have recently been published which were not considered in previous reviews. This includes an ACT intervention for Generalised Social Anxiety Disorder (Dalrymple and Herbert, 2007), a comparison between ACT and CBT for Anxiety and Depression (Lappalainen, Lehtonen, Sharp, Taubert, Ojanen and Hayes, 2007) and a comparison between ACT and CT for Anxiety and Depression (Forman, Herbert, Moitra, Yeomans, and Geller, 2007).

Review Questions

Aim:

This review aimed to assess the available evidence for the effectiveness of Acceptance and Commitment Therapy for reducing psychological distress and improving the quality of life in an adult treatment seeking population.

Main questions:

1. Has a protocol for delivering Acceptance and Commitment Therapy been established which would allow for results to be both synthesized and compared with established psychological therapies?
2. What are the methodological limitations of ACT intervention studies?
3. Is Acceptance and Commitment Therapy effective for reducing psychological distress in a range of clinical populations?
4. Is Acceptance and Commitment Therapy effective for improving quality of life in a range of clinical populations?
5. Is Acceptance and Commitment Therapy more effective for reducing psychological distress and increasing quality of life when compared with established therapies in controlled trials?

Methodology

Search Strategy and Sensitivity Analyses

The following databases were searched electronically:

- The Cochrane Library > November (week 2) 2007.
- MEDLINE > 1980 – November 2007.
- EMBASE > 1988 – November (week 2) 2007.
- CINAHL > 1982 – December (week 1) 2007.
- PsycINFO > 1985 – December (week 1) 2007.

To ensure that the search generated an unbiased comprehensive list of both published and unpublished studies, the following procedure was applied: The National Research Register, official ACT website (http://www.contextualpsychology.org/) and World Wide Web were utilised to obtain details of ongoing and completed studies. For studies which were stated to be ongoing, researchers were contacted to see if data were available. Personal communication with an expert in the field (Dr Stephen Hayes, University of Nevada) was established to obtain details of further studies. Search sensitivity was increased by reviewing reference lists of included papers. In addition, a review of retrieved articles indicated that the two leading journals for publishing articles on Acceptance and Commitment Therapy were *Behaviour Therapy* and *Cognitive and Behavioural Practice.* These two journals were hand searched for relevant articles for the review.

Search Term

The following key words were used in the search: '*acceptance and commitment therapy' 'ACT', 'acceptance', 'acceptance and commitment' 'acceptance based approaches' and' third wave therapy'*. Keywords for selected studies were reviewed to ensure that search terms were satisfactory.

Article inclusion and exclusion criteria

Inclusion:

1. Randomised controlled trials and other intervention studies where Acceptance and Commitment Therapy was delivered as a standalone treatment package. To be considered, the study authors had to cite the originators of ACT and interventions had to be identified as ACT by the author of this review.
2. Participants were required to be actively seeking treatment for psychological or physical health problems.
3. Study reports a minimum of ten participants.
4. Unpublished randomised trials.

Exclusion:

1. Single case studies.
2. Unpublished thesis's which were not randomized controlled trials.
3. Studies with less than ten participants.
4. Interventions that employed only aspects of ACT or combined ACT with another intervention.
5. Participants were under 18 years of age.

Reliability about decisions of inclusion

Two independent reviewers assessed inclusion of studies (masked). Disagreements about particular papers were resolved by consensus agreement.

Quality Assessment

Study quality was assessed using an idiosyncratic tool developed by the researcher (appendix 1.2). This was based on a scale for measuring treatment quality (Yates, Morley, Eccleston and Williams, 2005) and an instrument for assessing the methodological robustness of clinical trials (Cho and Bero, 1994). In addition, the author included items that assessed the reliability and validity of measures of psychological distress and quality of life

The quality assessment tool was subdivided into four scales assessing the following: treatment / adherence to protocol (6 items), methodology (22 items), assessment of psychological distress (3 items), and assessment of life quality (2 items). The tool was comprised of a total of thirty-three items giving a maximum score of sixty-one. The total score was the sum of the *treatment / adherence to protocol* subscore and *methodology* subscore. This was divided by the potential score that could be obtained for a particular study and is reported as a percentage. This format was developed to allow studies to be compared in a standard way and contribute to the research questions posed. In addition, the structure reduced the potential for studies scoring low or high on a particular scale to be misinterpreted. As the tool was developed for the purpose of this study, CONSORT guidelines for reporting clinical trials were also used to as a guide for assessing randomised controlled trials (Begg, Cho, Eastwood, Horton, Moher, Olkin Pitkin, et al., 1996).

Studies that scored eighty percent or above were deemed to be of high quality, those that scored between fifty and seventy-nine percent were considered to be of moderate quality and those that scored forty-nine percent or below were classified as poor quality. Quality was assessed by the author and an independent rater.

Results:

Description of studies

The search terms above retrieved a total of sixty-seven papers. Of these, sixty were excluded based on abstract alone. A further paper was added following a review of ACT intervention studies publicised at http://www.contextualpsychology.org/. This resulted in a total of eight papers with a sample size of five-hundred and seventeen participants. The results of the search strategy are illustrated in appendix 1.3 and reasons for exclusion of studies are presented in appendix 1.4. Eleven studies were excluded as participants were from non-treatment seeking populations, eleven studies were excluded as they had a sample size of less than ten and seven studies were excluded as ACT was used in conjunction with another treatment. Nine papers included in Ost (2008) did not meet inclusion criteria and a further four papers were added. This consisted of three recently published papers and one unpublished thesis. The ratio of included to excluded studies was 1:6.

Study quality ratings ranged from fifty-seven percent to eighty-six percent with a mean of seventy percent. Only one study was considered high quality (Gregg *et al.*, 2007) and seven studies were deemed to be of moderate quality. Agreement between raters were consistent.

A summary of the main findings for each study can be viewed in Table 2. Seven studies were described as randomised controlled trials. Four studies compared ACT with a treatment method which previous research had shown to be effective within that particular population. These were comprised of a comparison of individual sessions of ACT with individual sessions of CBT for patients reporting anxiety and depression (Lappalainen *et al.*, 2007); a group intervention comparing ACT with Panic Control Treatment (PCT) for panic disorder (Karekla, 2004); a comparison of individual sessions of ACT with individual sessions of CT for patients reporting anxiety and depression (Forman *et al.*, 2007); and a combination of group and individual treatment sessions of ACT compared with an intensive twelve-step facilitation programme for polysubstance abusing methadone-maintained opiate addicts (Hayes *et al.*, 2004). ACT was compared with treatment-as-usual in three papers. Studies included a one-day group workshop for patients with Type 2 diabetes (Gregg *et al.*, 2007) and two trials involving individual and group treatment sessions, which compared ACT with treatment-as-usual for patients with psychosis (Bach and Hayes, 2002; Guadiano and Herbert, 2006). One study was a time series trial examining individual sessions of ACT for Generalised Social Anxiety Disorder (Dalrymple and Herbert, 2007).

Has a protocol for delivering Acceptance and Commitment Therapy been established which would allow for results to be synthesized and compared with established psychological therapies?

The first part of the review process examined if a clear account of treatment was provided (e.g. setting, duration, and length of sessions) and if investigators took appropriate steps to ensure treatment was delivered as intended by trained and competent therapists. Consideration was

then given to see if a protocol for delivering ACT had been established which allowed for results to be synthesized and judged in relation to treatment outcome.

The quality of treatment descriptions and adherence to protocol ranged from twenty-five percent to eighty-three percent with a mean of sixty-eight percent. An example of poor quality can be seen in Forman *et al.*, (2007). This study randomised participants with anxiety and depression to either ACT or CT. Assessors were aware of treatment condition and reporting of protocol and treatment duration was vague. Furthermore, it was difficult to ascertain actual treatment interventions used by therapists as use of a treatment manual was rejected in favour of delivering therapy in a naturalistic setting.

The mean treatment duration for ACT intervention studies was twelve hours, ranging from a three hour workshop for adults with Type 2 Diabetes (Gregg *et al.*, 2007) to fifty-six hours of thirty-two weekly individual sessions, plus sixteen group sessions for polysubstance abusing adults (Hayes *et al.*, 2004). Delivery of treatment was either in the form of individual sessions (Lappalainen *et al.*, 2007; Gaudiano and Herbert, 2006; Bach and Hayes, 2002; Dalrymple and Herbert, 2007 and Forman *et al.*, 2007) group sessions (Gregg *et al.*, 2007 and Karekla, 2004) or a combination of both (Hayes *et al.*, 2004). All treatment was carried out in outpatient settings apart from studies which were conducted in wards for patients with psychosis (Gaudiano and Herbert, 2006; Bach and Hayes, 2002). Whilst seven studies reported use of a treatment manual, four of the investigators failed to introduce adherence measures (Lappalainen *et al.*, 2007; Bach and Hayes, 2002; Karekla, 2004 and Forman *et al.*, 2007).

Only one study (Gregg *et al.*, 2007) used a measure for examining if participants had been actively engaging with treatment (e.g. homework).

Therapist information (e.g. experience and number of therapists) was provided in seven papers. Clinical outcome may have been due to therapist effects in Gregg *et al.*, (2007); Guadiano and Herbert, (2006); and Bach and Hayes (2002) as only one therapist was used in each study. Therapist effects could not be accurately examined in Lappalainen *et al.*, (2007) and Forman *et al.*, (2007) as fourteen therapists and twenty-three therapists were used in each condition respectively. Therapists mainly consisted of doctoral / master level students.

In conclusion, a protocol for delivering ACT has not been established. Whilst a clear account of treatment was provided in seven papers which would allow future studies to be replicated within similar populations, there was vast variation in terms of setting, duration of treatment, clinical populations and adherence to protocol. Consistency of ACT is necessary at a conceptual and practical level to evaluate therapy. The characteristics of treatment appear to be the result of resources available to the researchers conducting the study, as opposed to following a treatment protocol based on previous research. The relation between treatment quality and clinical outcome will be discussed in a subsequent section.

What are the methodological limitations of ACT intervention studies?

The quality of methodological design ranged from fifty-nine percent to eighty-seven percent with a mean of seventy-two percent. Only one paper was deemed as being of high quality (Gregg *et al.*, 2007). This study justified the size of sample based on previous literature, randomisation and blinding procedures were robust, intention-to-treat analyses were

performed and attrition rates were discussed. However, despite this paper being considered high quality, ACT was not compared to a placebo control, follow-up was less than six months and as discussed, the intervention was carried out by one therapist, threatening internal validity.

All other papers were classified as being of moderate quality. In the four studies where ACT was compared with an established psychological treatment (Lappalainen *et al.*, 2007; Karekla, 2004; Forman *et al.*, 2007; Hayes *et al.*, 2004) randomisation procedures and blinding procedures were considered to be of poor quality, in relation to quality standards described by Cho and Bero (1994) and CONSORT guidelines for reporting clinical trials (Begg *et al.*, 1996). When ACT was compared with treatment-as-usual for patients with psychosis, participants in the experimental group received more time in therapy (Guadiano and Herbert, 2006; Bach and Hayes, 2002). Outcomes may therefore be directly related to the duration of therapist contact.

There was a degree of variation in terms of the reporting of statistical analyses. All papers except Gregg at al., (2007) were either underpowered to detect significant differences at follow-up, or investigators failed to provide any justification for sample size. Analyses reported in Bach and Hayes (2002) and Hayes *et al.*, (2004) were difficult to interpret and studies generally failed to report exact p values. Confidence intervals or statistical results were partially reported in four studies (Lappalainen *et al.*, 2007, Karekla 2004; Forman *et al.*, 2007; Hayes *et al.*, 2004). Intent-to-treat analyses were performed in five papers (Gregg et al,

2007; Guadiano & Herbert, 2006; Dalrymple & Herbert, 2007; Forman et al, 2007; and Hayes et al, 2004).

A period of six months or more was considered to be an adequate measure of sustainable change for examining lasting effects of treatment. Follow-up data meeting this criterion were only available in two papers (Lappalainen *et al.*, 2007 and Hayes *et al.*, 2004). Re-hospitalisation rates for patients with psychosis were evaluated at four months (Guadiano and Herbert 2006; Bach and Hayes). This length of time may be considered rather brief given the high risk of relapse and variation in remission time for psychosis (Bebbington, Tom, Garety, Fowler, Dunn, Colbert, Fornells-Ambrojo, Kuipers; 2006). A follow-up period of only three months was identified in two papers (Gregg *et al.*, and Dalrymple and Herbert 2007) whilst one paper completed assessment at post treatment only (Forman *et al.*, 2007). Information on attrition rates were available for all studies. Lappalainen *et al.*, (2007) reported one-hundred percent retention of participants, whilst the other papers reported drop out rates of between fifty-one percent and eighty-eight percent (Gregg *et al.,* 2007; Hayes *et al.*, 2004; Forman *et al.*, 2007; Karekla, 2004; Bach and Hayes, 2002; Dalrymple and Herbert, 2007 and Guadiano and Herbert, 2006).

In conclusion, only one paper was deemed to be of high quality and still had notable limitations. All other studies were considered to be of moderate quality and are therefore inadequate in answering the questions posed by this review. Lack of information regarding the psychometric properties of measures, small sample sizes and insufficient follow-up data weakens findings reported in previous reviews.

Is Acceptance and Commitment Therapy effective for reducing psychological distress in a range of clinical populations?

Although this review set out to clarify the effectiveness of ACT for reducing psychological distress, as previously stated, this question could not be answered due the quality of intervention studies reported in the literature. Findings in this section should therefore be interpreted with caution.

Seven of the studies used a valid and reliable measure of psychological distress. This consisted of self-report data (Lappalainen *et al.*, 2007; Guadiano and Herbert, 2006; Dalrymple and Herbert, 2007; Karekla, 2004; Forman *et al.*, 2007 and Hayes *et al.*, 2004) clinician data (Guadiano and Herbert, 2006 and Dalrymple and Herbert, 2007) and re-hospitalisation data (Gaudiano and Herbert, 2006; Bach and Hayes, 2002). The quality of psychological assessment was based on researchers providing sufficient justification and information about the psychometric properties of measures that were used and reporting sufficient follow up. Scores ranged from zero to one-hundred percent with a mean of eighty percent.

When possible, effect sizes using Cohen's categories of effect size (Cohen, 1992) were calculated by the author. Uncorrected effect sizes are reported in this section (relative effect sizes are reported in Table 2 and will be discussed in a subsequent section).

For participants reporting anxiety and depressive symptoms, a large effect size was obtained on the Symptom Checklist 90 (Lappalainen *et al.*, 2007), a large and moderate effect size was

obtained on the Beck Depression Inventory (Lappalainen *et al.*, 2007; Karekla, 2004) and a small effect size was obtained on the Beck Anxiety Inventory (Forman *et al.*, 2007). At four-month follow-up, patients receiving an ACT intervention for psychosis, generated large effect sizes on the Brief Psychiatric Rating Scale and Clinical Global Impressions - Severity Scale. Re-hospitalisation rates were reduced by fifty percent for patients admitted to an inpatient unit for psychosis (Guadiano and Herbert, 2006; Bach and Hayes, 2002). A large effect size was obtained for patients meeting criteria for panic disorder as indicated by scores on the Beck Depression Inventory and The State and Trait Anxiety Inventory Form – Trait (Karekla, 2004). ACT produced a moderate effect size on the Anxiety Control Questionnaire - reaction subscale for patients with Generalised Social Anxiety Disorder (Dalrymple and Herbert, 2007). A small effect size was observed on the Beck Depression Inventory and Symptom Checklist-90 Revised following an ACT intervention for patients being treated for polysubstance misuse (Hayes *et al.*, 2004).

Thus, although ACT interventions may not always target psychological symptoms specifically, they may reduce distress in a range of populations. However this can only be confirmed following controlled treatment trials of high quality. It is interesting to note that duration and quality of treatment were not directly related to improvements in psychological distress. A study consisting of fifty-six hours of ACT only achieved a small effect size (Hayes *et al.*, 2004) in contrast to a large effect size following a three-hour ACT intervention (Guadiano and Herbert, 2006). However, this outcome was achieved in an acute inpatient ward where there may have been potential confounding variables with regards to other life changes that are associated with a hospital admission. This finding reinforces the need to

establish a protocol for delivering ACT as factors such as setting, clinical population, therapist effects and outcome measures may influence results.

Is Acceptance and Commitment Therapy effective in improving quality of life in a range of clinical populations?

Quality of life was assessed in three studies (Dalrymple and Herbert, 2007; Karekla, 2004; Forman *et al.*, 2007). All data were obtained from self-report measures. Similar to psychological distress, quality of assessment was determined, by authors of the studies providing justification for choosing particular measures. Measures which assessed only one dimension (e.g. sexual functioning) were insufficient. Effect sizes were calculated by the author of this review when sufficient information was provided.

Quality ranged from fifty to one-hundred percent with a mean of seventy-two percent. Dalrymple and Herbert (2007) investigated the effect of twelve hours of ACT in a sample of patients with Generalised Social Anxiety Disorder. They reported a medium effect size post therapy and a large effect size at follow-up on the Quality of Life Inventory. However, this study did not have a control group and effects may have been due to non-specific aspects of treatment. Information required for calculating effect sizes for participants with Panic Disorder as defined by the Short-form Health Survey was not provided (Karekla, 2004) although the authors of the study reported a significant increase in quality of life over time. Finally a trivial effect size following 15.6 hours of ACT was gained for participants suffering from anxiety and depression (Forman *et al.*, 2007). This was indicated by scores obtained from the Quality of Life Index and Satisfaction with Life Scale.

In conclusion, only three papers provided information on the quality of life of participants following an ACT intervention. Although all studies reported positive outcomes, clinical improvement varied. As studies were of moderate quality, conclusions regarding the effectiveness of ACT for improving quality of life cannot be drawn at this time.

Is Acceptance and Commitment Therapy more effective for reducing psychological distress and increasing quality of life when compared with established therapies in controlled trials?

ACT was compared to another psychological therapy in four studies (Lappalainen *et al.*, 2007; Karekla, 2004; Forman *et al.*, 2007 and Hayes *et al.*, 2004). In terms of primary outcome measures as defined by study authors, one study obtained a moderate effect for ACT when compared with CBT (Lappalainen *et al.*, 2007). However this only included a four month follow-up and therapists were limited in their use of CBT interventions. In addition, the randomisation process was vague and investigators were not blind to treatment. A further three studies did not report significant differences between groups in terms of primary outcome measures for panic disorder (Karekla, 2004), anxiety and depression (Forman *et al.*, 2007), and patients reporting polysubstance abuse (Hayes *et al.*, 2004).

In terms of psychological distress, Lappalainen *et al.*, (2007) reported a small to medium effect between ACT and CBT in favour of ACT. This was obtained using the Symptom Checklist 90 and the Beck Depression Inventory. However, as discussed this paper may have been vulnerable to ACT bias. There was no difference between groups reported in Karekla (2004); Forman *et al.*, (2007), and Hayes *et al.*, (2004).

In relation to quality of life measures, Dalrymple and Herbert (2007) did not compare ACT to a control group. Forman *et al.*, (2007) reported that CT obtained a small effect size on the Quality of Life Index and Satisfaction with Life Scale, whilst effect sizes reported in the ACT group were trivial. There was no difference between groups reported in Karekla (2004).

Consequently papers included in this review provide no preliminary evidence that ACT is more effective that CBT or CT. These results cast further doubt over findings reported in Hayes *et al.*, (2006) and Ost (2008).

Discussion

A systematic review of eight studies was conducted to examine if a treatment protocol for delivering ACT had been established. In addition, this review also examined if evidence was available to evaluate the effectiveness of ACT to reduce psychological distress and improve quality of life in treatment seeking populations. Despite the increasing number of ACT intervention studies being applied in a range of settings, only eight studies met criteria for this review. It is also of interest that the majority of papers were published in low impact journals (Social Science Citation Index; Thomson.com, 2008). Considering that inclusion criteria were established to ensure all standalone intervention studies utilising a clinical population would be included, this number is surprising. The majority of intervention studies could not be included in this review as they used participants from non-treatment seeking populations, had sample sizes of less than ten, or combined ACT with another treatment.

The papers which did meet inclusion criteria were of poor quality as indicated by available guidance for assessing treatment interventions (Cho and Bero, 2004; Begg *et al.*, 1996). The methodological problems highlighted by this review are similar to those identified by Ost (2008). It is therefore imperative that future intervention studies address such limitations. This can be achieved by the following: increasing the number of rigorous randomised controlled trials utilising placebo control groups, recruiting larger sample sizes to increase that power of the studies and account for high attrition levels, ensuring that intention-to-treat analysis are performed and that there are adequate follow up periods of at least one year. In addition, an evidence base can only be obtained once results are replicated within particular settings and populations. This would require an established ACT protocol for evaluating treatment. This can be established via satisfactory reporting of treatment content, using treatment manuals and having standardised tests for measuring therapist adherence, client engagement and clinical outcome.

Due to the quality of ACT intervention studies, the questions posed at the beginning of this review could not be answered. There is some potential support that ACT can reduce psychological distress and improve quality of life, however as yet there is no indication that it would be superior to established psychological treatment such as CBT.

In light of this, consideration should be given to the clinical and economic cost of continuing with a research paradigm that compares ACT with CBT and or CT, in clinical populations where an evidence base has already been established. Whilst Ost (2008) suggests that future intervention studies should compare ACT with CBT in common psychiatric disorders, there is

some doubt about what this would achieve, as the current literature indicates that clinical outcomes are often the same.

As clinical improvement may be achieved via different mechanisms in ACT (e.g. acceptance processes and experiential avoidance as opposed to cognitive restructuring) perhaps a worthwhile endeavour would be the application of ACT in areas such as Personality Disorders and Eating Disorders. CBT has been shown to be less effective in such populations and acceptance may be a more realistic clinical outcome. Findings from research examining Dialectical Behaviour Therapy, a therapy sharing similar characteristics with ACT would suggest that ACT interventions may be effective (Linehan, Comtois, Murray, Brown, and Gallop, 2006). A future area of research should therefore be whether reduction of psychological distress can be obtained via ACT processes such as *acceptance*. Future studies should therefore compare CBT to ACT in a randomised controlled trial. Given the severe and enduring nature of these disorders, therapists would be required to be experienced clinicians and highly skilled in delivering CBT and ACT.

