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Combining Mindfulness and Implementation-Intentions to Control Experimentally-Induced Anger

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Declaration Page

I declare that this work has not been submitted for any other degree or to any other institution.

Structure and Word Counts

Structure:

This thesis has been prepared in line with the following journal guidance:

Literature Review: Behavior Modification

Research Report: Cognition and Emotion

Copies of the guidance for authors from the above journals are included in the appendices.

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Abstract

Mindfulness is a technique that is being developed to promote positive wellbeing and reduce anger and aggression across a range of client groups. There is a paucity of literature considering the direct impact of mindfulness on anger, however there is a small body of research considering how mindfulness can influence the behaviour of people with learning disabilities, including reducing outward expressions of anger such as aggression, self harm and property damage. This literature is reviewed to consider the scientific robustness of mindfulness as a technique to influence behaviour. The review outlines the generalisability, replicability, validity and reliability of measures, methodological design and the clinical and academic impact of the findings. A number of strengths and limitations were identified and outlined, with suggestions for future research.

This study begins to address the gap in the literature around using mindfulness to manage anger. The research considers whether mindfulness can be integrated into an implementation intention (or "if-then" plan) to reduce experimentally-induced anger in 96 students and staff members at the University of Sheffield. The results showed that although the anger induction was effective in terms of increasing self-reported anger, it was not powerful enough to influence the physiological and implicit anger measures taken. In addition, participants exposed to the mindful implementation intention were not significantly less angry than participants in the other anger conditions. The limitations of this study are outlined and recommendations for future research using mindful implementation intentions are made.

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Part 1: Literature Review

Does Mindfulness Influence the Behaviour of People with Intellectual Disabilities?

Sarah Harper

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Abstract

A number of studies have used mindfulness-based interventions to influence the behaviour of people with intellectual disabilities, to improve their quality of life and reduce difficult behaviours. Fifteen studies are reviewed here in terms of their scientific robustness including generalisability, replicability, validity and reliability of measures, methodological design and the clinical and academic impact of the findings. A number of strengths were identified, including replicable methodological approaches, use of multiple baseline designs, strong construct and criterion validity (especially within the studies assessing mindfulness as a stand-alone intervention) and in-depth consideration of the underlying mechanisms that link mindfulness and behavioural change. A number of limitations were highlighted, including a lack of randomised controlled trials, inclusion of qualitative data without structured analysis, limited use of statistical analyses, difficulties generalising findings, limited information on the internal consistency and test-retest reliability of measures used, a paucity of research considering the impact of 'Dialectical Behaviour Therapy' and 'Acceptance and Commitment Therapy' and the influence of mindfulness within these approaches to affect behavioural change.

Introduction

This review considers the efficacy of using mindfulness to influence the behaviour of participants with intellectual disabilities (hereafter referred to as ID). The research includes mindfulness used as a stand-alone intervention or incorporated into other psychological approaches, such as Acceptance and Commitment Therapy (Hayes, Strosahl & Wilson, 1999) and Dialectical Behaviour Therapy (Linehan, 1993).

Mindfulness is defined by Martin (1997, pp. 291-292) as "a state of psychological freedom that occurs when attention remains quiet and limber, without attachment to any particular point of view". Originating from Buddhism, mindfulness enables people to regulate their attention to focus on the present moment and orient towards one's own experiences in the present moment, with acceptance, curiosity and openness (Bishop et al.., 2004). Mindfulness was identified as a method of promoting mental wellbeing and ameliorating psychological distress by Kabat-Zinn (1982) who used a mindfulness-based program to manage chronic pain. It has been successfully adapted to support people with a range of clinical issues including managing anger (Wright, Day & Howells, 2009), reducing substance misuse (Bowen et al., 2006), reducing stress, depression and anxiety (Speca, Carlson, Goodey & Angen, 2000) and improving psychological wellbeing (Chambers & Allen, 2005).