Ost (2008) concluded his review by considering how long a therapy can remain young and promising? It appears that now is a critical time for ACT and careful thought regarding the application and potential outcomes of this therapy in controlled trials is required. As suggested by Ost, future research may focus on increasing the number of rigorous clinical trials that compare ACT with CBT or CT. This may identify that ACT can obtain better clinical outcomes. Alternatively, could focus on comparing ACT with CBT in clinical

populations where CBT interventions have had least success. The latter would involve identification of particular clinical populations and robust controlled trials.

Limitations of present review

There are some weaknesses that limit the findings of this review. Firstly the Quality Rating Scale was developed by the author using aspects of quality scales developed by Yates *et al.*, (2005); and Cho and Bero (1994). Therefore questions may be raised in relation to the reliability and quality of this scale as a study which was classified as being of high quality had notable weaknesses. Secondly, this review had strict inclusion criteria which may have resulted in the exclusion of high quality studies and therefore provided an unfair reflection of the ACT literature. Nevertheless, the inclusion criteria adopted allowed for an accurate review of the application of ACT as a standalone intervention in treatment seeking populations.

Conclusion

There is no compelling evidence that ACT is a clinically effective treatment. The published literature is of poor quality when compared against gold standard trials criteria. Comparisons with suitable control conditions are required to test against placebo effects, and with established CBT interventions to consider the potential role of ACT in patient care. Overarching needs are for ACT to be more standardised and distinct from CBT, and for outcome measures to be defined and compared. It may be, for example, that acceptance per se is the valid achievable outcome in relation to certain disorders, whereas symptom relief and /or symptom remission may be appropriate to other disorders. There is a need therefore, to be

able to compare evidence within patient populations on the relative efficacy of ACT and CBT and on such specific outcomes.

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Table I: Core Processes and Therapeutic Interventions for Acceptance and Commitment Therapy

Core Process	Core Competencies	Therapeutic Interventions
Acceptance	*Developing Acceptance and Willingness/ Undermining Experiential Control*	• Therapist actively encourages client to experiment with stopping the struggle for emotional control and suggests willingness as an alternative. • Therapist helps client investigate the relationship between levels of willingness and suffering (willingness suffering diary; clean and dirty suffering). • Therapist can use a graded and structured approach to willingness assignments.
Cognitive Defusion	*Undermining Cognitive Fusion*	• Therapist helps client experience the qualities of willingness (a choice, a behaviour, not wanting, same act regardless of how big the stakes). • Therapist uses language conventions, metaphors and experiential exercises to create a separation between the client's direct experience and his/her conceptualization of that experience. • Therapist uses various exercises, metaphors and behavioural tasks to reveal the conditioned and literal properties of language and thought (e.g., milk, milk, milk; what are the numbers?).
Being Present	*Getting in contact with the Present Moment*	• Therapist detects "mindiness" (fusion) in session and teaches the client to detect it as well.
Self as Context	*Distinguishing the Conceptualised Self from Self-as-context*	• Therapist helps the client differentiate self-evaluations from the self that evaluates (thank your mind for that thought, calling a thought a thought, naming the event, pick an identity). • The therapist employs behavioural tasks (take your mind for a walk) to help client practice distinguishing private events from the context of self awareness.
Values	*Defining Valued Directions*	• Therapist helps clients clarify valued life directions. • Therapist helps client "go on record" as standing for valued life ends. • Therapist teaches clients to distinguish between values and goals.
Committed Action	*Building Patterns of Committed Action*	• Therapist helps client value based goals and build a concrete action plan. • Regardless of the size of action, therapist helps client appreciate the special qualities of committed action (e.g., increases in sense of vitality, sense of moving forward rather than backward, growing rather than shrinking).

* Adapted from Hayes *et al.*, 2006.

Table 2: Summary table of the studies included in the review

Study	Author and year	study quality	Sample	Design / setting / intervention	Duration of treatment (mean)	Assessment of Psychological Distress Effect Size (ES)	Assessment of Quality of Life Effect Size (ES)	Main findings / significant results	Authors' Conclusions	Main Study Limitations
1	Lappalainen, R., Lehtonen, T., Skarp, E., Ojanen, M., Hayes, S. (2007).	Total: 61% Treatment / protocol: 67% Study design: 59% Psychological distress: 100% Quality of life: n.a.	N = 28 Mixed sample of participants experiencing depression, interpersonal problems and anxiety. ACT group N = 14 13 female 1 male Mean age: 41.21 CBT group N = 14 12 female 2 male Mean age: 42.43 No significant differences between groups. Final follow-up sample: N = 28	RCT ACT Vs. CBT Outpatient setting Individual therapy delivered by trainee therapists. Measures collected: Assessment (between sessions 1-2), post treatment and at 6 months follow-up. 14 therapists in each condition.	ACT: 9.1hrs CBT: 9.6hrs	Symptom Check List-90 ACT ES: 1.11 (post)*** 1.04 (follow up)*** CBT ES: 0.36 (post)* 0.28 (follow up)* ACT vs. CBT ES: 0.64 (post)** 0.49 (follow up)* Beck Depression Inventory ACT ES: 0.86 (post)*** 0.98 (follow up)*** CBT ES: 0.47 (post)* 0.29 (follow up)* ACT vs. CBT 0.57 (post) ** 0.56 (follow up)**	n.a..	Both groups demonstrated improvement in depression, anxiety, social functioning and life satisfaction. ACT group performed better on depression and social functioning, reaching norms representative of a non-clinical population.	ACT produced a moderately better outcome than CBT in a general adult population. Improvement in both groups may be via different mechanisms: greater acceptance (ACT) improved self confidence (CBT).	Study underpowered. Limited use of CBT techniques. Participants varied widely. Participants were not given a formal clinical diagnosis. Randomisation not sufficiently described. Evaluators not blind to treatment. Not all psychometric properties of measures, means, SD and p values reported.

***small effect size**
****moderate effect size**
***** large effect size**

Abbreviations: ACT, Acceptance and Commitment Therapy; CBT, Cognitive Behaviour Therapy; RCT, randomised controlled trial.

Study	Author and year	study quality	Sample	Design / setting / intervention	Duration of treatment (mean)	Assessment of Psychological Distress effect size (ES)	Assessment of Quality of Life effect size (ES)	Main findings / significant results	Authors' Conclusions	Main Study Limitations
2	Gregg, J., Callaghan, G., Hayes, S., Glenn-Lawson, J. (2007).	Total: 86% Treatment / protocol: 83% Study design: 87% Psychological distress: n.a. Quality of life: n.a.	N = 81 Sample of participants with Type 2 diabetes. ACT + Education N = 43 48% female 52% Male Mean age = 51.9 Education alone N = 38 58% female 24% male Mean age = 49.8 No significant differences between groups Final follow-up sample: N = 66	RCT Outpatient setting ACT + Education Vs. Education Delivered as a one-day workshop by 1 therapist / Education group delivered by one of 5 therapists (master's level graduate students). Measures collected: during 1st hour of group and at 3 months.	ACT + Education: 7hrs Education: 7hrs	n.a.	n.a.	Follow-up assessment significant and moderate effect for ACT over education alone. Changes in acceptance and self management significantly reduced the overall impact of treatment on follow up changes in Hba1c.	Initial support for the importance of an acceptance, mindfulness and values based approach to helping patients develop psychological resources to manage to chronic and life threatening diseases.	No treatment control group. Study vulnerable to therapist effects. Follow-up period less than 6 months. No measure of psychological distress or quality of life.

***small effect size**
****moderate effect size**
***** large effect size**

Abbreviations: ACT, Acceptance and Commitment Therapy; RCT, randomised controlled trial.

Study	Author and year	study quality	Sample	Design / setting / intervention	Duration of treatment (mean)	Assessment of Psychological Distress effect size (ES)	Assessment of Quality of Life effect size (ES)	Main findings / significant results	Authors' Conclusions	Main Study Limitations
3	Guadiano,B., Herbert, J. (2006).	Total: 74% Treatment / protocol: 67% Study design: 76% Psychological distress: 80% Quality of life: n.a.	N = 40 Sample of inpatients with psychotic symptoms. <u>ACT</u> N = 19 63 % Female 37 % Male Mean age = 40 <u>ETAU</u> N = 21 14 % Female 86 % Male Mean age = 40 Differences between groups: more females, and greater severity on BPRS affect subscale in ACT group. ETAU group showed greater severity in thought disorder and disorganisation subscales. Confounding variables accounted for during analysis Final follow-up sample N = 29	RCT Inpatient setting ACT delivered individually / ETAU delivered in group format with additional daily contact with therapist to control for effects of individual attention. Measures collected: Before treatment and prior to discharge. Rehospitialisatin data collected at 4 month.	ACT: 3hrs ETAU: 3hrs + daily contact with therapist (15 mins).	<u>The Brief Psychiatric Rating Scale (BPRS)</u> ACT ES: 2.1 (post)*** ETAU ES: 1.67 (post)*** ACT vs., ETAS ES: 0.53 ** <u>Re-hospitalisation data</u> ACT 28% rehospitalised ETAU 45% rehospitlised (no significant difference) <u>Clinical Global Impressions severity scale (CGISS)</u> ACT ES: 2.83 (post)*** ETAU ES: 1.8 (post)*** ACT vs. ETAU ES: 0.62**	n.a.	No significant difference in hospitalisation rates between groups. Significant difference in favour of ACT in distress related to hallucination. More improvement in mood and impairment of illness following ACT. ACT showed moderate effect size BPRS.	Short-term advantages for ACT group in terms of overall improvement, social impairment, and distress associated with hallucinations.	Study underpowered. No treatment control group. Investigators not blind to intervention and measures administered by clinicians involved in the therapeutic process. Not all psychometric properties of measures, means, and exact p values reported. Follow-up less than 6 months. Inpatient setting / unable to separate groups.

***small effect size**
****moderate effect size**
***** large effect size**

Abbreviations: ACT, Acceptance and Commitment Therapy; ETAU, Enhanced Treatment-as-usual; RCT, randomised controlled trial; BPRS, Brief Psychiatric Rating Scale.

Study	Author and year	study quality	Sample	Design / setting / intervention	Duration of treatment (mean)	Assessment of Psychological Distress effect size (ES)	Assessment of Quality of Life effect size (ES)	Main findings / significant results	Authors' Conclusions	Main Study Limitations
4	Bach, P., Hayes, S. (2002).	Total: 57% Treatment / protocol: 67% Study design: 54% Psychological distress: 80% Quality of life: n.a.	N = 80 Sample of participants with psychotic symptoms <u>ACT</u> N = 40 27 Male 13 Female Mean age = 39.2 <u>TAU</u> N = 40 24 Male 16 Female Mean Age: 39.5 No significant differences between groups Final follow-up sample N = 70	RCT Inpatient setting ACT Vs TAU ACT: TAU + 4 sessions of ACT session delivered individually by a psychology intern. TAU: Medication, psy-ed groups, individual therapy delivered individually by psychologist or psychology intern. Measures collected at baseline and at 4-month follow-up Re-hospitalisation data collected at 4 months.	ACT: TAU + 3hrs 10mins of ACT	<u>7-point scale measuring frequency of hallucinations and delusions.</u> ACT more likely to report hallucinations and delusions at 4 month follow-up: [$x^2 = 5.76$; $p = .016$] <u>0-100 point scale measuring distress experienced as a result of hallucinations and delusions</u> No significant differences between ACT and TAU. <u>Re-hospitalisation</u> ACT participants rehospitalised at a significantly lower rate than TAU participants at 4 month follow up: Wilcoxon's statistic [(1) = 4.26 $p < .05$] *information not provided to calculate effect size.*	n.a.	ACT participants hospitalised at a significantly lower rate that TAU. No differences between groups with regards to likelihood of rehospitisation, medication compliance, frequency of reported symptoms. ACT resulted in decreased symptom believability, increased symptom acceptance, and positive behavioural change.	4 sessions of brief ACT reduced rehospitalisation by 50%.	Randomisation / blinding not robust. No treatment control. Effects of therapist not controlled for. Lack of standardised diagnostic assessment. No sample size justification. Not all psychometric properties of measures, confidence intervals reported. Reporting is unclear. Inpatient setting / unable to separate groups.

***small effect size**
****moderate effect size**
***** large effect size**

Abbreviations: ACT, Acceptance and Commitment Therapy; TAU, Treatment-as-usual; RCT, randomised controlled trial.

Study	Author and year	study quality	Sample	Design / setting / intervention	Duration of treatment (mean)	Assessment of Psychological Distress effect size (ES)	Assessment of Quality of Life effect size (ES)	Main findings / significant results	Authors' Conclusions	Main Study Limitations
5	Dalrymple, K., Herbert, J. (2007).	Total: 74% Treatment / protocol: 75% Study design: 73% Psychological distress: 67% Quality of life: 50%	N = 19 Sample of patients with Social Anxiety Disorder 47.2% Male 52.8%Female Mean Age: 31 Differences between groups: n.a. Final follow-up sample: N = 12	Time Series Trial Outpatient setting ACT delivered individually by clinical psychology doctoral students. Measures collected at baseline, mid-treatment, post-treatment and at 3 months.	12 hours	Anxiety Control Questionnaire (reaction subscale) ES: 0.79 (post)** ES: 1.04 (follow up)***	Quality of Life Inventory ES: 0.74 (post)** ES: 0.43 (follow up)*	Significant improvement on measures of social anxiety, psychological distress and quality of life.	Treatment, resulting in significant improvement from pre to follow up on self report measures of social anxiety. Large effect sizes similar to effect sizes for CBT.	Small sample size. No comparison condition. Follow-up less than 6 months. High attrition rate. Psychometric properties of questionnaires not reported.

***small effect size**
****moderate effect size**
***** large effect size**

Abbreviations: ACT, Acceptance and Commitment Therapy; CBT, Cognitive Behaviour Therapy.

Study	Author and year	study quality	Sample	Design / setting / intervention	Duration of treatment (mean)	Assessment of Psychological Distress effect size (ES)	Assessment of Quality of Life effect size (ES)	Main findings / significant results	Authors' Conclusions	Main Study Limitations
6	Karekla, M. (2004).	Total: 75% Treatment / protocol: 75% Study design: 74% Psychological distress: 100% Quality of life: 100%	N = 22 Sample of patients with Panic Disorder Mean age = 34.95 77.3% Female 22.7% Male ACT N = 12 PCT N = 10 No significant differences between groups. Final follow-up sample N = 13	RCT ACT vs. PCT Outpatient setting Delivered as a group treatment programme by advanced doctoral clinical psychology students (2 co-therapists in each group, 1 therapist common to both groups). Measures collected at pre-treatment, mid-treatment, post-treatment and at 6 months.	10 hours	Beck Depression Inventory ES: 1.09 (post)*** ES = 1.35 (follow up)*** The State and Trait Anxiety Inventory Form – Trait ES 0.64 (post)** ES: 1.04 (follow up)*** Information only available for groups combined, as primary aim of study was group differences in relation to mechanisms of change. However author reported that measures did not discriminate between groups.	Short-form Health Survey (SF36) *information not provided to calculate effect size.*	Clinical improvement in both groups (panic, anxiety, and agoraphobic tendencies quality of life) Measures did not discriminate between groups. Higher attrition in PCT condition	Measures were not found to discriminate between two groups. Move from severe to mild end of panic. Evidence for mechanism of change partially supported. ACT approach more acceptable to people.	Small sample size Randomisation process not described Investigators not blind to treatment Atypical statistical analysis / psychometric properties of measures and exact p values not reported Unable to examine effects of each treatment.

***small effect size**
****moderate effect size**
***** large effect size**

Abbreviations: ACT, Acceptance and Commitment Therapy; PCT, Panic Control Treatment; RCT, randomised controlled trial.

Study	Author and year	study quality	Sample	Design / setting / intervention	Duration of treatment (mean)	Assessment of Psychological Distress effect size (ES)	Assessment of Quality of Life effect size (ES)	Main findings / significant results	Authors' Conclusions	Main Study Limitations
7	Forman, E., Herbert, J., Moitra, E., Yeomans, P., Geller, P. (2007).	Total: 64% Treatment / protocol: 25% Study design: 77% Psychological distress: 80% Quality of life: 67%	N = 109 Mixed sample of participants experiencing anxiety and depression. ACT N = 55 42 female 13 male CT (cognitive therapy) N = 44 37 female 7 male Mean age: 27.86 (total: sample) Differences between groups: gender differences, accounted for during analysis. Final follow-up sample: N = 57	RCT ACT vs. CT Outpatient setting Delivered individually by 23 therapists (doctoral psychology students). Measures completed at baseline and termination of therapy.	ACT: 15.6 hours CT: 15.27 hours	Beck Depression Inventory II ACT ES: 0.66 (post)** CT ES: 0.67 (post)** Beck Anxiety Inventory ACT ES: 0.33 (post)* CT ES: 0.35 (post)* *Relative ES not calculated.*	Quality of Life Index (QOLI) ACT ES: 0.19 (post) CT ES: 0.3 (post)* ACT vs. CT 0.08 Satisfaction with Life Scale ACT ES 0.19 (post) CT ES: 0.4 (post)* ACT vs. CT 0.05	Both groups improved in terms of self-reported and clinician ratings. No significant difference between groups. Partial evidence to support that mechanisms of change are different between ACT and CT.	ACT and CT functionally distinct from one another in relation to mechanisms of change.	Poor description of sample. No reporting of confidence Intervals or post hoc calculations. Follow-up less than 6 months Treatment protocol poorly described. High attrition rate, authors did not account for this.

***small effect size**
****moderate effect size**
***** large effect size**

Abbreviations: ACT, Acceptance and Commitment Therapy; CT, Cognitive Therapy; RCT, randomised controlled trial.

Study	Author and year	study quality	Sample	Design / setting / intervention	Duration of treatment (mean)	Assessment of Psychological Distress effect size (ES)	Assessment of Quality of Life effect size (ES)	Main findings / significant results	Authors' Conclusions	Main Study Limitations
8	Hayes, S., Wilson, K., Gifford, E., Bissett, R., Piasecki, M., Batten, S., Gregg, J. (2004).	Total: 70% Treatment / protocol: 83% Study design: 66% Psychological distress: 100% Quality of life: n.a.	N = 138 Sample of participants with methadone maintained polysubstance abuse. (mean age not reported) 51% female 49 % male ACT N = 42 ITSF N = 44 Methadone control group N=38 No significant differences between groups. Final follow-up sample N = 71	RCT ACT vs. ITSF Delivered as a combination of individual and group sessions. ACT delivered by therapists (n = 4) trained to masters level or higher. ITSF delivered by therapists recovering from substance misuse > 5yrs. Participants in this condition also had a sponsor. Measures completed at baseline, mid-treatment, post-treatment, and at 6 month follow-up.	56 hours	Beck Depression Inventory ACT ES: 0.18 (post) 0.47 (follow up)* ITSF ES: 0.2 (post)* 0.27 (follow up)* ACT vs. ITSF 0.02 (post) 0.1 (follow-up) Symptom Checklist-90-R ACT ES: 0.13 (post) 0.31 (follow up)* ITSF ES: 0.1 (post) 0.2 (follow up)* ACT vs. ITSF 0.08 (post) 0.03 (follow-up)	n.a.	No significant difference between group for drug outcome data and follow up.	ACT and ITSF significantly improved psychological distress however no significant difference between conditions. Both ACT and ITSF merit further investigation	Main conclusions are not based on intention-to-treat analysis. Randomisation and blinding process vague Psychometric properties of measures not reported. Vulnerable to therapist effects High attrition rate

***small effect size**
****moderate effect size**
***** large effect size**

Abbreviations: ACT, Acceptance and Commitment Therapy; ITSF, Intensive Twelve-Step Facilitation; RCT, randomised controlled trial.

Chapter Two

Major Research Project

Does 'acceptance' have a role to play in managing Idiopathic Insomnia?

A group comparison of *beliefs, coping style* and *treatment acceptance* in Idiopathic Insomnia and Psychophysiological Insomnia.

Running Head: Acceptance and Idiopathic Insomnia

Prepared in accordance with requirements for submission to Journal of Sleep Research (Appendix 2.3)

*Correspondence to: Laura Barrie, Section of Psychological Medicine, University of Glasgow, Division of Community Based Sciences, Academic Centre, Gartnavel Royal Hospital, 1055 Great Western Road, Glasgow, G12 0XH.

E-mail: Laura.Barrie@gcc.scot.nhs.uk

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SUMMARY

Primary Insomnia is a complex and heterogeneous disorder. The International Classification of Sleep Disorders (ICSD-2) recognises the heterogeneity of this condition and distinguishes between *psychophysiological insomnia* (PI), *idiopathic insomnia* (II) and *paradoxical insomnia*. Regardless of subtype, patients with insomnia are currently managed in the same way. This study aimed to examine potential differences in the way adults with PI and adults with II conceptualise their sleep difficulties, and to consider the wider implications for the clinical management of insomnia subtypes. It was hypothesised that adults with II would perceive their insomnia to be more permanent and uncontrollable than adults with PI. It was hypothesised that higher levels of insomnia *acceptance* would be present in adults with II. It was also expected that adults with II would be more accepting of an *acceptance-based* approach to managing their insomnia.

The present study was a cross sectional between-groups design. Participants were volunteers who responded to an e-mail / poster campaign for normal sleepers (n = 31), PI (n = 31) and II (n = 30). The primary dependent variables were: the *timeline perceptions* domain of the *Illness Perception Questionnaire-Revised*; the *acceptance* subscale of the *Illness Cognition Questionnaire;* the *personal control* subscale and *treatment control* subscale of the *Illness Perception Questionnaire-Revised; the Brief COPE;* and the *Treatment Acceptability Scale.* Data were examined using one-way ANOVA, Chi-squared tests, Independent and Related Samples *t* tests and Correlation analyses.

Adults with II perceived their insomnia to have more permanency than adults with PI. Whilst both groups rated behavioural therapy as more acceptable than a pharmacological or acceptance-based approach, adults with II rated an *acceptance-based* approach as more acceptable than adults with PI. Methodological limitations and possibilities for future research are discussed.

Keywords: *Insomnia, Idiopathic insomnia, Childhood-onset insomnia, Psychophysiological insomnia, Treatment, Acceptance.*

INTRODUCTION

Primary insomnia is a repeated failure to initiate, maintain or achieve high quality sleep that does not occur exclusively in the context of another medical, psychiatric, or substance abuse disorder [Diagnostic Statistic Manual for Mental Disorders, Fourth Edition (DSM IV), 1994; International Classification of Sleep Disorders, Second Edition (ICSD-2), 2005]. Epidemiological studies report prevalence rates ranging from six to thirty-eight percent, depending on methodological robustness and definition of insomnia utilised (Ohayon, 2002). The National Institute of Clinical Excellence (NICE) recently reported that an estimated £22.3 million was spent annually on pharmacological interventions for insomnia in the UK (NICE, 2004). The high prevalence rate and associated cost for managing the disorder, have resulted in a marked increase in scientific and clinical research into insomnia. This has led to recognition that psychological factors are critical to the development, maintenance and management of insomnia (Espie *et al.,* 2001; Wang *et al.,* 2005; Summers *et al.,* 2006).

Although people experiencing insomnia can report similar symptoms in relation to sleep disturbance and daytime functioning, insomnia is a complex and heterogeneous condition. Research has shown that presentations of insomnia may vary in terms of the following aspects: *severity* (Morin and Espie, 2003); *developmental pathways* (Espie, 2002), *age of onset* (Hauri and Olmstead, 1980; Hauri, 1983; Philip and Guilleminault, 1996; Edinger *et al.,* 1988) and *duration* (Sateia *et al.,* 2000). Although clinical trials have demonstrated that Cognitive Behaviour Therapy can be effective for insomnia (Irwin *et al.,* 2006) nineteen to twenty-six percent of adults fail to show clinical improvement (Harvey and Tang 2003). The heterogeneity of this population, may account for some of the variation in response to

psychological treatment. However, further research examining the relationship between treatment response and variation within insomnia subtypes is required.

Insomnia subtypes

During the course of a lifetime, most individuals will experience sleep disturbance due to periods of acute stress. This type of insomnia is referred to as *Adjustment Insomnia*, whereby the sleep disturbance is correlated with a clearly identifiable stress or change in the environment. This type of insomnia is distinctly different from Primary Insomnia, which does not occur in the context of such psychological or environmental factors. The two main classification systems for sleep disorders differ in terms of the extent to which they acknowledge the heterogeneity of adults experiencing primary insomnia (Table 1). DSM-IV adopts a 'lumping' approach to insomnia, where primary insomnia would include all persons reporting difficulties associated with initiating or maintaining sleep for at least one month. In contrast, ICSD-2 does not use the term primary insomnia, but recognises the clinical value of identifying insomnia subtypes and adopts a 'splitting' approach. This distinguishes between *Psychophysiological Insomnia* (PI), *Idiopathic Insomnia* (II) and *Paradoxical Insomnia*. The terms primary insomnia and PI are often used interchangeably to describe patients in the sleep literature.

(Insert Table 1 here)

A number of researchers have investigated the clinical utility of ICSD-2 subtypes in understanding the aetiology of insomnia and for developing effective treatment interventions

(Hauri and Olmstead, 1980; Hauri, 1983; Philip and Guilleminault, 1996; Edinger *et al.,* 1988; Edinger and Krystal, 2003; Buysse *et al.,* 1994). A literature review by the DSM-IV Work Group on Sleep Disorders, concluded that the term *Paradoxical Insomnia* (previously *Sleep State Misperception)* was a prevalent feature of chronic insomnia, rather than a distinct subtype. In addition, the group concluded that although the terms PI and II offered clinical value, there was limited empirical support to propose such a distinction. Thus, the group recommended that the term primary insomnia should remain in DSM IV (Reynolds *et al.,* 1991).

Whilst PI and II share common features, there are a number of differences which may have implications for the clinical management of insomnia. According to ICSD-2 criteria, whilst adults with PI can often identify a psychological or medical trigger, adults with II are unable to identify a precipitant to their sleep difficulties. In addition, PI is considered to be a learned or conditioned response typically developing in adulthood. Whereas II is defined as a life-long inability to obtain adequate sleep with onset during infancy or childhood. This suggests that II may be more likely to have a physiological basis (Table 2). At present, researchers often fail to distinguish between PI and II, and most research is carried out on patients meeting DSM criteria for primary insomnia or ICSD-2 criteria for PI. For this reason, present knowledge about the variability between both subtypes, in relation to psychological and pharmacological interventions for insomnia is limited.

(Insert Table 2 here)

Pyschophysiological Insomnia and Idiopathic Insomnia

The concept of II (also referred to as childhood-onset insomnia) was originally developed from the notion that a system as complex as the one that induces and maintains sleep, would fail to function consistently at an optimal level in humans. As previously indicated, few studies have been conducted within this population. Hauri and Olmstead (1980) reviewed case notes containing polysmnography (PSG) recordings and psychological measures for thirty-nine patients with PI and twenty patients with II and found significant differences in recordings. The II group demonstrated abnormally low phasic Rapid Eye Movement (REM), had a longer period of sleep onset and experienced shorter sleep duration. The PI group experienced more restlessness in their sleep. A prevalence of minimal brain dysfunction in the II group was also reported. In addition, those in the PI group were found to be more likely to identify a psychological precipitant for insomnia, in contrast to those with II. This study indicated that individuals with II slept differently from individuals with PI. The authors suggested that sleep related difficulties in II were more likely to be physiological than psychological.

In light of such findings, Hauri (1983) conducted a cluster analysis of eighty-nine patients with insomnia and ten good sleepers. Clusters were generated using PSG recordings, clinical interviews and scores obtained from the Multiphasic Personality Inventory (MMPI). Results provided empirical as opposed to clinical evidence to support insomnia sub-classification. Nine distinct clusters were generated, ranging from good sleepers, to insomnia associated with personality factors and insomnia associated with lifestyle factors. In particular, two clusters were specific to individuals reporting a childhood onset. The analysis distinguished between

moderate childhood-onset (*cluster 7*) and severe childhood-onset (*cluster 8*). Both groups displayed poor sleep recordings and evidence of minimal brain dysfunction, however PSG showed that the severe group had poorer sleep efficiency and a lack of delta sleep. This group was also more likely to use denial and repression as a psychological defense when coping with stress. Hauri suggested that this was perhaps due to the severity of insomnia in childhood and that individuals had learned to cope with difficulties via a pattern of denial and repression. The moderate group displayed normal psychological profiles according to scores obtained from the MMPI..

Whilst this study implied that individuals with severe II may have a distinct psychological profile, the study was statistically underpowered, with only eight participants in cluster 7 and four participants in cluster 8.

Edinger *et al.* (1988) provided further evidence of psychological differences within insomnia subtypes. This study was also one of the first to examine variation in response to treatment. A cluster analysis was performed on seventy adults with insomnia using MMPI scores, information obtained from a clinical interview, and clinical response to behavioural treatment for insomnia. Behavioural treatment was five group sessions consisting of sleep education, stimulus control and relaxation. This analysis generated two subtypes: *Type 1* patients were more likely to have reported insomnia in childhood. Individuals in this cluster described fewer psychological difficulties and had a weaker physiological sleep system. They also displayed higher levels of arousabilty and reported more sleep disruptive cognitions. *Type 2* patients scored higher in terms of neuroticism scores on the MMPI. Whilst improved clinical

improvement following treatment was observed in *Type 2, Type 1* patients were generally unresponsive.

In accounting for differences in treatment response, the authors claimed that insomnia for individuals in *Type 1* were more likely to be due to physiological abnormalities and that such individuals were biologically predisposed to poor sleep. This would suggest that an approach taking into account both biological and intrapsychic factors should merit further investigation.

However, Philip and Guilleminault (1996) failed to replicate findings reported in previous studies. The authors investigated sixty-five adults with insomnia and fifty adults with Obstructive Sleep Apnoea Syndrome, analysing PSG recordings and data obtained from a clinical interview. The insomnia group were further subdivided based on whether insomnia had developed in childhood (n = 27) or adulthood (n = 38). Although there were subtle differences in relation to higher subjective reports of nightmares, fear of the dark and longer sleep latencies in the II group, no significant differences were identified in terms of PSG recordings and psychological measures. This study did not look at response to treatment.

Despite inconsistencies reported in the literature, three of the four studies examining differences between PI and II reported physiological differences, thus indicating that abnormalities in the neurological systems may be affecting the sleep-wake cycle. Neurophysiological studies have identified that anterior parts of the hypothalamus are associated with sleep and posterior parts of hypothalamus are associated with wakefulness, and individuals display either hyperactivity or hypoactivity in these areas (Sano, 1998).

A review of the literature on insomnia and hyperarousal (Bonnet and Arand, 1997) concluded that sleep onset and sleep duration are determined by not only how long an individual has been awake, but by their natural level of arousal which determines sleep requirement. Bonnet and Arand stated that sleep and arousal systems are generally stable over time and that lifelong sleeplessness is attributed to the neurological control of the sleep-wake cycle. Whilst hyperarousal can be present in all individuals experiencing insomnia (Nofzinger *et al.,* 2004), it appears to be highly prevalent in II (Edinger *et al.,* 1988).

In conclusion, there is a paucity of research exploring differences between PI and II. A general limitation of all previous studies was failure to define participants according to robust diagnostic criteria. In addition, investigators did not perform *a priori* or post hoc power calculations to determine the size of sample required for detecting significant differences between groups.

Nevertheless, the studies have contributed to our understanding of II in relation to PI, indicating that II is a lifelong disorder, with a possible physiological basis. Previous research has also suggested that individuals with II are more likely to use denial as a coping mechanism. However, the main finding was that adults with II were less likely to respond to behavioural treatment for insomnia. This is understandable as individuals with PI are more likely to respond to behavioural interventions that encourage unlearning of sleep-preventing associations. Alternatively, adults with II are unlikely to respond to a treatment which does not take account of the unrelenting nature of the disorder or physiological differences that may be present. It may therefore be important to consider alternative ways of managing II.

Management of Idiopathic Insomnia

In acknowledging that II is an unrelenting condition, it may be worthwhile to conceptualise this particular subtype within a chronic disease framework. A chronic disease is defined as *'persisting beyond the point at which healing would be expected to be complete or that occurs in disease processes in which healing does not take place'* (Scottish Executive, 2004). Health conditions such as chronic pain and chronic fatigue syndrome share similar features with idiopathic insomnia. Disorders are poorly understood psychophysiological conditions often displaying poor treatment response (Van Damme *et al.,* 2006; McCracken *et al.,* 2005). In addition, the literature acknowledges the frustration and helplessness the clinician frequently experiences when working with such groups (Figley, 2002*).*

Research conducted with patients experiencing chronic health problems have demonstrated that individuals report better psychological outcomes when clinicians adopt the perspective that *healing* as opposed to *treatment* is required *"Strictly speaking, the question is not how to be cured but how to live*" (Conrad quoted in Brown, 2002 (pp1448). Studies have also shown that factors such as coping style and illness-related beliefs are associated with psychological functioning (Arena, 2002). When working with patients diagnosed with a chronic illness, psychologists are encouraged to be flexible in their approach to therapy (Imes *et al.,* 2002) and to consider alterative approaches such as mindfulness-based (Brown, 2002) or acceptance-based treatments (McCracken *et al.,* 2004). Such therapies promote acceptance and reduce the psychological distress that is often associated with searching for a cure. Therefore if II was considered a chronic illness, the aim of psychological therapy would be to promote insomnia acceptance.

The role of acceptance

Acceptance is a difficult concept to define. Researchers have explored acceptance both in terms of mental and cognitive processes that occur within the individual and as an acknowledgement that the disorder is a chronic condition, for which there is no cure. An acceptance-based approach encourages the individual to realise that meaningful life can be achieved and aims to promote engagement in purposeful activities. The purpose is to encourage the individual to shift focus from disorder-specific aspects of life, to non-disorder aspects of life. The desired clinical outcome would be increased psychological well-being, as opposed to symptom alleviation. Therefore the desired outcome in II would be accepting this particular subtype of insomnia as an unrelenting condition and reduce the energy and distress that is consumed by trying to control and cure insomnia.

The role of acceptance has become an important psychological concept in a range of medical and psychological disorders. Associations between acceptance of the disorder and psychological well-being have been observed in borderline personality disorder (Linehan, 1993); pain (McCracken *et al.,* 2005; McCracken and Eccleston, 2005); chronic fatigue syndrome (Van Damme *et al., 2006*); HIV and AIDS (Giza-Zwierzchowska, 2005).

To date, three studies have considered the use of acceptance in terms of cognitive and mental processes in individuals with insomnia (Lundh, 2005). Shapiro *et al.* (2003) examined the effects of mindfulness-based training on thirty-one females with breast cancer. Compared to a control group, patients who received a mindfulness intervention reported improvement in sleep quality, which was related to a decrease in cognitive activity. Heidenreich *et al.* (2006)

used a mindfulness approach on patients with PI. Although this study lacked adequate power and a control group, results showed that this approach reduced sleep latency. Finally Yook *et al.,* (2008) reported that mindfulness-based cognitive therapy was effective for treating insomnia that was secondary to anxiety. In addition, studies examining thought suppression and worry in insomnia, demonstrate that trying to control and avoid associated thoughts can have a paradoxical effect (Broomfield and Espie, 2003).

The author is not aware of previous research examining the effect of acceptance in terms of acknowledging insomnia as an unrelenting condition. However, it is proposed that adults with II would be more accepting of their condition, given the perceived lack of controllability they may experience and possible belief that their insomnia is a lifelong condition.

The role of treatment preference in Idiopathic Insomnia

In proposing an acceptance-based intervention for II, it would be informative to investigate patients' acceptance of this approach. The Treatment Acceptability Scale (TAS) for insomnia was developed by Morin *et al.* (1992) to examine the acceptance of psychological treatment for insomnia and to explore if acceptability of treatment influenced treatment-seeking behaviour and adherence. He argued that regardless of the efficacy of a particular treatment, it would be of little clinical use if it were not acceptable to patients. The TAS describes behavioural treatment and pharmacological treatment for insomnia. The behavioural treatment is described as a self-management programme for changing poor sleep habits, regulating sleep schedules and improving sleep hygiene. The pharmacological treatment is described as medication that induces sleep by reducing physiological and cognitive arousal.

Participants are asked to rate scales examining the following: *treatment acceptance, willingness to comply, suitability for sleep onset* and *maintenance problems, perceived effectiveness* and *side effects* associated with each treatment.

Morin *et al.* (1992) asked seventy-one older adults with insomnia to complete the TAS and reported that that the majority of patients gave a higher acceptability score to behavioural therapy in comparison to pharmacological treatment. Research has suggested that older adults may be inclined to assume that their sleep difficulties stem from physical problems and are more likely to take a passive role in treatment (Charlesworth and Greenfield, 2004) hence the results of the aforementioned study may hold more weight.

In proposing an acceptance-based approach for insomnia, the TAS could be adapted to include an acceptance-based option. As this approach may be more beneficial for adults with II, it would be important to investigate if acceptability ratings were higher in this group.

In light of findings previously discussed, the current study aimed to explore potential differences in the way adults with PI and adults with II conceptualise their sleep difficulties. This study therefore looked to compare sleep perceptions, level of acceptance, coping style, and treatment acceptability in a sample of adults with PI and a sample of adults with II.

It was hypothesized that adults with II would view their sleep difficulties to be more permanent and uncontrollable in comparison to adults with PI. It was expected that adults with II would be more accepting of their insomnia, due to the duration of their difficulties.

Based on previous research, it was predicted that adults with II would be more likely to report coping styles which reflect 'denial' in comparison to participants with PI. Finally, it was envisaged that whilst behavioural therapy would achieve a higher acceptability rating than pharmacological treatment and an acceptance-based approach, adults with II would rate an acceptance-based approach higher than adults with PI. Secondary hypotheses were also generated in relation to acceptance and quality of life.

AIMS and HYPOTHESES

Aim

The aim of this present study was to examine potential differences in the way adults with PI and adults with II conceptualise their sleep difficulties, and consider the wider implications for the clinical management of insomnia.

Hypotheses

Primary hypotheses:

1) Participants with II will perceive their sleep difficulties to be more permanent in comparison to participants with PI.
2) Participants with II will report less control over their sleep difficulties when compared to participants with PI.
3) Participants with II will be more accepting of their insomnia in comparison to participants with PI.
4) Participants with II will be more likely to report using 'denial' as a coping style in comparison to participants with PI and good sleepers.
5) Participants with II and participants with PI will rate behavioural treatment as more acceptable than pharmacological and acceptance-based treatment. However participants with II will be more likely to rate an acceptance-based approach as more acceptable than pharmacological treatment.

Secondary hypotheses:

6) Regardless of insomnia subtype, participants will be more accepting of an acceptance-based treatment if they view their insomnia as permanent.

7) Regardless of insomnia subtype, participants more accepting of their insomnia, will report a better quality of life.

METHODS:

Ethics and consent

Ethical approval was granted by NHS Greater Glasgow Primary Care Division; University of Strathclyde; and University of Glasgow Faculty of Medicine (appendix 2.4). Written informed consent was obtained from all participants (appendix 2.7).

Design

The present study was a cross sectional between-groups design with three groups: Normal Sleepers (NS), adults with PI and adults with II. The primary dependant variables in relation to the above hypotheses were: the *timeline perceptions* domain of the *Illness Perception Questionnaire-Revised (IPQ-R)*; the *acceptance* scale of the *Illness Cognition Questionnaire (ICQ);* the *personal control* scale and *treatment control* scale of the *IPQ-R;* the *Brief COPE (BC);* the *Treatment Acceptability Scale (TAS)*; and the *Short Form Health Survey Questionnaire-36 (SF-36). Group* was the main independent variable.

Participants

Inclusion and exclusion criteria

To be included in the II group and PI group, participants were required to meet ICSD-2 criteria (table 2). The NS group were required to meet research diagnostic criteria for normal sleepers, as recommended by the American Academy of Sleep Medicine Work Group (Edinger *et al.,* 2004). This required the individual to have no complaints of sleep disturbance or daytime symptoms attributable to unsatisfactory sleep. To ensure the PI group and II group

were clearly defined; insomnia onset was required before 10 years of age for the II group, and following 18 years of age for the PI group.

Participants were excluded from the study on the basis of the following: meeting criteria for other sleep disorders such as narcolepsy, sleep apnoea, restless legs syndrome, circadian sleep disorders or parasomnias; showing evidence of mood disorder; showing evidence of substance abuse; receiving psychotherapy; experiencing a somatic disorder; taking prescribed medication that was influencing sleep.

Power calculation

As there were no published studies which have examined the chosen outcome measures between adults with II and PI, guidance was based on the studies previously discussed that had explored differences between PI and II. Hauri and Olmstead (1980) found significant differences between PI ($n = 39$) and II ($n = 20$) in terms of sleep duration ($p = .05$), longer sleep latency ($p = .04$) and abnormal REM ($p = .03$), Hauri (1983) found significant differences in terms of coping strategies observed between adults reporting PI ($n = 10$) and adults reporting II ($n = 12$); meanwhile Edinger *et al.* (1988) found significant differences in terms or scores obtained from the MMPI and treatment response. However, a power calculation could not be performed based on these studies as Hauri and Olmstead (1980) were examining physiological aspects of sleep, and Hauri (1983) and Edinger *et al.* (1988) did not report data required to perform a power calculation.

Therefore taking sample sizes of pervious studies into account, it was calculated that the present study would require thirty participants in each group to detect significant differences between groups. According to Cohen (1992) this size of sample should typically produce a medium to large effect size on a t-test. Introducing robust diagnostic criteria for NS, PI and II would also increase the power of this study.

Procedure

Participants were volunteers who responded to a university e-mail or posters that had been placed in GP surgeries, hospitals and work-based canteens (appendix 2.5). This was part of a wider recruitment campaign for a number of studies that were being carried out at the Glasgow Sleep Centre (Sackler Institute of Psychobiological Research, Southern General Hospital, Glasgow). A screening protocol operated over two stages.

Screening stage 1:

Potential participants were screened initially by email or telephone interview. The telephone interview lasted an average of ten minutes. During this, participants were asked to briefly describe their sleep difficulties in relation to exclusion and inclusion criteria and participants were provided with information about the research process. A Participant Information Sheet (appendix 2.6) which provided a brief written summary was dispatched to potential candidates. Individuals not meeting inclusion criteria at this point were debriefed and informed of other research studies taking place at the Glasgow Sleep Centre. Upon receiving the Participant Information Sheet, participants were instructed to contact the researcher if they

still wished to take part. Following this an appointment letter and 7-day sleep diary was dispatched to participants.

Screening stage 2

Participants met the researcher at the Glasgow Sleep Centre. The second part of the process involved participants completing a consent form (appendix 2.7) screening measures and taking part in a brief semi-structured interview. This lasted between thirty to forty-five minutes and also included a review of participants' sleep diary. Participants not meeting inclusion criteria at this point were debriefed and informed of other research studies taking place. Reasons for exclusion at this stage were mainly due to delayed sleep phase, or the presence of anxiety, depression or substance use disorder.

Research procedure

If inclusion criteria were satisfied based on the above, participants were then left alone to complete experimental measures. The time required to complete the measures was between twenty to thirty minutes. Following completion, participants were fully debriefed about the aims of the study and thanked for their participation. They were also asked if they wished to receive feedback regarding the findings of the study. Data were then coded and analysed using the Statistical Package for the Social Sciences (SPSS). Allocation of participants to groups did not occur until data were collated from the clinical interview, screening questionnaires and sleep diary.

Materials

Initial Screening measures:

The screening measures used to ensure that participants met inclusion criteria and were allocated to the correct group were: University of Glasgow Structured Interview for Sleep Disorders (SIS); Beck Depression Inventory II (BDI II); Beck Anxiety Inventory (BAI); Pittsburgh Sleep Quality Index (PSQI); Insomnia Severity Index (ISI); Beliefs and Attitudes about Sleep Scale - 16 (DBAS-16); 7-day sleep diary.