Reiss (2000) identified ways in which mindfulness might benefit the ID population. These included developing a mindful, curious and open approach towards people with ID promoting individuality rather than labelling and stigmatising people. There have also been a number of recent studies considering the efficacy of mindfulness to promote positive behaviour change and improve the quality of life of people with ID. These studies are the focus of this review.

Previous strategies used to promote positive behaviour change and reduce challenging behaviour in this population include psychopharmacological approaches (King, 2002). Such approaches have involved the use of neuroleptic or anticonvulsant drugs to reduce challenging behaviours such as aggression and self-injurious behaviour. However, there are concerns around using pharmacological approaches alone. These include medication being used in place of more labour-intensive behavioural techniques or prescribing medication to control behaviour without a clear rationale (Matson, Bielecki, Mayville & Matson, 2003).

Behavioural approaches have also been utilised to reduce challenging behaviours and promote positive behaviours. LaVigne's multi-element model highlights the importance of adapting the environment, providing focused support around challenging behaviour and aiding people with ID to develop new skills (LaVigne & Willis, 1995).

More recently, cognitive behavioural approaches have also been introduced to support individuals with ID and anger management difficulties (Willner, Jones, Tams & Green, 2002). These involve supporting individuals to identify physiological and behavioural symptoms, develop behavioural and cognitive coping strategies and learn assertiveness skills. This then enables individuals to both manage anger-inducing situations and to defuse their anger. Singh (2007a) recognised that the majority of such cognitive interventions involved utilising multi-component approaches. They therefore considered introducing mindfulness as an alternative single-component approach.

In addition, Hayes (2004) outlined an emerging 'third wave' of behavioural and cognitive approaches that built on the first and second 'waves' of behavioural change and cognitive and social change. This 'third wave' introduced a more experiential approach and emphasised factors such as openness, acceptance and spirituality. Such 'Third wave' approaches include Acceptance and Commitment Therapy (Hayes, Strosahl & Wilson, 1999) that focuses on how clients can perpetuate their difficulties through their own language and

understanding and utilises mindful principles to support people to accept themselves and let go of thoughts that have previously hindered progress. Dialectical Behaviour Therapy (Linehan, 1993) is another 'third wave' approach that enables people with a diagnosis of Borderline Personality Disorder to develop effective behavioural coping skills including mindfulness, emotion regulation, distress tolerance and interpersonal effectiveness. Both of these approaches include mindfulness as a key component and both have been used with people with ID (Brown & Hooper, 2009; Lew, Matta, Tripp-Tebo & Watts, 2009).

Method

Relevant literature was identified by searching three online databases: Web of Knowledge, Ovid and Pubmed (February, 2010). The following search criteria were inputted into each of the online databases, as topic and keyword searches using combinations of the following search terms, 'Intellect* disab*', 'learning disab*, 'developmental disab*', 'autis*', 'retard*', 'asperg*', 'mindful*' 'acceptance and commitment', 'dialectical behaviour'. Through using Web of Knowledge, 31 papers were found. Using Ovid, 43 papers were found and using Pubmed (Medline) 12 papers were found (Appendix 1).

These studies were considered using the following inclusion criteria; Studies should include an intervention designed to influence the behaviour of people with ID. The dependent variables within the studies should be associated with hypothesised changes to participant behaviour. Literature reviews and presentation of models are excluded. This narrowed the number of relevant papers down to ten.

Each paper's bibliography was considered and a further nine papers were identified. One of these was considered suitable for inclusion. In addition, the names of the authors of these papers were entered into Web of Science and related and cited papers were searched. This search strategy did not highlight any further papers.

An abstract detailing relevant research was found through the original research strategy (Verhoeven, 2006). The author was contacted in order to ask if a copy of her research could be obtained. Although this research was not yet completed, the author sent a list of the references she had used. This led to three further relevant articles being found. The table overleaf summarises the key characteristics of the fifteen studies included in the present review.

Article	Design	Sample	DV	Control	Analysis	Sampling	Results
Esbenson & Benson (2003)	ABA design	1 x 26 year old Caucasian female, diagnosed with mild ID borderline personality disorder and schizo-affective disorder.	Frequency of difficult behaviours including: self-injury, property destruction, barricading self in room, running away.	No	Table of frequency (vertical axis) and months (horizontal axis). Large portion missing.	Convenience	Reduction in target behaviours, but not sufficient to avoid stage 3 crises which involved self harm, barricading self in room and requesting calls to emergency services.
Singh, Wahler, Adkins & Myers (2003)	Case study	1 x 27 yr old male with mild ID and mental illness.	Frequency of aggressive incidents, physical restraints, staff/resident injuries, use of PRN medication, socially and physically integrated activities in community.	No	Means compared in terms of history and at baseline, intervention and follow up.	Convenience	Increased self-control 6 months aggression-free behaviour. Increased social and physical activities. No aggressive behaviour in one year follow up.
Singh et al. (2004)	Multiple baseline	3 x adults with profound ID aged 45-55. 6 caregivers aged 28-44.	Happy expressions in participants	No	Mean levels of happiness at baseline, during training and practice.	Convenience	Increased happy expressions regardless of prior quality of relationship with carer.
Singh et al. (2006a)	Multiple baseline	3 x mother child dyads. Children aged 4-6, mothers 24-33. Children diagnosed with autism.	Aggression, non compliance, self-injury, parenting and interaction satisfaction questionnaires.	No	Means at baseline, during training and during practice.	Convenience	Decreased levels of aggression, non-compliance, self injury. Increased interaction and parenting satisfaction.
Singh et al. (2006a)	Multiple baseline	15 direct care staff supporting 18 participants with sev–prof ID. 3 participants had mental health problems, 11 engaged in aggressive behaviour.	Frequency of staff intervention for aggression, learning objectives performed independently, use of restraints, socially /physically integrated activities, staff work satisfaction, social validation.	No	Means at baseline, during training and during practice.	Convenience	Decreased staff interventions, increase in learning objectives mastered, improvements on other measures, increased consistent gains made.
Singh et al. (2007a)	Multiple baseline	3 x participants with moderate ID at risk of losing placement. Aged 27, 39, 43	Frequency of aggressive behaviour.	No	Compared means within individuals at baseline, during and at follow-up	Convenience	Decreased aggressive behaviour. Participants maintained placements for at least 2 years.
Singh et al. (2007b)	Multiple baseline	4 x mother child dyads. Children had ID and aged 4-6. Mothers aged 23-31.	Frequency of aggression and positive/negative/neutral social interactions. Parenting and interaction satisfaction questionnaires.	No	Means at baseline, during training and during practice.	Convenience	Decreased aggression. Increased positive interactions. Increased parenting and interaction satisfaction.