1) The SIS has been developed to obtain demographic information, and to assess if participants met criteria for II or PPI. This semi-structured interview was also used to identify and exclude participants on the basis of other sleep wake disorders, drugs and alcohol misuse, physical or mental health problems that could be causing sleep difficulties. The interview required a degree of clinical judgement which provided an alternative to self-report data.

2) The BDI-II was used as self-report measure of depression. It is a 21-item measure reporting a high test-retest correlation of 0.93 and a reported internal consistency Cronbach's alpha of 0.91 (Beck *et al.,* 1996). A cut-off score of 20 or above suggests moderate to severe depression. Participants obtaining a score of 20 or above were excluded.

3) The BAI (Beck *et al.,* 1988) was used as self-report measure of anxiety. This is a 21-item measure reporting a test-retest correlation ranging from 0.35 to 0.83 and high

internal consistency Cronbach's alpha of at least 0.83 (De Ayala *et al.*, 2005). Scores above 16 indicate moderate to severe anxiety. Participants obtaining a score of 16 or above were excluded.

4) The PSQI (Buysee *et al.,* 1989) is a likert scale self-report measure of sleep quality and patterns of sleep. This measure provided information on sleep characteristics and was used to support diagnosis and group allocation. The score on the PSQI has been shown to discriminate between normal and poor sleepers, with a diagnostic sensitivity of 89.6% and specificity of 86.5%. A score of 5 or less is suggestive of a normal sleep pattern.

5) The ISI (Morin, 1993) is a self-report measure that was used to support group allocation and provide information on sleep characteristics of participants. This brief measure is designed to assess the daytime effects of insomnia, sleep satisfaction and the level of distress experienced as a consequence of insomnia. It has adequate internal consistency Cronbach's alpha of 0.74 (Bastien *et al.,* 2001). A score of 10 or more is suggestive of insomnia.

6) The DBAS-16 (Morin *et al.,* 2003) contains 16 statements paired with a 10-point analogue scale for the responder to rate whether they strongly agree or disagree with a particular statement. This questionnaire was used to measure: sleep expectations, sleep related worry, beliefs about the consequences of insomnia and level of helplessness associated with sleep. The DBAS-16 has a reported internal consistency Cronbach's

alpha of 0.77 and temporal stability of 0.83 (Morin et al, 2007). This measure was used to elicit beliefs and attitudes about sleep. High scoring on the DBAS-16 indicates a higher prevalence of dysfunctional beliefs about sleep.

7) Participants were also asked to complete a sleep diary for seven days. Data from the diary were reviewed to ensure participants met inclusion criteria for insomnia and there was no evidence of delayed sleep onset. Participants failing to meet criteria for insomnia based on information obtained from sleep diaries were excluded.

Measures for hypothesis testing (appendix 2.8):

Hypothesis 1

The timeline *perceptions* domain of the IPQ-R (Moss-Morris *et al.,* 2002) includes *a timeline: acute / chronic* subscale (6 items) which measures individuals' perceptions of permanency (e.g. *'my illness is likely to be permanent rather than temporary'; 'I expect to have this illness for the rest of my life')* and a *timeline: cyclical* subscale (4 items), which measures if an individual perceives their illness to have a cyclical nature or perceives their insomnia to be constant and unrelenting (e.g. *'I go through cycles in which my illness gets better and worse'; 'my illness is very unpredictable').* Participants are asked to respond using a 5-point likert scale ranging from 'strongly disagree' to 'strongly agree'.

In this study the word *illness* was replaced with *insomnia* prior to administration and was only administered to the PI group and the II group. This tool has previously been adapted to suit

particular health populations and has an internal consistency Cronbach's alpha ranging from 0.70 to 0.90 (Moss-Morris *et al.*, 2002).

Hypothesis 2

The *personal control* subscale (6 items) and *treatment control* subscale (5 items) of the *IPQ-R* was used to elicit individuals' beliefs in relation to having personal control over their illness (e.g. '*I have the power to influence my illness*') or if they believe treatment will be effective in curing their illness (e.g. '*There is nothing which can help my condition*').

The *ICQ – helplessness* scale (Evers *et al.*, 2001) was used as an additional measure of control. In this study the word *illness was* replaced with *insomnia* prior to administration. Helplessness statements (6 items) include '*my illness controls my life*' and *'my illness limits me in everything that is important to me'*. Validation studies have shown the ICQ to be a reliable and valid assessment of perceptions of patients with a chronic disease, reporting an internal consistency Cronbach's alpha ranging from 0.84 to 0.91 (Evers *et al.*, 2001). This measure was only administered to the PI group and II group.

Hypothesis 3

The ICQ-acceptance scale (6 items) was used to measure participants' acceptance of insomnia. *Acceptance* statements include: "*I think I can handle the problems related to my insomnia, even if the insomnia gets worse*" and *"I can cope effectively with my insomnia"*. A high score on this scale is indicative of low acceptance. This measure was only administered to the PI group and II group.

Hypothesis 4

The BC (Carver, 1997) is a 28-item questionnaire made up of 14 subscales which assess the following coping reactions: *active coping, planning, positive refraining, acceptance, humour, religion, using emotional support, using instrumental support, self-distraction, denial, venting, substance use, behavioural disengagement,* and *self-blame*. This measure was chosen for the breadth of coping reactions examined. The *BC* has been applied in a number of health related studies and subscales have an internal reliability Cronbach's alpha ranging from 0.50 to 0.90. This measure was used to explore participants' general coping strategies.

Hypothesis 5

The original *TAS* (Morin *et al.,* 1992) was adapted to include a third 'acceptance treatment' option. This was described as a nondrug treatment method, aimed at encouraging acceptance of insomnia and consisting of strategies for overcoming the impact that insomnia has on life. Participants were asked to consider each of the methods (behavioural treatment, pharmacological treatment and acceptance treatment) as potential treatment options and to give a rating in terms of *support, willingness, effectiveness* and *suitability.* Sub scores are combined to produce a total *acceptability* score for each treatment. The original scale has a high internal consistency Cronbach's alpha 0.87 for the pharmacological scale and 0.80 for the behavioural scale (Vincent and Lionberg 2001).

Hypothesis 6

The *IPQ-R acute-chronic* scale and *IPQ-R cyclical* scale was used to measure individuals' perception of permanency. The TAS *acceptance treatment* scale was used to describe acceptance based treatment.

Hypothesis 7

The *SF-36* has a *mental* and *physical* subscale. This was used to measure quality of life. Items are scored from 0 to 100, with a higher score indicating better health. Available data on the reliability of this measure shows the SF-36 tends to exceed 0.80 (Ware *et al.,* 1993). The *acceptance* scale of the *ICQ* was used to measure insomnia acceptance. In addition, the *acceptance* subscale of the *BC* was used to examine if participants employing 'acceptance' as an everyday coping strategy were more likely to report a higher quality of life.

Statistical Analysis

Analysis was conducted using the Statistics Package for the Social Sciences for Windows (SPSS for Windows version 15). All data were checked using graphical and numerical methods. To ensure suitability for parametric testing, Kolmogorov –Smirnov tests were applied to statistically test normality. Due to the exploratory nature of this study and potential for Type II error, an alpha level of .05 was initially employed for all statistical tests (two-tailed). This was later adjusted to correct for multiple comparisons using the Bonferroni adjustment procedure. When appropriate, data not normally distributed were transformed using the Square-root transformation for normalizing moderately skewed data (Tabachnik and Fidell, 1996). This ensured data satisfied assumptions for parametric testing.

One-way ANOVA, Independent Samples t-tests, Chi squared tests and Correlation analyses were used to compare groups. Related t-tests were used to examine treatment acceptabilty within each group. The internal consistency of experimental scales was measured using Cronbach's alpha.

Summary statistics were used to describe the sample in terms of demographic, clinical and sleep characteristics. If group differences were identified, then it was considered as a covariate in analyses that were used to test study hypothesises.

RESULTS

Data analysis

Demographic Characteristics

On the basis of inclusion criteria and screening measures 31 participants were categorised as normal sleepers (NS), 31 participants were categorised as adults with PI, and 30 participants were categorised as adults with II. All participants were of white European ethnic origin. A small percentage of participants were excluded on the basis of mood disorder (n = 5) and evidence of delayed sleep onset (n = 3). Demographic characteristics and between-group comparisons are presented in Table 3.

[Insert Table 3 here]

With regards to group differences in demographic data, ANOVA and Tukey's post-hoc Test demonstrated that the PI group were significantly older than the NS group. Chi-square indicated that there were no gender differences between groups. The NS group were more likely to have attended university or college and be in a relationship. No significant differences were found between the PI group and II group.

In relation to educational achievement and relationship status, differences between the NS group and experimental groups were representative of previous findings reported in the literature (Ohayon, 1996; Sutton *et al.,* 2001). Since age was identified as a possible confounding variable, each of the analyses used to test study hypotheses involving good sleepers were performed first without a covariate and then again with an analysis of covariance (ANCOVA), with age as a covariate (appendix 2.9). This did not change the pattern of results.

[Insert Table 4 here]

Clinical and Sleep characteristics

Summary data and between group comparisons of clinical and sleep characteristics of participants are presented in Table 4. There were no significant differences between groups in terms of alcohol use. The NS group obtained lower scores on the *BDI II* and *BAI* in comparison with the PI group and II group. As would be expected, the NS group reported fewer sleep difficulties than the PI group and II group as measured by *ISI, PSQI and*

DBAS-16. There were no significant differences between the PI group and II group on reported clinical and sleep difficulties. Data on sleep characteristics confirmed group allocation.

The mean scores obtained from the *ISI* and *PSQI* indicated that adults were experiencing insomnia of moderate severity. The average duration of insomnia was 7 years for the PI group and 26 years for the II group. In terms of previous treatment for insomnia, none of the participants reported previous psychological treatment. All participants reported occasional or previous use of prescribed and non-prescribed medication for insomnia, though none were taking prescribed medication at time of assessment.

Scale descriptives

Scale descriptives for measures used to test the study hypotheses are reported in appendix 2.10. Internal consistency was acceptable for all scales except *IPQ-R treatment control* (0.68). Previous studies have obtained 0.80 (Moss-Morris *et al.,* 2002). When this scale was checked to see if internal consistency improved following deletion of particular items, the removal of IPQ-R-19 *'There is very little that can be done to improve my insomnia'* resulted in a Cronbach's alpha of 0.71. However this item was not removed, as it would have produced a 4-item scale, thus reducing the reliability of the measure.

The TAS *acceptance* scale was specifically developed for the purpose of this study. This scale achieved a high internal consistency of 0.92. Correlation analyses indicated this was not related to *ICQ - acceptance* ($r = -.065$; $p = 0.64$) or *BC- acceptance* ($r = -.07$; $p = 0.62$)

suggesting items are measuring different concepts. The internal consistency of *BC* subscales was not checked, as each scale was constructed of two items only.

Testing the study hypotheses

Table 5 displays inferential statistics and between group comparisons for all self report measures that were used for hypothesis testing.

[Insert Table 5 here]

Hypothesis 1:

Both groups generally perceived their sleep difficulties to be permanent, scoring above the mid-point on the IPQ-R *acute / chronic* subscale. However the II group scored significantly higher, indicating that this group viewed their insomnia to have greater permanency. However, after controlling for multiple comparisons (critical value of < .025), this difference was marginally non-significant. A retrospective power calculation was performed indicating that a sample size of 50 participants in each group would be required to detect meaningful differences if they were present. There was no significance difference between groups on *IPQ – cyclical* subscale. Both groups tended to neither agree nor disagree that their insomnia had a cyclical nature or that their insomnia was unrelenting. Hypothesis 1 was partially supported.

Hypothesis 2:

No significant differences were obtained between the PI group and the II group on the following: *IPQ-R -personal control* subscale; the *IPQ-R - treatment control* subscale and *ICQ*

– *helplessness* scale. There was no evidence to suggest that the PI group believed they had more control over their sleep difficulties in comparison to the II group. Hypothesis 2 was not supported.

Hypothesis 3:

Both groups scored high on the *ICQ – acceptance* subscale, indicating a low level of insomnia acceptance. However there were no significant differences between participants with PI and participants with II in relation to insomnia acceptance. As $p = 0.17$, a retrospective power calculation was performed indicating that a sample size of 110 participants in each group would be required to detect meaningful differences. Hypothesis 3 was not supported.

Hypothesis 4:

The II group were not more likely than the NS group and PI group to use *denial* as a coping mechanism. Differences were however observed in the following three dimensions: *acceptance, self distraction* and *humour*. The NS group were less likely to cope with difficulties through *acceptance* when compared to the II group. The II group were more likely to employ *self-distraction* and *humour* as coping mechanisms in comparison to the PI group and NS group. When corrected for multiple comparisons (critical value of < 0.004) this was only significant for humour. Hypothesis 4 was not supported.

Hypothesis 5:

There were no significant differences between the PI group and the II group in relation to ratings for behavioural treatment and pharmacological treatment was marginally non-

significant. There were significant differences between groups in terms of ratings for an acceptance-based approach to insomnia. The II group rated acceptance based treatment as more acceptable than the PI group. This retained significance after controlling for multiple comparisons (critical value of < 0.02). Treatment acceptability scores for the PI and II groups are illustrated in Figure 1. Related t tests indicated that behavioural treatment was the highest rated for the PI group [behavioural vs. pharmacological: t (31) = 3.3; p = .003; behavioural vs. acceptance: t (31) = 5.03; p < .001] and II group [behavioural vs. pharmacological: t (30) = 3.45; p = .002; behavioural vs. acceptance: t (30) = 2.79; p = .01]. Hypothesis 5 was supported.

Hypothesis 6:

Pearson correlation coefficients conducted between *TAS –acceptance and IPQ-R acute / chronic; and TAS -acceptance and IPQ-R cyclical* indicated that participants who perceived their insomnia as more permanent were unlikely to rate an *acceptance* treatment higher [(*TAS –acceptance** IPQ-R acute / chronic*: r(61)* = .17; p = .21*), (TAS –acceptance* IPQ-R chronic*: r (61) = -.05; p = .74*)]*. Hypothesis 6 was not supported.

Hypothesis 7:

Pearson correlation coefficients conducted between *SF-36- MH and ICQ-acceptance; and SF-36-PH* and *ICQ-acceptance* were also non-significant: [(*SF36-MH*ICQ-acceptance*: r (61) = -.10 p = .46), (ICQ-*acceptance** *SF36-PH*: r (61) = .23; p = .09)]. Hypothesis 7 was not supported. However *ICQ-acceptance* accounted for 5% of the variance of *SF36-PH* satisfying 0.10 criterion.

Secondary Analysis

As the II group were more likely to employ humour as a coping strategy, a secondary analysis was conducted to examine the relationship between *ICQ-acceptance* and BC-humour. Although Pearson correlation coefficients identified a significant relationship for the PI group ($r = .591$; $p = .002$) this pattern was not observed for the II group ($r = 0.76$; $p = .75$).

DISCUSSION

The present study was the first diagnostically robust comparison between PI and II. This study initially examined if insomnia subtypes differed in the way sleep difficulties were conceptualised and accepted in PI and II. Secondly, it offered a preliminary theoretical approach for understanding and managing II. The main results will be discussed before study strengths and weaknesses are examined.

Beliefs about insomnia

Participants in both the PI and II groups were selected on the basis of having persistent insomnia. Both groups obtained comparable scores in relation to self-report measures of insomnia severity and sleep quality. Findings indicate that subjective accounts of sleep disturbance were similar for PI and II, however sleep related beliefs were significantly different for NS. Whilst these outcomes are consistent with findings reported by Philip and Guilleminault (1996), they are inconsistent with previous research looking at sleep related thoughts. Previous researchers using the DBAS-16 have reported that normal sleepers can often report similar sleep related beliefs to people with insomnia, including beliefs about compensatory napping and staying in bed whilst unable to sleep (Ellis 2007). However, it is

worth noting that separate analyses for each item of the DBAS-16 were not performed and this may account for findings in this current study.

Both groups rated their insomnia as chronic on the *IPQ-R acute/chronic* scale. However, in relative terms, and as predicted, there was evidence that the II participants viewed their sleep problem as more permanent and lifelong. Although this effect was marginally non-significant following conservative correction, it nonetheless is suggestive of a differing perspective in this group. This could have implications for their expectations of therapy and /or therapeutic outcomes.

It had also been predicted that the II group would perceive their insomnia to be more constant and unrelenting, whereas the PI group would be able to report some periods of normal sleep. Results on the IPQ-R cyclical subscale however revealed more similarity than expected. In accounting for this finding, the validity of the scale used to measure participants' perceptions of insomnia was considered. The *IPQ-R* instructed participants to report current views of insomnia. It may be the case that adults participating in sleep research are likely to view their insomnia as constant and unrelenting at that present moment in time. In addition, the PI group were a chronic sample, reporting an average insomnia duration of seven years. Perhaps adapting the measure to ask participants to reflect about their sleep difficulties 'over a longer period' would have resulted in observed differences between groups.

Treatment acceptability

When participants were asked to rate their acceptability of a behavioural, pharmacological and acceptance-based approach for insomnia, both groups gave a higher acceptability rating for the behavioural approach. This replicated previous findings about the acceptability of behavioural treatment for insomnia (Morin *et al.,* 1992) and provides further support for cognitive-behavioural treatment as the treatment of choice for patients as well as clinicians (Espie, 1999).

As previously discussed, taking account of patients' preference and expectations is critical in terms of choosing treatment options. However, the observation that behavioural treatment obtained the highest acceptability score in the II group has important clinical implications, as Edinger *et al.* (1988) found that individuals with II are unlikely to respond to behavioural treatment. Whilst controlled treatment trials would firstly be required to replicate findings reported by Edinger *et al.* (1988), recommending this approach may cause further psychological distress to adults with II. It is therefore of considerable interest that the II group rated an acceptance-based approach as more acceptable than the PI group. Although non-significant the II group rated acceptance treatment higher than pharmacological treatment.

However it is important to note that the measure used to assess treatment acceptability did not ask participants to rank treatments in order. Instead treatment ratings were made independent of other treatment options. Thus, participants were not forced to choose which treatment was *most* acceptable out of the three options. Further research using a measure which specifically requires individuals to rank treatment, would provide a truer indication of preference.

Nevertheless, it may be envisaged that a higher acceptability score could be predictive of actual preference in clinical practice. This allows preliminary consideration of an acceptance-based approach for II.

Acceptance of insomnia

Consistent with the expectation that an acceptance-based approach to treatment might be appropriate for II, it was predicted that participants with II would report higher levels of insomnia acceptance in comparison to adults with PI. However, findings indicated that neither group found their insomnia acceptable. This may be indicative of the fact that participants were people who, by definition, had insomnia complaints. Nevertheless the finding is not necessarily in conflict with openness to an acceptance-based treatment, specifically in the II group. Perhaps recognition of the value of acceptance is more evident to those who are non-accepting yet realise that their condition is likely to be permanent.

The fact that neither group found their insomnia acceptable, may explain the minimal association that was observed between acceptance and quality of life which has been reported in chronic health conditions such as chronic pain (McCracken *et al., 2004*) and chronic fatigue syndrome (Van Damme *et al.,* 2006). In addition, it should also be noted that the ICQ-acceptance scale was a cognitive measure of acceptance, whereas acceptance may be observed behaviourally, and fluctuate over time (Vianne *et al.,* 2003). Therefore prior to developing an acceptance-based treatment for insomnia, a comprehensive assessment of insomnia acceptance is required to examine if increasing insomnia acceptance does actually reduce psychological distress and impact on quality of life.

Research examining acceptance within chronic pain may provide guidance for developing an insomnia acceptance measure. As previously stated, the nature of II bears some resemblance to chronic pain. The Chronic Pain Acceptance Questionnaire (McCracken *et al.,* 2004) is an instrument that explores the degree to which the patients behaviour is free from the influences of pain. Validation studies have shown that the *pain willingness* and *activity engagement* sub-components of this measure are significant predictors of acceptance and adjustment in chronic pain (McCracken *et al.,* 2004; McCracken and Yang 2006). Whilst this measure has been criticized for failing to recognize cognitive variables that may also account for acceptance to chronic pain (Nicholas and Asghari, 2006), it may prove to be a useful starting point for developing a measure of insomnia acceptance.

Humour

An unexpected finding of the study was that adults with II were more likely to report humour as a coping mechanism than normal sleepers and adults with PI. Humour is believed to reduce stress in health conditions (Imes *et al.,* 2002) and the relationship between humour and psychological wellbeing ('if I do not laugh I will cry') is widely accepted. However Bennet and Lengacher (2006) investigated the relationship between humour and health and found there were limited studies providing empirical data in support of this relationship.

Nevertheless, previous research has indicated that adults with II tend to show normal psychological profiles (Hauri, 1983; Edinger *et al.,* 1988). Therefore it may be possible that humour is acting as a buffer against psychological distress. Whilst clinicians need to validate the emotional suffering adults with chronic insomnia experience, humour may be an important

psychological tool for coping with insomnia. Bromfield and Espie (2003) have shown that paradoxical intention approaches for insomnia (e.g. instructing patients to concentrate on staying awake as opposed to trying to sleep) can result in a reduction of sleep effort and sleep performance anxiety known to perpetuate insomnia (Espie, 2002). This method can sometimes require a humorous approach to intervention.

In conclusion, the main findings of this study were that adults with II may perceive their sleep difficulties to be more permanent than adults with PI. In terms of treatment application, an acceptance-based approach may by an alternative to CBT for II.

Clinical Implications

The findings obtained from this study have a number of important clinical implications for the psychological treatment of insomnia and insomnia subtypes. First of all this study was able to identify and differentiate between PI and II. This finding requires further exploration of developmental pathways and response to psychological treatment for insomnia subtypes, especially in relation to II. An insomnia subtype, which so far has received little attention in the sleep literature. Secondly, this study has shown that insomnia subtypes differ in relation to how they view and conceptualise their sleep difficulties, suggesting that adults with II may be more likely to accept an acceptance-based approach for coping with their sleep difficulties, whereas adults with PI are more likely to accept a pharmacological approach, which focuses on reducing symptoms. This suggests that there may be differences concerning treatment outcomes and therapeutic approaches for insomnia subtypes.