Article	Design	Sample	DV	Control	Analysis	Sampling	Results
Beauchemin, Hutchins and Patterson (2008)	Pre post no control	34 adolescent students with ID. 29% female, 71% male. 2 teachers.	Self-report: state trait anxiety inventory, attitudinal questionnaires. Plus social skills rating system (teachers, students, parents rated these). Anecdotal reports.	No	Related sample t-tests.	Convenience	Decreased state and trait anxiety, enhanced social skills, improved academic performance, decreased problem behaviour.
Singh et al. (2008a)	Multiple baseline	6 x male participants with mild ID and offending history. Aged 23-36 yrs, mean: 28.5 yrs.	Frequency of reported incidents, self-control, physical/verbal aggression, PRN, restraints, peer injuries, staff injuries, cost benefit analysis.	No	Average no of incidents of physical and verbal aggression calculated at baseline and mindful training	Convenience	Physical aggression: stopped, verbal reduced. PRN & restraints not used. No injuries. 95.7% decrease in costs to service related to challenging behaviour.
Singh et al. (2008b)	ABCD design	1 x participant with Prader Willi syndrome and mild ID.	Weight loss. Anecdotal reports from family.	No	Mean and range of weight across four stages and 3 year follow-up.	Convenience	Participant lost weight at early stages (exercise/healthy eating) but most consistent sustained change was after mindfulness int.
Singh et al. (2009)	Multiple baseline	23 staff members. 20 participants with moderate-severe ID.	Number of incidents, observations of verbal exchanges (that could lead to aggression) verbal redirections, physical restraints, statutory meds, peer injuries.	No	Means at baseline, during training and during practice.	Convenience	Decreased number of incidents, verbal redirections, injuries restraints and meds. Increased observations of verbal exchanges.
Brown & Hooper (2009)	Case study	1 x 18 yr female with mod-severe ID, anxiety and obsessive thoughts.	Acceptance and action questionnaire. Parental reports re participant positive goals and problem behaviour.	No	Mean AAQ score across items	Convenience	Decreased AAQ score (less avoidant of cognitions, emotions, motives). Positive parental reports
Lew, Matta, Tripp-Tebo & Watts (2009)	Multiple baseline	8 x female participants with mild-mod ID and other issues including Axis I and II disorders and physical issues. Aged between 25-61.	Youth risk behaviour survey looking at specific risk behaviours.	No	Frequency of risky behaviours summed up in terms of improved, worsened or stayed the same as at baseline.	Convenience	Risk behaviours initially increased, but subsequently decreased and remained low at follow up.
Adkins, Singh, Winton, McKeegan & Singh (2010)	Multiple baseline	3 x participants with mild ID. 2 males, 1 female, aged 22, 25, 42.	Different for each participant verbal aggression, work disruption, physical aggression. Other subjective, self-report measures taken.	No	Means and standard deviations at baseline, during training and during practice.	Convenience.	Decreased maladaptive behaviour. Other behaviours also decreased, as evidenced by subjective measures.
Sakdalan, Shaw & Collier (2010)	Pre and post assessment measures	6 participants who have prior charges and/or convictions for violent crimes diagnosed with ID. Five males and one female aged between 23-29.	Measures of risk, strengths, adaptive behaviour (coping skills). In addition, incident reports were collected (but not used as data were compromised).	No	T-tests, though it is not explicitly stated which test was used.	Convenience	Improvements noted across all outcome measures: risk and strength domains significant, adaptive behaviour measure non-significant.

Review

The fifteen studies outlined in Table 1, include studies that have considered mindfulness as a stand-alone intervention and studies using Acceptance and Commitment Therapy (hereafter referred to as ACT) and Dialectical Behaviour Therapy (hereafter referred to as DBT). Within the studies considering mindfulness as a stand-alone intervention, five studies trained the caregivers of people with ID in mindfulness, in order to assess the impact of mindful care-giving on the behaviour of people with ID (e.g. Singh et al., 2006a). Five studies utilised a technique called 'Meditation on the Soles of the Feet' which involved an exercise in which participants focused on the soles of their feet in order to shift their attention and awareness to a neutral part of their body (e.g. Singh et al., 2008a). Four of the studies considered the impact of therapeutic approaches (ACT and DBT) on participants with LD. Nine of the fifteen studies utilised a multiple baseline design and the other six used pre-post designs, case studies, ABA and ABCD designs.

Are the studies considering the effects of mindfulness on behaviour generalisable?

Within this body of research, the sample size ranged from 1 (Singh, Wahler, Adkins & Myers, 2003; Singh et al., 2008b; Brown & Hooper, 2009; Esbensen & Benson, 2003) to 34 (Beauchemin, Hutchins & Patterson, 2008) with a median of 3 participants. Sample sizes were small across most of the studies, limiting generalisability. Twelve of the fifteen studies had a sample size of less than ten participants, limiting the power of the research and increasing the possibility that a significant difference might be found when the null hypothesis is true, thus increasing the chance of type I errors. As these studies do not conduct statistical analyses of their results, this also limits the power of their research and thus the generalisability of their conclusions.

An exception to this is the study by Beauchemin et al. (2008) who considered the impact of mindful meditation on adolescent students with ID. They had the largest sample size of participants (n=34) and conducted statistical analyses using related samples, thus increasing the power of their research. They found statistically significant differences between participants pre and post intervention scores, highlighting positive improvement in terms of social skills and academic performance and a decrease in problematic behaviours. This study was the most powerful of the fifteen studies, therefore these results are the most generalisable across a wider population as there is less risk of a type I error.

Another factor considered is how generalisable the research is in terms of ethnic diversity. There is a paucity of cross-cultural research considering mindfulness and the research that has been done draws mixed conclusions. One cross-cultural study of mindfulness suggests that participants from diverse ethnic minority groups do not respond to mindful treatment of depression and anxiety (Lee, Semple, Rosa & Miller, 2008), although another study outlines that mindfulness has some cross-cultural validity (Ghorbani, Watson & Weathington, 2009) and therefore it is important to consider the application of mindfulness across a number of ethnic groups. Within this body of literature, where ethnicity is highlighted, the participants come from a number of different ethnic backgrounds, including seven Caucasian participants (Esbensen and Benson, 2003; Singh et al., 2007a; Singh et al., 2008a; Adkins, Singh, Winton, McKeegan & Singh, 2010), one African American participant, one non-white Hispanic participant, one white Hispanic participant (Singh et al., 2008a), four New Zealand European participants, one Maori participant and one Pacific Islander (Sakdalan, Shaw & Collier, 2010). The sample size for each ethnic group is limited, making generalisation difficult. Singh et al. (2004) consider the impact of mindful staff training on people with profound ID in terms of their expressions of happiness. They outline the ethnicity of the care staff, but not the ethnicity of the people with ID. Similarly, Singh et al. (2007b) consider the impact of maternal mindfulness on children with ID and outline the ethnicity of the mothers but not the

ethnicity of the children with ID, although this can be partially assumed by the ethnicity of the mother. Nine of the fifteen studies do not outline ethnicity at all, which limits the research base in terms of generalising the results cross-culturally.

The severity of ID within participants is another important factor to consider in terms of generalising results across the ID population. Beauchemin et al. (2008) do not indicate the severity of ID within their participants thus limiting their ability to generalise their results. Singh et al. (2006a) and Singh et al. (2009) consider the impact of mindful staff on the behaviour of people with ID and provide information outlining the level of ID and psychiatric diagnoses. This additional information enables future researchers to assess whether these results can be generalised across a wider ID population. Within these studies, there is gathering evidence that a mindful approach can benefit participants at across the spectrum of ID, including a participant with mild ID and Prader-Willi Syndrome developing a mindful approach to eating (Singh et al., 2008b) and people with profound ID increasing happy expressions through the impact of mindful care-giving (Singh et al., 2004).

Another factor to consider was the experience and training of staff members who developed a mindful approach. Previous research shows that staff training can considerably influence care staff members' ability to communicate effectively (Smidt et al., 2007) and respond to challenging behaviours (Dowey, Hastings, Toogood & Nash, 2007) and therefore in order to ensure generalisability of these results across a broader population, previous staff training should be outlined clearly. Singh et al. (2004) considered the impact of mindful care-giving on happy expressions in participants with profound intellectual disabilities, and they considered staff members' previous training and length of experience. Singh et al. (2006b) and Singh et al. (2007b) researched the impact of mindful parenting and outlined behaviour management and parent training programs that the parents had attended, providing helpful information about parental experience. Singh et al. (2009) outlined that staff who developed a mindful approach were also discouraged

from using restraining techniques to manage participants' aggressive behaviour. This research may therefore generalise less across staff groups who are trained to use restraining techniques. Within the studies mentioned above, all the staff and parents had previously engaged in behavioural management training. Therefore this research may not generalise across staff groups and parents who have not received previous training.