Whilst this is a preliminary study, it suggests that further research on insomnia subtypes is warranted, with the possibility of developing alternative psychological approaches for managing II. The introduction on an acceptance-based approach for sleep difficulties would therefore require an acceptance-based approach for insomnia to be developed and standardised and for alternative clinical outcomes to be determined.

Strengths and Weaknesses

The main strength of this study was that groups were defined according to strict diagnostic criteria for II and PI. Although this was not intended to be a validation study of insomnia subtypes, the findings do provide empirical support for distinguishing between PI and II. It should also be noted that identification of an II subtype was not as challenging as the sleep literature would suggest. Therefore it is surprising that that this group has rarely been evaluated.

Nonetheless, there are a number of weaknesses which limit the generalization of findings. Firstly, the sample consisted of adults reporting insomnia of moderate severity as indicated by scores obtained from the *ISI* and *PSQI*. Therefore results cannot be generalised to severe PI and II.

Secondly, the study may have been vulnerable to Type II error. As this was a novel study, the researcher had limited information for determining a sample size that would ensure significant differences between groups would actually be detected. Whilst retrospective power calculations suggested that significant results might have been obtained in a larger sample,

there is no current evidence to support this assumption and further research is required. Nevertheless, this study does provide some guidance for future research in relation to sample size.

Thirdly, and as previously discussed, a limitation was the validity of self-report measures. Items selected for assessing permanency and acceptance did not in retrospect, encompass the complex and multidimensional nature of these concepts. However, this was the first study known to adapt measures for this population and high internal consistency was achieved.

In addition, the TAS was also adapted for this study to incorporate an acceptance-based approach to treatment. Whilst this option was designed to mirror the style and format of the behavioural and pharmacological treatments defined by Morin *et al.* (1992), the questionnaire was not piloted prior to administration. This may have contributed to an uncontrolled bias for an acceptance-based approach. Furthermore, all participants were asked to rate behavioural treatment first and acceptance treatment last. Therefore the behavioural treatment score was the baseline treatment for which other options were considered. Randomization of treatment options may have increased methodological rigor.

Another limitation of self-report measures is that the II group may have been unable to provide accurate accounts of insomnia onset. Although this group were asked about psychosocial factors around the time of onset, it would have been beneficial to have obtained a developmental history from a caregiver.

Finally, findings from the literature have suggested that adults with the II could have higher arousal (Edinger *et al.,* 1988). It would therefore have been beneficial to include a measure of arousabilty to validate previous findings, and explore the relationship between arousabilty and sleep perceptions within PI and II.

Conclusion

This study was an exploratory study examining differences between PI and II. A number of important findings were generated, indicating that there is a requirement for further understanding of insomnia subtypes. Perhaps the most important finding was that a number of approaches may be acceptable to adults with insomnia.

In addition, two areas of future research have also been identified. Firstly, research should investigate if a differential response to psychological treatment for insomnia can be determined by insomnia subtype. Secondly, validation of an acceptance-based approach as an effective intervention for II is required. Both could be addressed in a randomised controlled trial (using subtypes as a randomization factor) that compares cognitive-behavioural therapy with a clearly distinguished acceptance-based approach for primary insomnia.

At present, clinicians need to be aware of the variation within insomnia subtypes. A flexible approach taking into account patients' preference and desired outcomes is recommended for effective insomnia management.

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Table 1: Criteria for the Diagnosis of Primary Insomnia

DSM-IV Diagnostic Criteria for Insomnia	ICSD-2 Diagnostic Criteria for Insomnia
• The predominant symptom is difficulty initiating or maintaining sleep, or nonrestorative sleep, for at least 1 month. • The sleep disturbance (or associated daytime fatigue) causes clinically significant distress or impairment in social, occupational, or other important areas of functioning. • The sleep disturbance does not occur exclusively during the course of narcolepsy, breathing-related sleep disorder, circadian rhythm disorder or a parasomnia. • The disturbance does not occur exclusively during the course of another mental disorder (e.g. major depressive disorder, generalised anxiety disorder, a delirium). • The disturbance is not due to the direct physiological effects of a substance (e.g. drug abuse, medication) or a general medication condition.	• A Complaint of difficulty initiating sleep, difficulty maintaining sleep, or waking up too early, or sleep that is chronically nonrestorative or poor in quality. • The sleep difficulty occurs despite adequate opportunity. • At least one of the following forms of daytime impairment related to the nighttime sleep difficulty is reported: - Fatigue or malaise. - Attention, concentration, or memory impairment. - Adverse impact on school, work or social activities. - Mood disturbance or irritability. - Daytime sleepiness. - Lack of energy or motivation. - Driving errors. - Tension, headaches, or gastrointestinal symptoms. - Excessive worries about sleep loss.

Psychophysiological Insomnia	Idiopathic Insomnia	Paradoxical Insomnia
Disorder of somatisized tension and learned sleep-preventing association	A life-long inability to obtain adequate sleep	Experiencing insomnia without objective evidence of any sleep disturbance.

Table 2: ICSD-2 Diagnostic Criteria for Psychophysiological Insomnia and Idiopathic Insomnia*

Core Features for Psychophysiological Insomnia and Idiopathic Insomnia

- The patient's symptoms meet the criteria for insomnia.
- The sleep disturbance is not better explained by another sleep disorder, medical or neurological disorder, mental disorder, medication use or substance use disorder.

Core Features for Psychophysiological Insomnia

- The insomnia is present for at least one month.
- The patient has evidence of conditioned sleep difficulty and / or heightened arousal in bed as indicated by one or more of the following:
  - Excessive focus on and heightened anxiety about sleep.
  - Difficulty falling asleep in bed at the desired bedtime or during planned naps, but no difficulty falling sleep during other monotonous activities when not intending to sleep.
  - Ability to sleep better away from home than at home.
  - Metal arousal in bed characterised either by intrusive thoughts or a perceived inability to volitionally cease sleep-preventing mental activity.
  - Heightened somatic tension in bed reflected by a perceived inability to relax the body sufficiently to allow the onset of sleep.

Core Features for Idiopathic Insomnia

- The course of the disorder is chronic, as indicated by each of the following:
  - Onset during infancy or childhood
  - No identifiable precipitant or cause
  - Persistent course with no periods of sustained remission

***The International Classification of Sleep Disorders, Diagnostic & Coding Manual**

Table 3: Demographics of Whole Sample, NS group, PI Group and II Group

	Whole sample (n=92) M (SD)	NS (n=31) M (SD)	PI (n=31) M (SD)	II (N=30) M (SD)	F (2, 92) / $\chi^2(2)$	p	post-hoc
Age (years)[a]	34.26 (13.54)	29.65 (8.3)	38.52 (14.5)	34.63 (15.7)	3.35	.04*	NS < PI
	N (%)	**N (%)**	**N (%)**	**N (%)**			
Gender:							
Female	66 (71.7)	18 (58.1)	24 (77.4)	24 (80)	4.36	.11	NA
Male	26 (28.3)	13 (41.9)	7 (22.6)	6 (20)			
Education							
School	29 (31.5)	5 (16)	14 (45.2)	10 (33.3)			
College / University	63 (68.5)	26 (83.9)	17 (54.8)	20 (66.7)	6.12	.05*	NS > PI = II
Relationship Status:							
Married / living with someone	51 (55.4)	24 (77.4)	13 (41.9)	14 (46.7)			
Living alone	41 (44.6)	7 (22.6)	18 (58.1)	16 (53.3)	9.29	.01**	NS > PI = II

[a]Data transformed prior to statistical analysis using the Square-root Transformation, * < 0.05, ** < 0.01, * < 0.001**

Abbreviations:
NS, Normal Sleepers; PI, Psychophysiological Insomnia; II, Idiopathic Insomnia

Table 4: Clinical and Sleep Characteristics of NS group, PI Group and II Group

	GS (n = 31) M (SD)	PI (n = 31) M (SD)	II (n = 30) M (SD)	F (2, 92) /	p	post-hoc
Alcohol Units (weekly)[a]	8.94 (7.87)	6.67 (5.85)	6.8 (6.66)	.76	.47	NA
BDI II	4.35 (3.32)	12.39 (6.67)	10.41 (5.88)	18.09	< .001**	NS < PI = II
BAI	5.17 (4.43)	7.74 (3.98)	8.35 (5.8)	5.42	0.006**	NS < PI = II
[a]ISI	2.16 (2.75)	14.74 (5.29)	16.23 (4.7)	*131.18*	< *.001***	NS < PI = II
PSQI	3.84 (1.68)	10.25 (3.76)	10.90 (3.38)	*49.64*	< *.001***	NS < PI = II
DBAS-16	51.1 (23.78)	76.28 (25.67)	74.73 (29.34)	*8.51*	< *.001***	NS < PI = II

[a]Data transformed prior to statistical analysis using the Square-root Transformation, * < 0.05, ** < 0.01, * < 0.001**

Abbreviations:
NS, normal sleepers; PI, Psychophysiological Insomnia; II, Idiopathic Insomnia, BDI II, Beck Depression Inventory II; BAI, Beck Anxiety Inventory; ISI, Insomnia Severity Index; PSQI, Pittsburgh Sleep Quality Index; DBAS-16,Dysfunctional Beliefs and Attitudes about Sleep Scale.

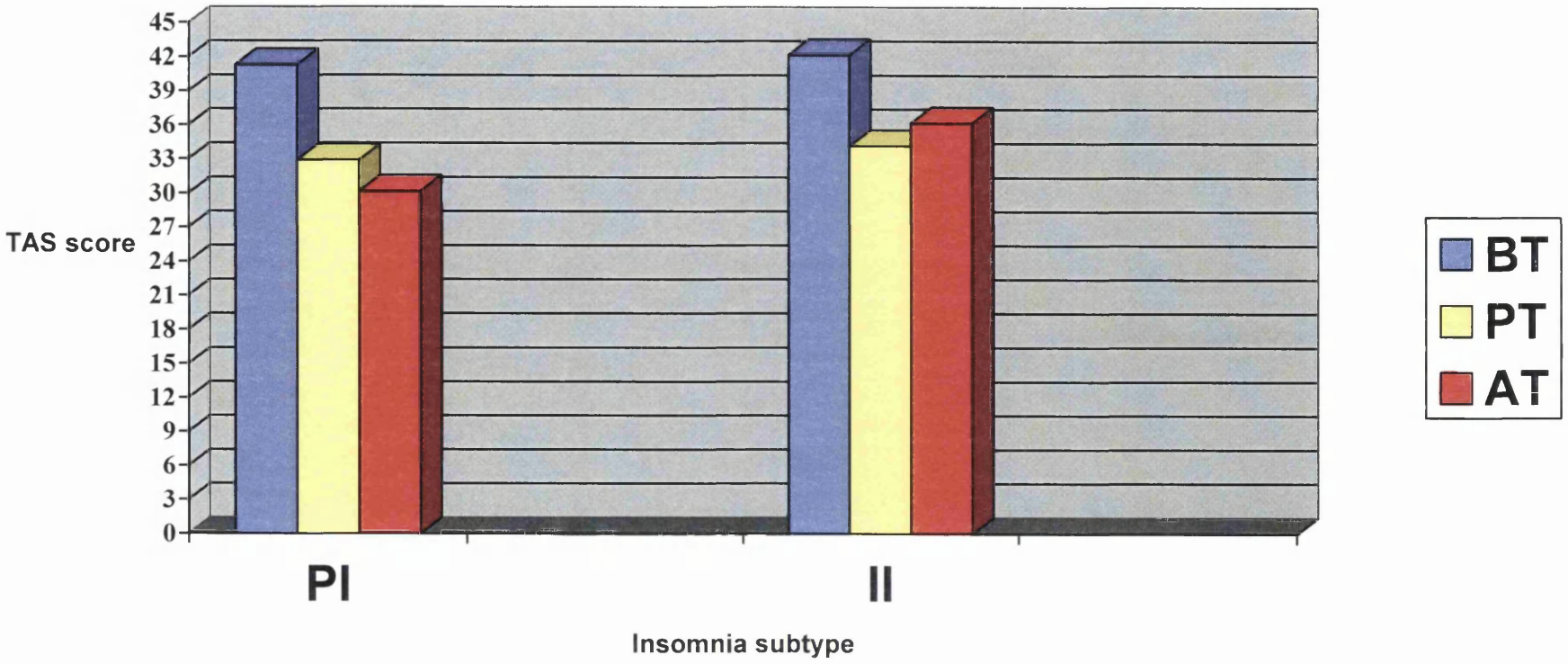
Table 5: Scores for all self report measures for NS Group, PI Group and II Group

	NS(n=31) M (SD)	PI (n=31) M (SD)	II(N=30) M (SD)	F (2, 92) / t (61)	p	post-hoc
IPQ-R						
Timeline (acute / chronic)	NA	3.44 (0.68)	3.84 (0.69)	2.18	.03*	II > PI
Timeline (cyclical)	NA	3 (0.97)	2.78 (1.11)	.73	.47	NA
Personal control	NA	3.04 (0.65)	2.83 (0.72)	1.11	.27	NA
Treatment control	NA	3.24 (0.53)	3.25 (0.57)	.07	.95	NA
ICQ						
Helplessness	NA	16.5 (4.42)	17.2 (4.5)	.57	.57	NA
Acceptance	NA	14.4 (4.67)	15.72 (4.21)	1.4	.17	NA
BC						
Active coping	5.5 (2)	5.33 (1.45)	5.85 (1.35)	.71	.50	NA
Planning	5.64 (2.8)	5.27 (1.41)	5.69 (1.54)	.54	.59	NA
Positive reframing	5.29 (1.98)	4.63 (1.45)	6.38 (1.81)	1.56	.22	NA
Acceptance	4.79 (1.75)	5.67 (1.37)	5.92 (1.74)	3.72	.03*	NS <II
Humour	4.07 (1.78)	4.33 (1.94)	5.85 (2.2)	6.31	.003**	II > NS = PI
Religion[a]	3.18 (1.89)	3.67 (2.14)	2.92 (1.87)	.38	.69	NA
Emotional Support[a]	5.07 (2.16)	4.23 (2.05)	4.69 (2.22)	1.07	.35	NA
Instrumental Support	4.86 (2.09)	4.7 (2)	4.28 (1.65)	.62	.54	NA
Self distraction	4.71 (1.86)	4.73 (1.48)	5.73 (1.22)	3.79	.03*	II > NS = PI
Denial[a]	2.82 (1.02)	2.83 (1.39)	3.19 (1.58)	.55	.58	NA
Venting	5.22 (2.65)	4.63 (2.61)	4.28 (1.45)	.55	.58	NA
Substance use[a]	2.57 (1.32)	2.7 (1.29)	2.92 (1.29)	.67	.52	NA
Behavioural disengagement[a]	2.46 (0.79)	3.1 (1.54)	3.23 (1.73)	2.2	.12	NA
Self blame[a]	4 (2.2)	4.23 (1.98)	4.12 (1.95	.15	.86	NA
TAS						
Behavioural	NA	41.3 (7.63)	42.19 (8.84)	.395	.69	NA
Pharmacological	NA	32.9 (9.34)	34.17 (7.23)	.561	.058	NA
Acceptance	NA	30.2 (9.74)	36.2 (8.8)	2.4	.02*	II > PI
SF36						
Physical	89.63 (9.52)	76.37 (15.34)	82.73 (12.51)	8.47	<.001***	NS > PI = II
Mental	80.58 (8.96)	63.18 (18.37)	66.37 (17.92)	10.86	<.001***	NS > PI = II

[a]Data transformed prior to statistical analysis using the Square-root Transformation, * < 0.05, ** < 0.01, * < 0.001**

Abbreviations: NS, normal sleepers; PI, Psychophysiological Insomnia; II, Idiopathic Insomnia IPQ-R, Illness Perception Questionnaire – Revised; ICQ, Illness Cognition Questionnaire ; BC, Brief COPE ; TAS, Treatment Acceptability Scale.

Fig 1:Treatment acceptabilty for PI and II



Abbreviations: PI, Psychophysiological Insomnia; II, Idiopathic Insomnia; TAS, Treatment Acceptability Scale; BT, Behavioural Treatment; PT, Pharmacological Treatment; AT, Acceptance Treatment

Chapter Three

Reflective Account Course 12

(ABSRACT)

Attached to Attachment

A reflective account of my relationship with Attachment Theory and my development as a Trainee Clinical Psychologist.

(See part two for full account)

Address correspondence to: Laura Barrie, Section of Psychological Medicine, University of Glasgow, Division of Community Based Sciences, Academic Centre, Gartnavel Royal Hospital, 1055 Great Western Road, Glasgow G12 0XH.

E-mail: Laura.Barrie@gcc.scot.nhs.uk

Submitted in partial fulfilment of the requirements of the degree of Doctorate in Clinical Psychology.

Abstract

My very first lecture on Attachment Theory (Bowlby, 1969) was a revelation in understanding psychological distress and human behaviour. However, only as a result of recent supervision and my current experience of clients with attachment disorders, have I reached an awareness of how Attachment Theory can effectively be utilised in an adult population. In the course of this essay I aim to reflect upon my development of applying Attachment Theory in my clinical practice. I will use established models of reflection and the concept of the *Internal Supervisor* (Casement, 1985) to describe significant learning experiences that have taken place which have ensured my progression from unawareness and being unsure of appropriate interventions, to a state of awareness and suitable application. As I reflect upon my relationship with Attachment Theory, I consider it a useful guide for measuring my development as a Trainee Clinical Psychologist.

Chapter four

Reflective Account Course 12

(ABSRACT)

How can you help me if you don't know who I am?

A Reflective Account of a Trainee Clinical Psychologists' struggle to deliver Evidence-Based Practice within a Culturally Sensitive Framework

(See part two for full account)

Address correspondence to: Laura Barrie, Section of Psychological Medicine, University of Glasgow, Division of Community Based Sciences, Academic Centre, Gartnavel Royal Hospital, 1055 Great Western Road, Glasgow, G12 0XH.

E-mail: Laura.Barrie@gcc.scot.nhs.uk

Submitted in partial fulfilment of the requirements of the degree of Doctorate in Clinical Psychology.

Abstract

Delivering evidence-based practice and respecting culture and diversity are considered core competencies for Clinical Psychologists. In delivering psychological interventions, I have become aware of the tension often created when trying to deliver evidence-based practice in a culturally sensitive way. This is a reflective account of my professional struggle in trying to apply scientific rigour within a cultural framework.

Gibbs's *Reflective Cycle* and Schon's model of reflecting both *in-action* and *on-action* have enabled me to reflect in a thoughtful manner and to think innovatively about future practice. Whilst acknowledging that challenges continue to exist, there is a realisation that consideration of the clients' culture is essential for reaching a shared understanding of psychological distress. Only then can the delivery of evidence-based practice be achieved.

Appendix 1.1
Journal of Consulting and Clinical Psychology – *Notes for Contributors*

Instructions to Authors

The *Journal of Consulting and Clinical Psychology* (JCCP) publishes original contributions on the following topics:

a. the development, validity, and use of techniques of diagnosis and treatment of disordered behavior
b. studies of a variety of populations that have clinical interest, including but not limited to medical patients, ethnic minorities, persons with serious mental illness, and community samples
c. studies that have a cross-cultural or demographic focus and are of interest for treating behavior disorders
d. studies of personality and of its assessment and development where these have a clear bearing on problems of clinical dysfunction and treatment
e. studies of gender, ethnicity, or sexual orientation that have a clear bearing on diagnosis, assessment, and treatment
f. studies of psychosocial aspects of health behaviors
g. methodologically sound case studies pertinent to the preceding topics. Studies that focus on populations that fall anywhere within the lifespan are considered

JCCP welcomes submissions on treatment and prevention in all areas of clinical and clinical-health psychology and especially on topics that appeal to a broad clinical-scientist and practitioner audience. *JCCP* encourages the submission of theory-based interventions, studies that investigate mechanisms of change, and studies of the effectiveness of treatments in real-world settings.

Studies on the following topics will be considered if they have clear implications for clinical research and practice: epidemiology; use of psychological services; health care economics for behavioral disorders; theoretical papers; and critical analyses and meta-analyses of treatment approaches on topics of broad theoretical, methodological, or practical interest to the field of clinical psychology.

JCCP does not consider manuscripts dealing with the etiology or descriptive pathology of abnormal behavior (which are more appropriate for the *Journal of Abnormal Psychology*). Similarly, the journal does not consider articles focusing primarily on assessment, measurement, and diagnostic procedures and concepts (which are more appropriate for *Psychological Assessment*). Editors reserve the right to determine the most appropriate location of a manuscript.

Length and Style of Manuscripts

Full-length manuscripts should not exceed 35 pages total (including cover page, abstract, text, references, tables, and figures), with margins of at least 1 inch on all sides and a standard font (e.g., Times New Roman) of 12 points (no smaller). The entire paper (text, references, tables, etc.) must be double spaced.

Instructions on preparing tables, figures, references, metrics, and abstracts appear in the *Publication Manual of the American Psychological Association* (5th edition).

For papers that exceed 35 pages, authors must justify the extended length in their cover letter (e.g., reporting of multiple studies), and in no case should the paper exceed 45 pages total. Papers that do not conform to these guidelines may be returned without review.

The References section should immediately follow a page break.

Title of Manuscript

The title of a manuscript should be accurate, fully explanatory, and preferably no longer then 12 words. The title should reflect the content and population studied (e.g., "treatment of generalized anxiety disorders in adults").

If the paper reports a randomized clinical trial (RCT), this should be indicated in the title, and the CONSORT criteria must be used for reporting purposes.

Abstract and Keywords

Manuscripts must be accompanied by an abstract containing 125–180 words. All abstracts must be typed on a separate page (p. 2 of the manuscript). Abstracts must contain a brief statement about each of the following:

- the purpose/objective;
- the research methods, including the number and type of participants;
- a summary of the key findings;
- a statement that reflects the overall conclusions/implications

After the abstract, please supply up to five keywords or short phrases.

Discussion of Clinical Implications

Articles must include a discussion of the clinical implications of the study findings or analytic review. The Discussion section should contain a clear statement of the extent of clinical application of the current assessment, prevention, or treatment methods. The extent of application to clinical practice may range from suggestions that the data are too preliminary to support widespread dissemination to descriptions of existing manuals available from the authors or archived materials that would allow full implementation at present.