The participants' motivation to actively participate in the mindfulness intervention was also considered. A large body of research highlights the importance of motivation, in terms of engagement, learning and subsequent behavioural changes (Martin, 2008). Within the fifteen studies, Singh et al. (2006b) included mother-child dyads in which the mothers specifically requested mindfulness training to support their autistic children to reduce their challenging behaviour. They had observed positive changes in people who had accessed mindfulness training previously. It also involved regular application of the skills learnt. Another five studies outlined factors that might have increased intrinsic motivation, including a participant with LD living within a psychiatric inpatient unit, who wished to move into the community (Singh et al., 2003), family and client concerns about health risks posed by morbid obesity by a participant with Prader-Willi Syndrome (Singh et al., 2008b), participants being at risk of exclusion from a group home (Singh et al., 2007a), participants being unable to transition to a step-down program preceding community placement (Singh et al., 2008a) and participants being at risk of losing their job, their residential living placement, or their preferred staff and funding for residential treatment (Adkins et al., 2010). Five studies used the mindfulness technique 'Meditation on the Soles of the Feet' which required motivation and discipline in participants. The positive results from these studies suggest that participants with intrinsic motivation to learn mindfulness are likely to successfully develop these skills. The results from these studies, although promising, might not be as successful with less well-motivated participants and families.

The results of Singh et al. (2006b) whose participants had intrinsic motivation to engage were compared with the results found by Lew et al. (2009) who researched the efficacy of DBT on participants' levels of risk and whose participants were externally referred to the DBT program and therefore did not necessarily have strong intrinsic motivation to engage. The results are consistently positive in Singh et al.'s (2006b) study, whereas although there is improvement in Lew et al. (2009) the effects were more limited, in that some risk indicators worsened. Similarly Sakdalan, Shaw and Collier (2010) who considered the impact of DBT on participant levels of risk outlined no external motivators to engage and three participants dropped out of their DBT program. Conversely Beauchemin et al. (2008) did not outline specific motivating factors for their participants and their results were consistently positive and showed a clinically significant difference. It may be that participants engaging in DBT, who have borderline personality disorder as well as ID, find it harder to remain motivated. Nonetheless, the papers by Lew et al. (2009), Sakdalan et al. (2010) and Beauchemin et al. (2008) highlight the impact of mindfulness-based interventions on participants without additional motivators increasing the generalisability of this research.

Are the studies considering the effects of mindfulness on behaviour replicable?

For research to be replicable, consideration needs to be given to the clarity of the methodology and the level of detail provided. Eight of the studies were authored by the same group of researchers from the ONE Research Institute in Virginia, USA and have similar methods, utilising multiple baseline designs and using standardised staff or parent mindfulness courses (delivered across 5 days to 12 weeks) or 'Mindfulness on the Soles of the Feet' training for participants with LD. All these papers outline their intervention clearly in terms of describing the data collection, defining the dependent variables, and detailing the mindfulness intervention, which

ensures that the methodology within these research papers is replicable. There were some differences in terms of the level of detail provided by these studies: Singh et al. (2006a) researched the impact of mindful staff on people with ID's behaviour and Adkins et al. (2010) assessed the impact of brief mindfulness intervention on maladaptive behaviour of people with ID in the community. Neither of these studies outlined the times at which data collection occurred, as the other papers did, limiting how replicable this aspect of their research is. In addition, Singh et al. (2006a) didn't outline any specific instructions for participants moving into the mindful phase of the research, and Adkins et al. (2010) didn't outline any changes that occurred when participants moved into the follow up phase. These minor omissions do limit the research in terms of replicating the methodology. One of the papers (Singh et al., 2008a) replicated Singh et al. (2007a), teaching 'Meditation on the Soles of the Feet' to participants with ID, demonstrating that this methodology can be replicated. The five papers considering mindful care-giving clearly outlined the phases of data collection, the measures they used and the mindfulness training given to participants. This enables future researchers to replicate the methodology effectively, a strength across these five studies.

Reviewing these papers, another important factor to take into consideration in terms of ensuring that the effects are robust and replicable is the clarity and consistency of the intervention. Of the five studies using 'Meditation on the Soles of the Feet'; Singh et al. (2003), Singh et al. (2007a), Singh et al. (2008a) and Singh et al. (2008b) taught this to the participants individually in structured training sessions. They clearly outlined this technique in terms of how it was taught and practiced by participants. Adkins et al. (2010) also clearly outlined the technique, although they took a more individualised approach, adapting the teaching to each participant's needs, which may have limited the consistency of this technique. Singh et al. (2008a) clearly outlined the amendments they made to support their participants' understanding, thus enhancing the clarity of their intervention.

Singh et al. (2007a) adjusted the 'Meditation on the Soles of the Feet' intervention to enable clinical application of this technique to participants with moderate ID by adding in a 'recreating the scene' prompt and using a discriminative stimulus to enable participants to focus on the soles of their feet. Outlining these amendments and ensuring that the participants had clearly understood and learnt the intervention, enhances the replicability both in terms of reproducing the methodology and increasing the likelihood that the positive effects of this study (reduced aggression) can be replicated in other participants with moderate ID. One participant who learnt 'Meditation on the Soles of the Feet' to help him reduce his aggressive behaviour (Singh et al., 2003) had his medication reduced and then discontinued during the course of the intervention. His medication was given to reduce his aggressive behaviour and therefore this change was consistent with the aims of the intervention. This effect is likely to be replicable, as it remained constant, even when another behaviour management strategy was removed.

Singh et al. (2008b) introduced mindfulness to support a man with Prader-Willi syndrome to control his eating. They found that the mindfulness intervention not only reduced the dependent variable (weight) but the participant was also able to generalise the results to other areas of his life including skin-picking and temper tantrums. This suggests that mindfulness is an intervention that once internalised, can be replicated within the client to influence other areas of their life. Singh et al. (2008a) outlined the positive effects of mindfulness on adult offenders with ID in terms of reducing aggressive behaviour. They outlined in their discussion the effects of this study alongside the effects of their previous studies (Singh et al., 2003; Singh et al., 2007a) illustrating how similar effects can be replicated across a range of LD clients from different settings.

Finally, the studies that considered the impact of DBT on participants (Sakdalan et al., 2010; Lew et al., 2009; Esbensen & Benson, 2003) outlined the effects of DBT in terms of reduced suicidal risk. This was the case across all three studies, indicating that this effect of DBT was

replicated across these three studies, lending strength to the possibility that this effect might also be replicated in larger, more powerful studies.

Are the outcome measures used within mindfulness interventions reliable and valid in terms of measuring behavioural change?

Outcome measures used within the studies included objective measures such as behavioural observations by staff members (used by ten of the fifteen studies) and behavioural observations by parents (used by three of the fifteen studies). Singh et al. (2008a) extended their findings to consider the impact of mindfulness in terms of the cost-reduction to the service, directly linked to the reduced levels of aggression.

Five studies used a combination of behavioural observations and additional subjective measures. These included self-report measures rating parental satisfaction (Singh et al., 2006b, 2007b), staff work satisfaction and social validation of staff members (Singh et al., 2006a) risk, strengths and adaptive behaviour (Sakdalan et al., 2010). Finally, Adkins et al. (2010) used self-reports of distress, obsessive compulsive symptoms, depression and anxiety, providing an internal perspective of reduced psychological symptoms.

To consider the reliability of the observational measures, nine studies calculated inter-rater reliability, in order to ensure consistency across the individuals collecting observational data. These studies had a range of 82% to 100% reliability, with an average of 94.5% reliability. Three of the studies using observational measures did not calculate inter-rater reliability, reducing the reliability of these measures (Esbensen & Bensen, 2003; Adkins et al., 2010; Sakdalan et al., 2010). Although Sakdalan et al. (2010) did not calculate inter-rater reliability they do work to prevent response bias,

by not referring to the pre-assessment scores at the post-assessment stage, thus enhancing the reliability of their research.