Appendix 1.2
Quality Measure for Systematic Review

Article Number: _____

Study Design (chose 1 only): _____

What was the study question: _____

Problem area: _____

*Total score: _____

Treatment / Adherence to Protocol
Has a clear rationale for the treatment been given and an adequate description of its content? 2, 1, 0
Has the treatment duration and setting been reported? 2, 1, 0
Is there a treatment manual that describes the active components of (all) treatment? 2,1,0, NA
Is there evidence that therapists are adhering to treatment protocol? 2, 1, 0
Have the therapists been appropriately trained in the relevant procedures? 2, 1, 0
Is there evidence that the patients have actively engaged in the treatment? 2,1, 0

Subscore: _____

Methodology
Was the study question sufficiently described? (2, 1, 0)
Was the study design appropriate to answer the study question? 2, 1, 0
Were both the inclusion and exclusion criteria specified? 2, 1, 0
Is there a good description of the sample in the trial? 1, 0
Were participants appropriate to the study question? 2, 1, 0
Were control participants appropriate? 2, 1, 0, N/A
Was the study described as randomized? 2, 0
If participants were randomly selected, was the method of random selection sufficiently well described? 2, 0, N/A
Was the process of randomisation robust? 2, 0, N/A
Were investigators blind to intervention? 2, 0, NA
Were participants blind to intervention group? 2, 0, NA
Was measurement bias accounted for by methods other than blinding (no difference between comparison groups in how assessment and outcome measures are ascertained / intention to treat analysis performed)? 2, 1, 0, NA
Was there a sample size justification before the study? 1, 0, NA
Does the study use appropriate analysis (i.e. Intention to treat analysis) to address the research question and for which the conditions of use can be confirmed? 2, 1, 0, NA
Were statistical tests stated? 2, 1, 0
Is there adequate reporting of summary statistics? 2, 1, 0
Were exact p values or confidence intervals reported for each test? 2, 1, 0, NA
Were pos-hoc power calculations or confidence intervals reported for statistically non-significant results? 1, 0, NA
Were confounding variables accounted for by analysis? 2, 1, NA
Were attrition of participants and reasons for attrition recorded? 2, 1, 0
For those participants that completed the study, were the results completely reported? 2, 1, 0, NA
Do the findings support the conclusions? 2, 1, 0
Subscore: _____

Assessment of Psychological Distress
Has a valid measure of psychological distress been used as an outcome measure? 2, 1, 0
Has a reliable measure of psychological distress been used as an outcome measure? 2, 1, 0
Has there been a measure of any sustainable change between the treatment and control groups? 1, 0, NA

Subscore: _____

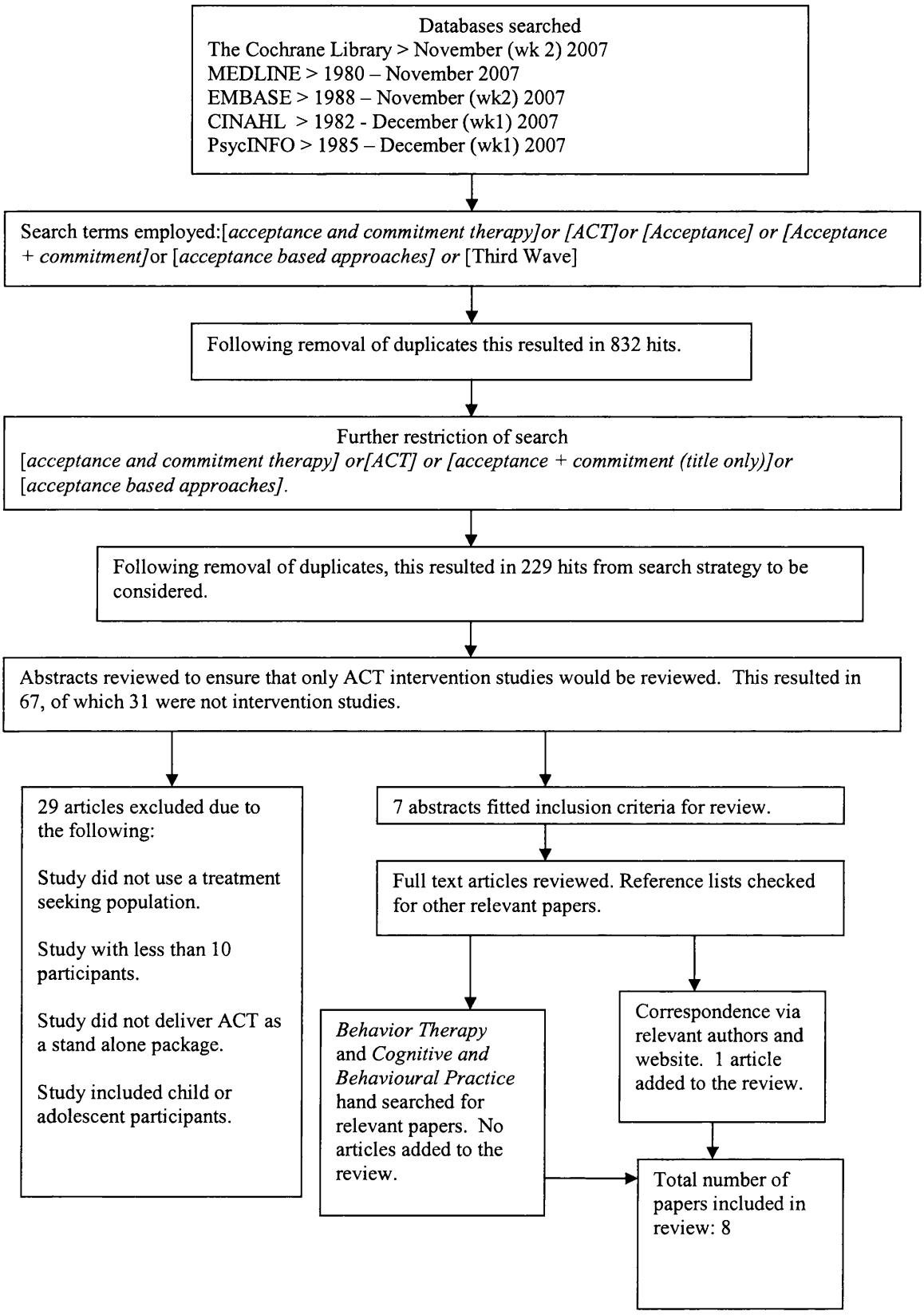
Assessment of Quality of Life
Has quality of life been measures using a standard Quality of Life instrument?
Has there been a measure of any sustainable change between the treatment and control groups? 1, 0, NA

Subscore: _____

*Total score = Treatment / Adherence to Protocol + Methodology
(Do not give credit for items that are not explicitly stated).

Appendix 1.3

Flowchart of Search Strategy for Systematic Literature Review



Appendix 1.4

Table of studies excluded in Systematic Literature Review

Reason for Exclusion	No. Excluded	Study
Non treatment seeking population	XI	Blackledge, J., & Hayes, S. (2006). Using acceptance and commitment training in the support of parents of children diagnosed with autism. Bond, F., & Bunce, D. (2000) Mediators of change in emotion-focused and problem-focused worksite stress management interventions. Dahl, J., Wilson, K.G., Nilsson A. (2004). Acceptance and commitment therapy and the treatment of persons at risk for long-term disability resulting from stress and pain symptoms: A preliminary randomized trial. Garcia, F., Villa, S., Cepeda, T., Cueto, G., & Montes, G. (2004). Effect of hypnosis and Acceptance and Commitment Therapy (ACT) on physical performance in canoeists. Gifford, E.V., Kohlenberg, B.S., Hayes, S. C., Antonuccio, D.O., Piasecki, M. M., Rasmussen-Hall, M. L., Palm, K. M., (2004). Acceptance-based treatment for smoking cessation. Gutierrez, O., Luciano, C., & Fink, B. C. (2004). Comparison between an acceptance-based and a cognitive-control-based protocol for coping with pain. Hayes, S. C., Bissett, R., Roget, N., Padilla, M., Kohlenberg, B. S., Fisher, G., et al. (2004). The impact of acceptance and commitment training on stigmatizing attitudes and professional burnout of substance abuse counsellors. Jimenez, R. (2006). Application of Acceptance and Commitment Therapy (ACT) to improve chess-players performance. A case study. Lillis, J. (2008). Acceptance and commitment therapy for the treatment of obesity-related stigma and weight control. Masuda, A., Hayes, S., Fletcher, L., Seignourel, P., Bunting, K., Herbst, S., Twohig, M., Lillis, J. (2007). Impact of acceptance and commitment therapy versus education on stigma toward people with psychological disorders. Zettle, R. (2003). Acceptance and commitment therapy (ACT) vs. systematic desensitization in the treatment of mathematics anxiety.
N < 10	XI	Asmundson, G. & Hadjistavropolous, H. (2006). Acceptance and Commitment Therapy in the Rehabilitation of a Girl with Chronic Idiopathic Pain: Are We Breaking New Ground? Batten, S., Hayes, S. (2005). Acceptance and Commitment Therapy in the Treatment of Comorbid Substance Abuse and Post-Traumatic Stress Disorder: A Case Study. Heffner, M., Eifert, G., Parker, B., Hernandez, D., Sperry, J. (2001) Valued directions: Acceptance and commitment therapy in the

		treatment of alcohol dependence. Heffner, M., Sperry, J., Eifert, G., Detweiler, M. (2002) Acceptance and commitment therapy in the treatment of an adolescent female with anorexia nervosa: A case example. Magnusson, B., Olsson, G. (2005). Using acceptance and commitment therapy in the rehabilitation of an adolescent female with chronic pain: A case example. Montesinos M., Francisco; H, Luciano S. (2001). Application of acceptance and commitment therapy in cancer patients. Orsillo, M., & Batten, S. (2005). Acceptance and Commitment Therapy in the Treatment of Posttraumatic Stress Disorder. Pankey, J., & Hayes, S. (2003). Acceptance and commitment therapy for psychosis. Twohig, M, Hayes, S., Masuda, A. (2006). Increasing Willingness to Experience Obsessions: Acceptance and Commitment Therapy as a Treatment for Obsessive-Compulsive Disorder. Twohig, M., & Woods, D. (2001). Habit Reversal as a treatment for chronic skin picking in typically developing adult male siblings. Twohig, M., Hayes, S., Masuda, A. (2006). Preliminary investigation of acceptance and commitment therapy as a treatment for chronic skin picking
ACT not delivered as a stand alone treatment package.	VII	Gratz, K., & Gunderson, J. (2006). Preliminary data on an acceptance-based emotion regulation group intervention for deliberate self-harm among women with Borderline Personality Disorder. Levitt, J., Brown, T., Orsillo, S., & Barlow, D. (2004). The effects of acceptance versus suppression of emotion on subjective and psychophysiological response to carbon dioxide challenge in patients with panic disorder. Lundgren, T., & Dahl, J. (2005). Development and evaluation of an integrative health model in treatment of epilepsy: A randomized controlled trial investigating the effects of a short-term ACT intervention compared to attention control in South Africa. McCracken, L., Vowles, K., & Eccleston, C. (2005). Acceptance-based treatment for persons with complex, long-standing chronic pain: A preliminary analysis of treatment outcome in comparison to a waiting phase. Woods, D., Wetterneck, C., & Flessner, C. (2006). A controlled evaluation of Acceptance and Commitment Therapy plus habit reversal for trichotillomania. Zettle, R., & Hayes, S. (1986). Dysfunctional control by client verbal behavior: The context of reason giving. Zettle, R., & Rains, J. (1989). Group cognitive and contextual therapies in treatment of depression.

Appendix 2.1
Major Research Proposal

***Does the concept of acceptance have a role to play in managing Childhood Onset Insomnia? A group comparison of beliefs, coping styles and treatment preferences in Childhood Onset Insomnia, Adult Onset Insomnia and Good Sleepers.**

**Note change of title*

Correspondence to: Laura Barrie, Section of Psychological Medicine, University of Glasgow, Division of Community Based Sciences, Academic Centre, Gartnavel Royal Hospital, 1055 Great Western Road, Glasgow, G12 0XH.

E-mail: Laura.Barrie@gcc.scot.nhs.uk

Submitted in partial fulfillment of the requirements of the degree of Doctorate in Clinical Psychology

Abstract

Background

Insomnia is a common sleep problem resulting in daytime impairment including fatigue, cognitive impairment and psychological difficulties. The second revision of the International Classification of Sleep Disorders (ICSD-2) classifies Primary Insomnia into three subcategories: idiopathic insomnia II (II), psychophysiological insomnia (PI) and paradoxical insomnia. Despite potential differences between subtypes, clinicians currently manage people with insomnia in the same way. The concept of acceptance could potentially be useful in managing patients with a II.

Aims

This study aims to identify a significant sample of adults with II, and examine if there are significant differences in the way they perceive, cope and manage their sleep difficulties in comparison with individuals that have acquired onset in adulthood and good sleepers. This study will look at current levels of acceptance within these groups, and explore the relationship between acceptance and quality of life factors. In addition, it will be interesting to explore if given the choice, individuals would prefer a treatment which encouraged acceptance of the condition.

Methods

This study will be a quasi-experimental between-groups design with three groups: good sleepers (GS), adults with II and adults with PI insomnia. This study will compare the beliefs, coping styles, treatment preference and level of acceptability and will examine the potential value for acceptance in predicating quality of life measures.

Applications

Despite differences in presentation, patients with insomnia are treated and managed the same way by clinicians. This study will consider how subtypes of insomnia differ, and how this may affect treatment effectiveness.

Introduction

Insomnia subtypes

Insomnia continues to be a common sleep disturbance in the general population. It is characterised by repeated failure to initiate, maintain or achieve quality sleep, resulting in daytime impairment including fatigue, cognitive impairment and psychological difficulties (International Classification of Sleep Disorders-2, 2005). Epidemiological studies of insomnia vary according to definition. The National Institute of Clinical Excellence reported that between eight to thirty-eight percent of adults experience insomnia (NICE 2004) meanwhile Ohayon (2002) reported more conservative estimates of six percent (Ohayon, 2002).

The study of insomnia has become an active research area and recent developments have shown that psychological factors are critical to the development, maintenance, and treatment of insomnia (Espie, Inglis, Tessier, and Harvey, 2001; Wang, Wang and Tsai, 2005). Despite the activity going on in this area, controversy still surrounds the utility of insomnia subtypes. Sleep specialists argue that consideration of insomnia subtypes is crucial in terms of understanding the etiology of insomnia, for designing effective treatment and enhancing communication (Buysse, Reynolds, Hauri, Roth, Stepanski, Thorpy, Bixler, Kales, Manfredi, Vgontzas, Stapf, Houck and Kupfer 1994, Edinger and Krystal 2003).

The American Academy of Sleep Medicine conducted a review of the literature on studies evaluating chronic insomnia. They advised that clinicians should be familiar with the major diagnostic groups (Sateia, Doghramji, Hauri and Morin 2000). Although experts in the field have criticized the inclusion of distinct categories which appear to be a result of clinical as opposed to empirical findings. Sleep experts argue that clarification in terms of

sub categories of insomnia is fundamental in enhancing communication, understanding the aetiology of insomnia and in providing effective management.

II is diagnosed when an individual meets the following criteria: (a) the patient's symptoms meet the criteria for insomnia, (b) the course of the disorder is chronic, as indicated by each of the following (i) onset during infancy or childhood (ii) no identifiable precipitant of cause (iii) persistent course with no periods of sustained remission, (c) the sleep disturbance is not better explained by another sleep disorder, medical or neurological disorder, mental disorder, medication use, or substance use disorder (ICSD-2 2005). The nature of II has proved to be both controversial and conceptually a difficult area to define and research. Main reasons for this include a lack of validation studies and issues with definition.

A literature review by the Working group for DSM III-R concluded that although the term had clinical utility, there was limited empirical support and did not include it in DSM III (Reynolds, Kupfer, Buysse, Coble and Yeager 1991). Currently Edinger and colleagues are conducting a major insomnia diagnostic trial to investigate the reliability and validity of insomnia diagnoses in the DSM-IV and ICSD-2. Although this is not due to be published until 2008 it will be interesting to see if further consideration is given to II.

Whereas it is often suggested that PI can develop after a stressful event, there has been a lack of explanation to account for the development of II. Some studies have found evidence of a weak circadian rhythm (Smits et al., 2001), and physiological differences between good and poor sleepers prior to sleep, during sleep and during the day. This includes increased rectal temperature, heart rate, basal skin resistance, and phasic vasoconstrictions thirty minutes before sleep. Poor sleepers also show more beta and less

alpha frequencies in their sleep, and have increased secretion of corticosteroids and adrenaline compared to good sleepers (Bonnet and Arand, 1997). Therefore it may be that answers may lie in an overactive awakening system, or an under active sleep system.

An interesting review by Bonnet and Arand (1997) supported the notion that chronic insomnia patients mainly suffer from a physiological disorder of hyperarousal. Nofzinger, Buysse, Germain, Price, Miewald and Kupfer (2004) reported on functional neuroimaging performed on healthy patients and patients with II. They found that an inability to fall asleep might be related to a failure in the arousal mechanisms to decline in activity from wakening to sleep states. Therefore, individuals with II may have a physiological vulnerability, and of course, the unrelenting nature of the disorder would result in coping styles that maintain the insomnia. It is important to note that although most patients experiencing insomnia would present with higher levels of arousabilty, Edinger et al., (1988) provided evidence that adults with II would have higher levels. Therefore arousabilty may be a predisposing and maintaining factor in II, whilst having more of a precipitating and maintaining role in insomnia acquired in adulthood.

Chronic health problems and illness perception

The literature on chronic pain may be helpful in relation to II. Pain similar to II can be frequent or occasional, and be mild to severe. Chronic pain, like II, is associated with being unresponsive to treatment and being poorly understood. Although there is an emphasis on physiological factors, psychological factors appear to be critical in reducing ongoing difficulties. Research looking at patient perceptions of what helps in dealing with chronic pain, emphasise the following: empathy, validation, humour and most importantly 'when the clinician realizes that the patient needs healing, not treatment' (Imes, Clance, Gailis and Atkeson, 2002).

Clinicians are restricted by their training and in cases such as chronic insomnia, it appears that there is a clear protocol for working with adults with insomnia regardless of chronicity, severity and patient perceptions. In working with patients diagnosed with a chronic illness, clinicians are encouraged to be flexible in their approach to therapy and consider alterative approaches such as existential therapy (Imes et al, 2002) and mindfulness-based approaches (Brown, 2002). Concepts derived from mindfulness-based approaches are now considered to be core elements of current cognitive therapy (Teasdale, 1999; Kabat-Zin, 1990).

Rainer (2002), states that psychologists play an important role in helping patients with chronic health conditions. Cognitive behaviour therapy should therefore move towards encouraging the patient to accept the condition, and help the patient to restructure unhelpful thoughts that reduce quality of life factors. For example, Rainer states that when patients view that they are helpless, and make statements about being unable to do anything due to feeling lethargic; cognitive therapy should look at encouraging the patient to increase energy levels and identify dysfunctional thoughts (Arena, 2002). Most importantly, studies provide support that the role of acceptance in chronic health conditions has important implications for quality of life factors and psychological well-being (Van Damme, Crombez, Van Houdenhove, Mariman, and Walter, 2006; Giza-Zwierzchowska, 2005; McCracken and Eccleston, 2005; McCracken, Vowles, Eccleston, 2005; Nicholas and Asghari, 2005; Viane, Crombez, Eccleston, Poppe, Devulder, Van Houdenhove and De Corte, 2003)

Role of treatment preference and acceptance in chronic conditions

Treatment preference and acceptability of treatment is vastly overlooked in a range of clinical disorders. Therefore, although a treatment may be effective, patients have to accept

the treatment as suitable for it to be clinically useful (Morin 2006, Morin, Gaulier, Barry and Kowatch, 1992). Using the Treatment Acceptability Scale (Morin. Gaulier, Barry, and Kowatch, 1992), Gagne and Morin (2001) explored patients' preference when given the choice of behavioural therapy and pharmacotherapy for treating insomnia within an older adult population. They found that that the majority of patients opted for behavioural therapy and that acceptability of treatment related to better outcomes. Due to the lack of studies looking at differing treatments for II, and given the unrelenting nature of the disorder and suggestion of being less responsive to behavioural treatment, it seems reasonable to suggest that psychological therapy should be directed towards helping these patients accept their condition and cope with their chronic condition.

Evidence from research on illness beliefs using the Illness Perception Questionnaire and revised version (Weinman, Petrie, Moss-Morris, and Horne 1996; Moss-Morris, Weinman, Petrie, Horne, Cameron and Buick, 2002) have shown that beliefs and individual perceptions of illness play a role in explaining factors such as adherence, coping and psychological outcomes (Moss-Morris et al 2002). It will therefore be important to look at how individuals with a II differ from adults with PI.

The role of acceptance

The role of acceptance has gradually become an important psychological concept in a range of chronic and unrelenting medical and psychological disorders: Borderline Personality Disorder (Linehan 1993), Psychosis (Bach and Hayes 2002) Pain (Hayes 1999, McCracken and Eccleston 2005, McCracken et al 2005), Chronic Fatigue Syndrome (Van Damme et al 2006), HIV and AIDS (Giza-Zwierzchowska 2005). It seems that acceptance is favoured in situations, which are out with the individual's control. It is felt that

providing individuals with ways of controlling maladaptive thoughts and behaviours is detrimental, as the situation is uncontrollable.

Acceptance can be viewed as an alternative to trying to control the disorder, and acknowledging that the condition may not change. It therefore shifts the individual to move away from focusing on disorder specific aspects of life, to non-disorder aspects of life. Most notably, acceptance has been receiving attention in the pain literature, and can be useful given its similarity to insomnia to help think about the role of acceptance in adults with II. McCracken and Eccleston (2003) define acceptance as 'halting the dominant search for a definite solution of physical complaint and as a reorientation of attention towards positive everyday activities and other aspects of life'.

McCracken and his colleagues incorporated aspects Acceptance and Commitment Therapy, first pioneered by Hayes (1999) when working with patients with chronic pain. Patients with chronic pain view their disorder as distressing, adapt to pain by living with inflexible behaviour patterns, and associated thoughts, which have been shown to affect quality of life issues. For example a patient experiencing chronic pain, may believe that if they arrange an outing, they will be unlikely to go and will therefore restrict themselves to a lifetime of limited activity.

Research shows that for patients willing to have pain but continue to engage in activities regardless of pain achieve healthier life functioning in quality of life measures. Although McCracken (2003) does not claim that acceptance-based approaches will reduce patients pain, it has been shown to have significant increases in social, physical and psychological functioning, and have higher effect than traditional coping strategies such as 'distraction' and 'distancing' (McCracken et al, McCracken and Eccleston 2005, Viane et al 2003)

Therefore, if one were to draw parallels with insomnia, we would not be looking for a reduction in severity of symptoms, but in being able to accept insomnia as lifelong and reduce energy and distress that is consumed by trying to control insomnia.

Lundh and colleagues are currently researching the role of acceptance and mindfulness in the treatment of insomnia (Lundh, 2005). Lundh specifies that clinicians should explore patients current control strategies and when applicable, explore the futile nature of them. Patients should be encouraged to adopt the attitude that thoughts and behaviours associated with insomnia should not be evaluated as something to get rid of. Most importantly, encouraging patients to realize that insomnia is out with their control and that this must be accepted. It will therefore be interesting to see if the level of acceptance differs between adults with II, and adults with II or if level of acceptance will vary between individuals regardless of onset.

Coping and insomnia

In trying to determine which patients may benefit from an acceptance-based approach, the role of individual coping styles may be interesting. There have been numerous studies looking at coping styles across populations: cancer (Arraras, Wright, Jusue, Tejedor and Calvo, 2002), diabetes (Nadeau, 1995), HIV (Turner-Cobb, Gore-Felton, Marouf, Koopman, Kim, Israelski, and Spiegel (2005). Health psychologists have provided evidence to show that coping styles can potentially affect acceptance, prognosis and quality of life measures.

The following coping styles have been identified in the literature: emotion focused, problem solving, confrontative, distancing, self-controlling, seeking social support, accepting responsibility, escape avoidance, repressive, denial and positive reappraisal.

Previous research has identified that adults with II are more likely to report denial and repressive coping styles (Hauri, 1983).

There has been a recent interest in coping styles of patients with insomnia, and even more recently the issue of different types of coping styles within acute and chronic insomniacs. Ellis and Cropley (2002) examined coping style and attributions between one-hundred and forty-six acute insomniacs, and one-hundred and sixty-two chronic insomniacs and three-hundred and four good sleepers. Their study showed that a 'distraction' coping style acted as a buffer against chronic insomnia. They also explored attitudes to sleep and sleep disrupting behaviours, which can lead to the progression of chronic insomnia in vulnerable patients. Therefore, coping style was identified as a factor for developing chronic insomnia. The literature on sleep and coping indicates that ways of coping may be influenced by how individuals perceive this problem and may influence treatment acceptability

In considering treatment options for patients with childhood insomnia, it is important to appreciate how these patients may differ from individuals that present with PI. Clearly further work on II is required in terms of how they perceive their insomnia, coping styles, and expectations of treatment. Given that patients acceptance of treatment is a powerful predictor of adherence and treatment effectiveness, clinicians must be able to offer patients choice in this decision making process. Finally, given the nature of II, it will be useful to explore if encouraging patients to accept their insomnia and focus on improving quality of life issues would prove to be a popular treatment option.

Aims and Hypothesis

Aims

Although this study is not designed to be a validation study of II, it aims to identify a significant sample of adults with II, and examine if they differ in the way they perceive and view their sleep difficulties when compared to insomniacs with PI and good sleepers. The study will also examine the relation between beliefs and perceptions of insomnia and treatment preference. Finally, this study will explore how these factors relate to treatment choice, acceptability and quality of life issues.

It was expected that participants with II would view their sleep difficulties as more chronic and permanent, and would report less control over their difficulties than participants with PI and good sleepers, and participants with II would be more likely to report 'denial' and 'repressive' coping styles in comparison to participants with PI and good sleepers. It was also expected that participants who viewed their insomnia as chronic and uncontrollable would be more likely to opt for treatment that encourages acceptance of insomnia. Finally, participants reporting higher levels of acceptance will report more satisfaction with their quality of life.

Measures

Sleep screening measures:

Beck's Depression Inventory (BDI)

The BDI is a 21-item questionnaire used to measure self-reported depressive symptoms. It has been widely used to measure depressive symptoms and has been shown to be sensitive and moderately specific in identifying depressive disorders. This measure will therefore be able to identify and exclude participants with severe depressive symptoms.

Beck's Anxiety Inventory (BAI)

The BAI is similar to BDI. It is a 21-item questionnaire that measures the severity of anxiety in adults. This measure will therefore be able to identify and exclude participants with high levels of anxiety.

Pittsburgh Sleep Quality Index (PSQI)

The Pittsburgh Sleep Quality Index PSQI has been selected as it is the most efficient measure of sleep quality and patterns of sleep This score has been shown to discriminate between good and poor sleepers (diagnostic sensitivity of 89.6% and specificity of 86.5%).

Insomnia Severity Index (ISI)

The ISI has been reported to be a reliable and valid instrument for reporting perceived insomnia severity. The ISI is a self-report measure, which asks the rater to state how severe their insomnia is, how much they feel it, the impact it has on their life and how distressed they are by it. Adequate internal consistency of this measure has been reported.

Dysfunctional Beliefs and Attitudes about Sleep Scale (DBAS 16)

Beliefs and attitudes will be measured using the Dysfunctional Beliefs and attitude about Sleep Scale. It contains 16 statements with an analogue scale for the responder to state whether they strongly agree or strongly disagree. This Questionnaire is used to measure the individual's beliefs about the consequences of their insomnia, sleep expectations and level of worry and helplessness associated with sleep.

Sleep diary

Daily sleep diaries will be completed over a 1-week period. This will provide an estimate of sleep efficiency and sleep quality. They will also be used to validate group allocation.

Structured interview

The format of the SIS is a semi-structured questionnaire with specific questions on physical and mental health, medication and alcohol use, and symptoms of other sleep disorders. This requires a degree of clinical judgement and provides an alternative to self-report data.

Assessment measures:

Illness Perception Questionnaire-Revised (IPQ-R)

This will measure differences between people in terms of the control they have and how they cope. This measure provides adequate measures of structural validity, internal reliability, test-retest reliability, discriminate validity and predictive validity. This tool can be adapted to suit particular populations and should therefore yield valid scores on participants with insomnia.

The Brief COPE questionnaire

The Brief Cope Questionnaire has been used in a number of health relevant studies and explores the following: active coping, planning, positive refraining, acceptance, humour, religion, using emotional support, using instrumental support, self-distraction, denial, venting, substance use, behavioural disengagement, and self-blame. This 28-item version of Cope is reported to have psychometric properties consistent with the original 60-item version.

Treatment Acceptability Scale – adapted (TAC)

The Treatment Acceptability Scale provides patients with two treatment methods (behavioural treatment method and pharmacological treatment method). Participants are

then asked if they would consider either of the methods as potential treatment options, and rate the acceptance, willingness, effectiveness and suitability of each treatment. This current measure will be adapted to include a third option 'acceptability'.

Illness Cognition Questionnaire (ICQ)

Validation studies on the ICQ-acceptance subscale have shown that it is a reliable and valid assessment of acceptance of patients with a chronic a disease

The Short Form 36 (SF-36) Health Survey Questionnaire

The SF36 is a quality of life measure, covering the following domains considered to important in quality of life issues: physical functioning, role limitations due to physical health, bodily pain, social functioning, general mental health, role limitations due to emotional health, vitality, general health perceptions.

Design

This study will be a quasi-experimental between-groups design with three groups: Adults with II, Adults with PI and good sleepers (GS). In order for there to be a clear distinction between groups, the II group will be required to have developed insomnia by aged ten and PI group on or following their eighteenth birthday. Group will be the main independent variable. Scores obtained from the Illness Perception Questionnaire-R, the Brief COPE, Treatment Acceptability Scale and Short Form 36 will be dependant variables. Demographic and additional sleep data for participants will be collated and statistical analysis will determine if groups differ in terms of age, gender, insomnia severity

Participants

Participants will be age 18 years and over and will have responded to an advertisement looking for good sleepers (GS), adults with II and adults with PI.

Inclusion and exclusion criteria

Both the II group and the PI group will meet criteria for insomnia as defined by ICSD-2 diagnostic criteria for insomnia. The NS group will meet criteria in accordance with research diagnostic criteria for good sleepers (Edinger, 2004). Data obtained from sleep diaries will support group allocation.

Participants will be excluded from the study if a) there is presence of other sleep disorders such as narcolepsy, sleep apnea, restless legs syndrome, circadian sleep disorders or parasomnias b) participants show evidence of mood disorders or substance abuse c) if participant was receiving psychotherapy d) experiencing a somatic disorder that is influencing sleep. This information will be obtained from screening measures and clinical interview.

Firstly, participants will be invited to contact the researcher by e-mail / telephone if they wish to participate in the study. The researcher will then provide further information regarding the study and a Participants Information Sheet will be dispatched. If participants are still interested in participating, they will be invited to meet the researcher to complete a set of questionnaires and participate in a brief semi-structured interview. Participants will also be asked to complete a 7-day sleep diary prior to meeting. Individuals not meeting the criteria will be fully debriefed regarding the aims and objectives of the study and will be offered a copy of 'The Good Sleep Guide' a leaflet providing advice on improving

sleep hygiene prepared by professor Colin Espie and recommended by the British Sleep Society.

Recruitment Procedures

Participants will be recruited via media recruitment. This will include posters advertisements and online recruitment via sleep forums. Previous sleep studies have yielded large sample using this method of recruitment.

Research procedures

Following initial telephone procedure and allocation, participants will be invited to the University of Glasgow Sleep Centre at the Sackler Institute of Psychobiological Research, to meet with the researcher. Participants will be sent a sleep diary that will be completed for a 1-week period. Participants will be given a brief written summary of the aims and objectives of the study and will complete a consent form if they wish to participate and will be advised that they can opt out of the study at any time and encouraged to ask questions. They will then be asked to complete a series of questionnaires. Prior to participants departing, they will be fully debriefed about the hypothesis behind the study and will be asked if they wish to receive feedback regarding the findings of the study. Participants complaining of poor sleep will be provided with a copy of 'The Good Sleep Guide' Espie. Data will then be coded and analyzed using the Statistical Package for the Social Sciences (SPSS).

Justification of Sample Size

Taking pervious studies into account, it was calculated that the present study would require thirty participants in each group to detect significant differences between groups if they

existed. According to Cohen (1992), this size of sample size should typically produce a large effect size on a t-test and ANOVA.

Settings and Equipment

Access to e-mail and telephone will be required for recruitment purposes. Glasgow University and the Sleep Research Laboratory at the Sackler Institute will provide suitable rooms for conducting interviews with participants and for participants to complete questionnaires.

Data Analysis

Demographic data will initially be analyzed to check if groups differ in terms of demographic variables, and severity. Mean scores, standard deviations, internal consistency will be reported. In the event that there are between group differences the relationship between the variable and the outcome measures will then be examined. If this relationship is found to be significant then it will be considered as a covariate in analysis. All data will be checked to ensure suitability for parametric testing. One-way ANOVA will be used to see if there are significant differences between groups in terms of illness perception, and insomnia related thoughts and treatment preference. An ANOVA will be performed to explore treatment preference. A correlation analysis will explore the relation between quality of life and level of acceptance.

Health and Safety Issues

Researcher Safety Issues

The study will adhere to the following procedures to ensure that there are no risks to the researcher in conducting this study. Firstly, an email account will be set up for the sole

purpose of recruitment, ensuring that participants do not have access to personal information about the researcher. The researcher will meet participants in a secure building, and the researcher will ensure that this will be at a time when colleagues are present.

Participant Safety Issues

Participant will be fully briefed on study procedures prior to consent being obtained. Participants will be advised that interviews will take place during the day in a secure and occupied building. Following completions of the study, all identifiable data will be destroyed. For participants identified with insomnia, a copy of 'The Good Sleep Guide' will be provided.

Ethical Issues

Ethical approval will be sought from Greater Glasgow Primary Care Trust Ethics Committee.

Financial Issues

TBA

Timetable

Ethical approval will be sought:	September 2007
Recruitment:	November 2008 - May 2008
Write up:	June 2008 – August 2008

Practical Applications

Despite differences in presentation, patients with insomnia are treated and managed the same way by clinicians. This study will consider how subtypes of insomnia may differ, and how this may affect treatment effectiveness.

Ethical and Management Approval Submissions

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Appendix 2.2
Amendments to Major Research Proposal

The following amendment to the proposal was made following ethical approval:

Title of Major Research Project

Removed;

Title: Does the concept of acceptance have a role to play in managing Childhood Onset Insomnia? A group comparison of beliefs, coping styles and treatment preferences in Childhood Onset Insomnia, Adult Onset Insomnia and Good Sleepers.

Replaced with;

Title: Does 'acceptance' have a role to play in managing Idiopathic Insomnia? A group comparison of beliefs, coping style and treatment acceptance in Idiopathic Insomnia and Psychophysiological Insomnia.

Appendix 2.3

Notes for Contributors to *Journal of Sleep Research* for Major Research project.

Manuscript Style

There are several categories of material:

Commentaries and editorials-

The Editor may invite editorials and commentaries. The Journal will not consider unsolicited editorials or commentaries. Editorials should be approximately 800-1000 words and contain no more than 16 references. The title for an editorial should not exceed 85 characters.

Fast-track Short Papers
These should be approximately 2000 words in length, with a maximum of four figures or tables. Fast-track papers are rapidly reviewed and published.
Regular Research Papers
These are of a more usual length (3000-5000 words), and will preferably be oriented towards basic clinical and non-clinical findings.
Review Papers
These are intended to be well argued, preferably controversial reviews of topical subjects which, it is hoped, will generate debate.
Letters to the Editor
The Editor welcomes succinct correspondence relating to articles published in the journal, and of an academic and interesting nature.

Title Page
This should contain a concise title of the article, a shortened version (no more than 50 characters including spaces) for the running head, names of the authors, their affiliations, and the full postal and e-mail address, fax and telephone number of an author to whom

correspondence can be addressed.
Conflict of interests - disclosure of any personal of financial support and author involvement with organization(s) with financial interest in the subject matter of the paper, or any actual or potential conflict of interest-and if no conflict exist, a statement must be included for each author.

Summary

This should be on a separate page, and less than 250 words. It should be followed by up to six key words.

Main Text

This should start on a separate page, and include an introduction, methods, results and discussion. The suggested points of insertion of figures and tables, etc., should be indicated. Authors should avoid abbreviations (except for those commonly understood), long sentences, and many juxtaposed numbers in sentences.

References

These should be in the Harvard style, i.e. using the names of the authors in alphabetical order (where there are more than two authors, use the first author only, followed by et al.), followed by the year of publication. Unpublished work should only be cited in the text.

Only references genuinely in press should be listed in the reference list.

Examples of References:

Loomis, A. L., Harvey, E. N. and Hobart, G. Cerebral states during sleep as studied by human brain potentials. *J. Exp. Psychol.*, 1937,

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Functions of Sleep. Academic Press, New York, 1979: 1936.

Illustrations
These should be referred to in the text as figures using Arabic numbers, e.g. Fig. 1, Fig. 2, etc., in order of appearance. Each figure should be labelled with its appropriate number.

In the full-text online edition of the journal, figure legends may be truncated in abbreviated links to the full screen version. Therefore, the first 100 characters of any legend should inform the reader of key aspects of the figure.

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Colour figures will be free in case of invited reviews.

Tables

These should include only essential data. Each table must be typewritten on a separate sheet and should be numbered consecutively in Arabic numerals, e.g. Table 1, and given a short caption.

Acknowledgements

These should be brief and must include references to sources of financial and logistical support.

Units

Measurements must be in SI units. Units, Symbols and Abbreviations (Royal Society of Medicine, 1988) is a useful guide.

Appendix 2.4
Ethical Approval letters for Major Research Proposal / Project.

Research Ethics
R&D Directorate
Gartnavel Royal Hospital
1055 Great Western Road
Glasgow G12 0XH
www.nhsggc.org.uk

Date 11 September 2007

Ms Laura Barrie
Trainee Clinical Psychologist
University of Glasgow
Department of Psychological Medicine
Gartnavel Royal Hospital
1055 Great Western Road
G12 0XH

Your Ref
Our Ref
Direct line 0141 211 3824
Fax 0141 211 3814
E-mail Liz.Jamieson@ggc.scot.nhs.uk

Dear Ms Barrie

Full title of study: **Does the concept of acceptance have a role to play in managing Childhood Onset Insomnia? A group comparison of beliefs, coping styles and treatment preferences in Childhood Onset Insomnia, Adult Onset Insomnia and Good Sleepers.**

REC reference number: **07/S0701/85**

The Research Ethics Committee reviewed the above application at the meeting held on 06 September 2007. Thank you for attending to discuss the study.

Ethical opinion

Members of the Committee present gave a favourable ethical opinion of the above research on the basis described in the application form, protocol and supporting documentation subject to the following being confirmed to the Committee Co-ordinator as soon as possible.

- Question A44 - data to be retained for 5 years and not 10 years as shown in application.
- Question A68 - The Researcher is required to inform the participant's GP should any distress arise. If scores indicate a clinical psychiatric disorder then the GP should be advised by the Researcher.

Ethical review of research sites

The favourable opinion applies to the research sites listed on the attached form.

Conditions of approval

The favourable opinion is given provided that you comply with the conditions set out in the attached document. You are advised to study the conditions carefully.

Approved documents

The documents reviewed and approved at the meeting were:

Document	*Version*	*Date*
Application		17 August 2007
Investigator CV	Ms Laura Barrie	17 August 2007
Protocol	Version 1	09 August 2007
Covering Letter		
Interview Schedules/Topic Guides	Version 1	17 August 2007
Questionnaire: Initial Contact	Version 1	17 August 2007
Advertisement	Version 1	17 August 2007
Participant Information Sheet	Version 1	17 August 2007
Participant Consent Form	Version 1	17 August 2007
Supervisor's CV	Prof Colin Espie	
Treatment Acceptability Scale	Version 1	17 August 2007
Sleep Diary	Version 1	17 August 2007

R&D approval

The study should not commence at any NHS site until the local Principal Investigator has obtained final approval from the R&D office for the relevant NHS care organisation.

Membership of the Committee

The members of the Ethics Committee who were present at the meeting are listed on the attached sheet.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

07/S0701/85 **Please quote this number on all correspondence**

With the Committee's best wishes for the success of this project

Yours sincerely

Liz Jamieson
Research Ethics Committee Co-ordinator on behalf of Dr Paul Fleming, Chair
17th January 2008

Ms L Barrie
Trainee Clinical Psychologist
University of Glasgow
Section of Psychological Medicine
Gartnavel Royal Hospital
1055 Great Western Road
G12 OXH

Dear Ms Barrie

ETHICS COMMITTEE MINUTES – 10TH JANUARY 2008

I append for your information the following minute extract(s) from the minutes of the above meeting:

677 REQUEST TO RECRUIT PARTICIPANT AT STRATHCLYDE UNIVERSITY

The Committee considered a request from a researcher employed by Greater Glasgow and Clyde NHS who had sought permission to recruit participants at the University. It was noted that this investigation had been approved by an NHS Research Ethics Committee and had R&D management approval from the NHS. The Committee **agreed** that the researcher be permitted to recruit potential participants at the University of Strathclyde.

On behalf of the Committee I wish you every success with your project.

Yours sincerely

Mrs Gwen McArthur
Head of Court Office

cc. ***Ms Z Wilson, Finance Office***
Ms L McKean, Contracts Manager, Research & Innovation

Ms Laura Barrie
Psychological Medicine
Academic Centre
Gartnavel Royal Hospital
1055 Great Western Road
Glasgow G12 0XH

18 October 2008

Dear Ms Barrie

Medical Faculty Ethics Committee

Project Title: ***Does the concept of 'acceptance' have a role to play in managing Childhood Onset Insomnia? A group comparison of 'beliefs', 'coping styles' and 'treatment preference' in Childhood Onset Insomnia, Adult Onset Insomnia and Good Sleepers.***

Project No.: ***FM03107***

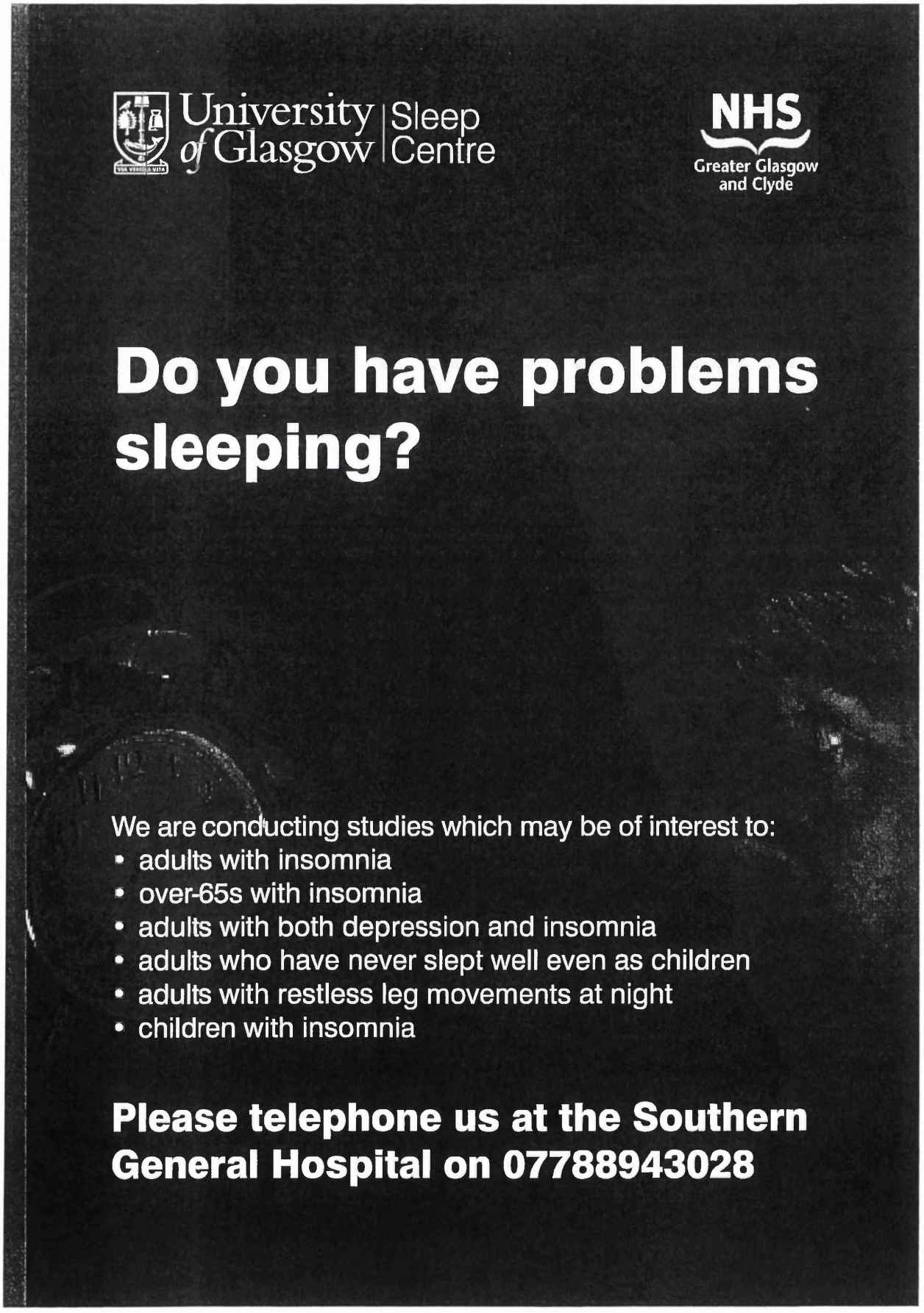
The Faculty Ethics Committee has reviewed your application and has agreed that there is no objection on ethical grounds to the proposed study. They are happy therefore to approve the project, subject to the following conditions:

- The research should be carried out only on the sites, and/or with the groups defined in the application.
- Any proposed changes in the protocol should be submitted for reassessment, except when it is necessary to change the protocol to eliminate hazard to the subjects or where the change involves only the administrative aspects of the project. The Ethics Committee should be informed of any such changes.
- If the study does not start within three years of the date of this letter, the project should be resubmitted.
- You should submit a short end of study report to the Ethics Committee within 3 months of completion.

Yours sincerely

Dr Anne Marie McNicol
Faculty Ethics Officer

Appendix 2.5
Recruitment Poster for Major Research



Headed paper

Appendix 2.6
Participant Information Sheet for Major Research Project

Adult Onset Insomnia and Childhood Onset Insomnia

Researcher: Laura Barrie, Trainee Clinical Psychologist, Section of Psychological Medicine, University of Glasgow

You are being invited to take part in a research study. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

What is the purpose of the study?

Sleep difficulties are a common problem. At least one in ten adults has a problem getting to sleep or staying asleep. Adults can develop insomnia in childhood or adulthood, and as a result are likely to differ in the way they perceive and cope with their insomnia. In addition, treatment expectations and treatment preference may differ. Despite differences in presentation, patients with insomnia are treated and managed the same way by clinicians. It is hoped that the findings from this study will contribute to more effective treatments for sleep problems being developed in the future.

Why have I been chosen?

You have been given this information sheet because you have either indicated that you are a good sleeper or have been having sleep problems. All together, around 90 people will be studied in this project.

Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part, you will

be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time, and without giving a reason, and any data collected from you will be destroyed.

What will happen to me if I take part?

If you decide to take part, you will be asked to complete a sleep diary for seven days. You will then be asked to take part in a short interview about your experiences of sleep and complete a set of questionnaires relating to sleep. These questionnaires will relate to sleep quality, sleep related beliefs, coping mechanisms, treatment preference and acceptance of your sleep difficulties. There will also be some questions relating to your mental health and drug use.

The interview should last no longer than one hour, and will be held at University of Glasgow Sleep Research Laboratory at the Sackler Institute of Psychobiological Research

Will my taking part in this study be kept confidential?

All information, which is collected, about you during the course of the research will be kept strictly confidential. Any information about you, which leaves the hospital, will have your name and address removed so that you cannot be recognised from it.

What will happen to the results of the research study?

It is intended that they will be used as part of the principal researcher's Doctorate in Clinical Psychology, and will also be submitted for publication in a scientific journal. If published, you will be able to obtain a copy of this from the researcher. You will not be identified in any publication.

Is there someone I can contact to seek independent advice about participating in this study?

Participants can contact Brian Rae - Research Manager at Greater Glasgow and Clyde NHS Research & Development office. Tel: 0141 232 9523

Contact for Further Information

Please contact *Laura Barrie* at the University of Glasgow Sleep Centre.
Tel: 077889430028.

Headed Paper

Appendix 2.7

Consent Form for Major Research Project

Consent form

Title of project: Does the concept of 'acceptance' have a role to play in managing Childhood Onset Insomnia? A group comparison of 'beliefs' 'coping style' and 'treatment preference' in Childhood Onset Insomnia, Adult Onset Insomnia and Good Sleepers.

'Differences between Adult Onset Insomnia and Childhood Onset Insomnia'

Name of Researcher: Ms Laura Barrie

Please initial box

I confirm that I have read and understand the Participant Information Sheet for the above study, and have had sufficient opportunity to ask questions. ☐

I understand that the participation is voluntary and that I am free to withdraw at any time, without giving a reason, and that all data relating to my participation will be destroyed. ☐

I agree to take part in the above named study. ☐

Participant Name .....

Signature .....

Date .....

Researcher .....

Signature .....

Date .....

Appendix 2.8
Questionnaires for Major Research Project

1. Insomnia Perception Questionnaire-Revised.
2. Insomnia Cognition Questionnaire.
3. Brief Cope.
4. Treatment Acceptability Scale.

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Illness Perception Questionnaire

Your views about your insomnia

Listed below are a number of symptoms that you may or may not have experienced since your insomnia. Please indicate by circling *Yes* or *No*, whether you have experienced any of these symptoms since your insomnia, and whether you believe that these symptoms are related to your insomnia.

	I have experienced this Symptom *since my insomnia*		This symptom is *related to my insomnia*	
Pain	Yes	No	Yes	No
Sore Throat	Yes	No	Yes	No
Nausea	Yes	No	Yes	No
Breathlessness	Yes	No	Yes	No
Weight Loss	Yes	No	Yes	No
Fatigue	Yes	No	Yes	No
Stiff Joints	Yes	No	Yes	No
Sore Eyes	Yes	No	Yes	No
Wheeziness	Yes	No	Yes	No
Upset Stomach	Yes	No	Yes	No
Sleep Difficulties	Yes	No	Yes	No
Dizziness	Yes	No	Yes	No
Loss of strength	Yes	No	Yes	No

We are interested in your own current views of how you see your current insomnia.

Please indicate how much you agree with the following statements about your insomnia by ticking the appropriate box.

	VIEWS ABOUT YOUR INSOMNIA	*STRONGLY DISAGREE*	*DISAGREE*	*NEITHER AGREE NOR DISAGREE*	*AGREE*	*STRONGLY AGREE*
IP1	*My insomnia will last a short time*					
IP2	*My insomnia is likely to be permanent rather than temporary*					
IP3	*My insomnia will last for a long time*					
IP4	*My insomnia will pass quickly*					
IP5	*I expect to have this insomnia for the rest of my life*					
IP6	*My insomnia is a serious condition*					
IP7	*My insomnia has major consequences on my life*					
IP8	*My insomnia does not have much effect on my life*					
IP9	*My insomnia strongly affects the way others see me*					
IP10	*My insomnia has serious financial consequences*					
IP11	*My insomnia causes difficulties for those who are close to me*					
IP12	*There is a lot which I can do to control my*					

	symptoms					
IP13	*What I do can determine whether my insomnia gets better or worse*					
IP14	*The course of my insomnia depends on me*					
IP15	*Nothing I do will affect my insomnia*					
IP16	*I have the power to influence my insomnia*					
IP17	*My actions will have no affect on the outcome of my insomnia*					
IP18	*My insomnia will improve in time*					
IP19	*There is very little that can be done to improve my insomnia*					
IP20	*My treatment will be effective in curing my insomnia*					
IP21	*The negative effect of my insomnia can be prevented (avoided) by my treatment*					
IP22	*My treatment can control my insomnia*					
IP23	*There is nothing which can help my condition*					
IP24	*The symptoms of my condition are puzzling to me*					
IP25	*My insomnia is a mystery to me*					

IP26	*I don't understand my insomnia*					
IP27	*My insomnia doesn't make any sense to me*					
IP28	*I have a clear picture or understanding of my condition*					
IP29	*The symptoms of my insomnia change a great deal from day to day*					
IP30	*My symptoms come and go in cycles*					
IP31	*My insomnia is very unpredictable*					
IP32	*I go through cycles in which my insomnia gets better and worse*					
IP33	*I get depressed when I think about my insomnia*					
IP34	*When I think about my insomnia I get upset*					
IP35	*My insomnia makes me feel angry*					
IP36	*My insomnia does not worry me*					
IP37	*Having this insomnia makes me feel anxious*					
IP38	*My insomnia makes me feel afraid*					

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INSOMNIA COGNITION QUESTIONNAIRE

Agree 1 2 3 Disagree 4

1	Because of my insomnia, I miss the things I like to do the most.	1	2	3	4
2	I can handle the problems related to my insomnia.				
3	I have learned to live with my insomnia.				
4	Dealing with my insomnia has made me a stronger person.				
5	My insomnia controls my life.				
6	I have learned a great deal from my insomnia.				
7	My insomnia makes me useless at times.				
8	My insomnia has made life more precious to me.				
9	My insomnia prevents me from doing what I would really like to do.				
10	I have learned to accept my limitation imposed my by insomnia.				
11	Looking back, I can see that my insomnia has also brought about some positive changes in my life.				
12	My insomnia limits me in everything that is important to me.				
13	I can accept my insomnia well.				
14	I think I can handle the problems related to my insomnia, even if the insomnia gets worse.				
15	My insomnia frequently makes me feel helpless				
16	My insomnia has helped me realise what's important in life				
17	I can cope effectively with my insomnia.				
18	My insomnia has taught me to enjoy the moment alone.				

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BRIEF COPE

INSTRUCTIONS: We are interested in how people respond when they confront difficult or stressful events in their lives. There are lots of ways to try to deal with stress. This questionnaire asks you to indicate what you generally do and feel, when *you* experience stressful events. Obviously, different events bring out somewhat different responses, but think about what you *usually* do when you are under a lot of stress.

Then respond to each of the following items by blackening one number on your answer sheet for each, using the response choices listed just below. Please try to respond to each item *separately in your mind from each other item*. Choose your answers thoughtfully, and make your answers as true FOR YOU as you can. Please answer *every* item. There are no "right" or "wrong" answers, so choose the most accurate answer for YOU - not what you think "most people" would say or do. Indicate what YOU usually do when YOU experience a stressful event.

1	2	3	4
I usually don't do this at all	**I usually do this a little bit**	**I usually do this a medium amount**	**I usually do this a lot**

1.	I've been concentrating my efforts on doing something about the situation I'm in.	**1**	**2**	**3**	**4**
2.	I've been trying to come up with a strategy about what to do.	**1**	**2**	**3**	**4**
3.	I've been trying to see it in a different light, to make it seem more positive.	**1**	**2**	**3**	**4**
4.	I've been accepting the reality of the fact that it has happened.	**1**	**2**	**3**	**4**
5.	I've been making jokes about it.	**1**	**2**	**3**	**4**
6.	I've been trying to find comfort in my religion or spiritual beliefs.	**1**	**2**	**3**	**4**
7.	I've been getting emotional support from others.	**1**	**2**	**3**	**4**
8.	I've been trying to get advice or help from other people about what to do.	**1**	**2**	**3**	**4**
9.	I've been turning to work or other activities to take my mind off things.	**1**	**2**	**3**	**4**
10.	I've been saying to myself "this isn't real."	**1**	**2**	**3**	**4**
11.	I've been saying things to let my unpleasant feelings escape.	**1**	**2**	**3**	**4**
12.	I've been using alcohol or other drugs to make myself feel better..	**1**	**2**	**3**	**4**
13.	I've been giving up trying to deal with it.	**1**	**2**	**3**	**4**
14.	I've been criticizing myself.	**1**	**2**	**3**	**4**
15.	I've been learning to live with it.	**1**	**2**	**3**	**4**

16.	I've been taking action to try to make the situation better.	**1**	**2**	**3**	**4**
17.	I've been thinking hard about what steps to take.	**1**	**2**	**3**	**4**
18.	I've been looking for something good in what is happening.	**1**	**2**	**3**	**4**
19.	I've been making fun of the situation.	**1**	**2**	**3**	**4**
20.	I've been praying or meditating.	**1**	**2**	**3**	**4**
21.	I've been getting comfort and understanding from someone.	**1**	**2**	**3**	**4**
22.	I've been getting help and advice from other people.	**1**	**2**	**3**	**4**
23.	I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.	**1**	**2**	**3**	**4**
24.	I've been refusing to believe that it has happened.	**2**	**3**	**4**	**4**
25.	I've been expressing my negative feelings.	**1**	**2**	**3**	**4**
26.	I've been using alcohol or other drugs to help me get through it.	**1**	**2**	**3**	**4**
27.	I've been giving up the attempt to cope.	**1**	**2**	**3**	**4**
28.	I've been blaming myself for things that happened.	**1**	**2**	**3**	**4**

Treatment Acceptability Scale

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NHS Greater Glasgow and Clyde

Options that may be considered for sleep problems are described below. Please read the description of each option and answer each question as it would apply to your sleep problem. For each question, circle the number that you feel most appropriately represents your views. If you do not experience sleep problems, please circle the number which you feel would apply if you did have difficulties.

Example: I usually have trouble falling asleep

1 2 3 4 5 6
Not at all Very much

Option 1: Behavioural treatment
This is a nondrug treatment method aimed at teaching individuals with a set of skills to help overcome their sleep problem. It provides specific guidelines for changing poor sleep habits and for regulating sleep schedules. Education about sleep hygiene factors (e.g. bedroom environment) is also provided.

1. How acceptable would you consider this method for your sleep problem?

1 2 3 4 5 6
Not at all acceptable Very acceptable

2. How acceptable would you consider this method for other people with sleep problems?

1 2 3 4 5 6
Not at all acceptable Very acceptable

3. How willing would you be to adhere to this method if recommended for your sleep problem?

1 2 3 4 5 6
Not at all willing Very willing

4. How suitable do you think this method would be for:
(A) difficulty falling asleep at bedtime?

1	2	3	4	5	6
Not at all suitable					Very suitable

(B) Difficulty staying asleep during the night?

1	2	3	4	5	6
Not at all suitable					Very suitable

5. How effective do you believe this treatment would be in the short term?

1	2	3	4	5	6
Not at all effective					Very effective

6. How effective do you believe do you believe this method would be for producing a permanent cure?

1	2	3	4	5	6
Not at all effective					Very effective

7. In addition to improving sleep, how effective would this method be for improving other aspects of your daytime functioning (e.g. alertness, performance, behaviour)?

1	2	3	4	5	6
Not at all effective					Very effective

8. To what extent would this method produce side-effects?

1	2	3	4	5	6
Very strong Side effects					No side effect

Option 2: Pharmacological treatment
This drug treatment consists of taking a prescribed pill at a specified time. The prescribed medication is a naturally occurring hormone which is essential for sleep. The specific dosage would be based on the nature and severity of your sleep problem.

1. How acceptable would you consider this method for your sleep problem?

1 2 3 4 5 6
Not at all acceptable Very acceptable

2. How acceptable would you consider this method for other people with sleep problems?

1 2 3 4 5 6
Not at all acceptable Very acceptable

3. How willing would you be to adhere to this method if recommended for your sleep problem?

1 2 3 4 5 6
Not at all willing Very willing

4. How suitable do you think this method would be for:
a. difficulty falling asleep at bedtime?

1 2 3 4 5 6
Not at all suitable Very suitable

b. Difficulty staying asleep during the night?

1 2 3 4 5 6
Not at all suitable Very suitable

5. How effective do you believe this treatment would be in the short term?

1 2 3 4 5 6
Not at all effective Very effective

6. How effective do you believe do you believe this method would be for producing a permanent cure?

1	2	3	4	5	6
Not at all effective					Very effective

7. In addition to improving sleep, how effective would this method be for improving other aspects of your daytime functioning (e.g. alertness, performance, behaviour)?

1	2	3	4	5	6
Not at all effective					Very effective

8. To what extent would this method produce side-effects?

1	2	3	4	5	6
Very strong Side effects					No side effects

Option 3: acceptance treatment
This is a nondrug treatment method aimed at encouraging acceptance of insomnia. It is designed to develop strategies for overcoming the impact that insomnia has on your life (e.g. engaging in increased activity, reducing distress caused by insomnia associated thinking).

1. How acceptable would you consider this method for your sleep problem?

1	2	3	4	5	6
Not at all acceptable					Very acceptable

2. How acceptable would you consider this method for other people with sleep problems?

1	2	3	4	5	6
Not at all acceptable					Very acceptable

3. How willing would you be to adhere to this method if recommended for your sleep problem?

1	2	3	4	5	6
Not at all willing					Very willing

4. How suitable do you think this method would be for:
   a. difficulty falling asleep at bedtime?

1	2	3	4	5	6
Not at all suitable					Very suitable

   b. Difficulty staying asleep during the night?

1	2	3	4	5	6
Not at all suitable					Very suitable

5. How effective do you believe this treatment would be in the short term?

1	2	3	4	5	6
Not at all effective					Very effective

6. How effective do you believe do you believe this method would be for producing a permanent cure?

1	2	3	4	5	6
Not at all effective					Very effective

7. In addition to improving sleep, how effective would this method be for improving other aspects of your daytime functioning (e.g. alertness, performance, behaviour)?

1	2	3	4	5	6
Not at all effective					Very effective

8. To what extent would this method produce side-effects?

1	2	3	4	5	6
Very strong Side effects					No side effects

Appendix 2.9
Analysis of covariance (ANCOVA) with age as a covariate for Major Research Project.

Between-Subjects Factors

		Value Label	N
Group	0	Normal sleeper	31
	1	PI	31
	2	II	30

Tests of Between-Subjects Effects

Dependent Variable: SF-36 v.2 physical scale

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	3320.235[a]	3	1106.745	7.096	.000
Intercept	27423.531	1	27423.531	175.832	.000
ageSQRT	595.867	1	595.867	3.821	.054
Group	1925.610	2	962.805	6.173	.003
Error	13724.854	88	155.964		
Total	649449.820	92			
Corrected Total	17045.090	91			

a. R Squared = .195 (Adjusted R Squared = .167)

Tests of Between-Subjects Effects

Dependent Variable: SF-36 v.2 mental scale

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	6421.833[a]	3	2140.611	9.093	.000
Intercept	7515.399	1	7515.399	31.925	.000
ageSQRT	1119.417	1	1119.417	4.755	.032
Group	6222.493	2	3111.246	13.216	.000
Error	20716.151	88	235.411		
Total	479026.557	92			
Corrected Total	27137.984	91			

a. R Squared = .237 (Adjusted R Squared = .211)

Tests of Between-Subjects Effects

Dependent Variable: BriefCope_Planning

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	5.776[a]	3	1.925	.666	.575
Intercept	54.337	1	54.337	18.804	.000
ageSQRT	2.658	1	2.658	.920	.340
Group	4.276	2	2.138	.740	.480
Error	231.176	80	2.890		
Total	2800.000	84			
Corrected Total	236.952	83			

a. R Squared = .024 (Adjusted R Squared = -.012)

Tests of Between-Subjects Effects

Dependent Variable: BriefCope_Positive Reframing

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	11.116[a]	3	3.705	1.199	.316
Intercept	49.773	1	49.773	16.101	.000
ageSQRT	1.534	1	1.534	.496	.483
Group	10.741	2	5.371	1.737	.183
Error	247.301	80	3.091		
Total	2429.000	84			
Corrected Total	258.417	83			

a. R Squared = .043 (Adjusted R Squared = .007)

Tests of Between-Subjects Effects

Dependent Variable: BriefCope_Positive Reframing

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	11.116[a]	3	3.705	1.199	.316
Intercept	49.773	1	49.773	16.101	.000
ageSQRT	1.534	1	1.534	.496	.483
Group	10.741	2	5.371	1.737	.183
Error	247.301	80	3.091		
Total	2429.000	84			
Corrected Total	258.417	83			

a. R Squared = .043 (Adjusted R Squared = .007)

Appendix 2.10
Scale Descriptives for Major Research Project.

Scale	No. items in scale	Cronbach's Alpha (N[a])	Cronbach' Alpha Range
IPQ-R / Timeline acute/chronic	6	0.81(57)	0.74 – 0.84
IPQ-R / Timeline cyclical	4	0.89 (56)	0.82 – 0.89
IPQ-R / Personal control	6	0.76 (57)	0.63 – 0.73
IPQ-R / Treatment control (minus IPQ-R-19)	4	0.68 (55)	0.57 – 0.84
ICQ / Helplessness Subscale	5	0.77 (54)	0.72 – 0.78
ICQ / Acceptance Subscale	6	0.81 (57)	0.74 – 0.82
TAS / Acceptance subscale	8	0.92 (58)	0.90 – 0.93
TAS / Behavioural subscale	8	0.88 (58)	0.84 – 0.88
TAS / Pharmacological subscale	8	0.82 (58)	0.77 – 0.84
SF36 / Physical Health Scale	4	0.75 (92)	0.66 – 0.73
SF36 / Mental Health Scale	4	0.82 (92)	0.76 - 0.80

[a]Numbers vary as individual scales are missing for some participants.

Abbreviations:
IPQ-R, Illness Perception Questionnaire – Revised; ICQ, Illness Cognition Questionnaire; TAS, Treatment Acceptability Scale.