Some of the studies used subjective data alone to assess the following: anxiety, attitude changes and social skills (Beauchemin et al., 2008); acceptance and avoidance of cognitions (Brown & Hooper, 2009) and measures of risk (Lew et al., 2009). For the subjective measures, test-retest reliability and tests of internal consistency can indicate the reliability of these measures. Of the fifteen studies, one study (Beauchemin et al., 2008) outlined that their measures had 'acceptable' levels of internal consistency and test-retest reliability. None of the other studies outlined the internal consistency or test-retest reliability of their measures, a significant limitation in terms of the reliability of the subjective measures.

Validity of the measures (in terms of effectively measuring behavioural change) was considered in terms of face validity, construct validity, criterion validity and internal validity. The ten studies that used objective measures provided a clear definition of what constituted the dependent variables, enhancing both the face and construct validity. Sakdalan et al. (2010) collected incident reports at baseline and across the intervention period, but did not specify which behaviours led to the completion of incident reports, limiting the face and construct validity of this particular measure.

In terms of studies using subjective measures, the face and construct validity was strong across thirteen of the fifteen studies, with the measures used appropriate to the dependent variables being studied. In particular, Adkins et al. (2010) considered the individual participant's challenging behaviour and used standardised psychometric tools related to the specific difficulties the participants experienced. Brown and Hooper (2009) used a relevant measure, but as it was only administered once, this limited the construct validity in terms of assessing behaviour change. Lew et al. (2009) used a measure that assessed risk, however their use of an adapted youth measure does

limit the face and construct validity, in terms of whether this accurately measures risk in an ID population.

Finally, in terms of considering construct validity, Singh et al. (2006b) and Singh et al. (2009) highlighted a delay between mindfulness interventions and subsequent effects. Singh et al. (2006b) attribute this slow change to the laying down and firming up neural networks. However Singh et al. (2009) acknowledge that this does raise the question as to whether these measured changes can be solely attributed to mindfulness. This delay limits the construct validity in terms of understanding whether the measured changes are due to the intervention or due to another factor that has not been considered.

In terms of criterion validity, a number of the studies combined objective and subjective measures which worked together to enhance the criterion validity. Singh et al. (2007b) included observational measures of the frequency of aggression, positive and negative social interactions. This was supported by subjective measures of parenting satisfaction, interaction satisfaction, perceived parental stress and levels of mindfulness. In addition, they conducted informal qualitative interviews to get further feedback about the impact of the intervention, the mothers' experiences and perceived behavioural outcomes. Strong criterion validity was demonstrated as the aggressive behaviour and negative interactions decreased, the positive interactions increased, satisfaction increased, stress decreased and participants reported increased levels of mindfulness, attributing the changes to the intervention. Singh et al. (2008a) considered measures of aggression, self control, staff interventions and staff and peer injuries. Supporting the decreased levels of aggression and increased levels of self control, a cost-benefit analysis highlighted that the costs to the service had reduced by over $50,000. Unlike Singh et al. (2007b) they did not use qualitative interviews to further enhance the criterion validity. Within this body of research, there were a number of studies with strong criterion validity, drawing from a range of data sources indicating behavioural change as a result of mindfulness.

In terms of internal validity, the four studies that combined objective and subjective measures monitored observed behavioural changes in the participants with LD and self-reported changes within the participants who learnt mindfulness. This enabled further consideration of other participant-specific factors that could have influenced the dependent variables. Singh et al. (2006b) and Singh et al. (2007b) considered both subjective (self-report) measures of the mother participants' perceptions of their parenting alongside objective measures of the child participants' challenging behaviour. The combination of subjective and objective measures enabled measurement of both internal (parents' perceptions) and external (observed behaviour) changes. Singh et al. (2006b) also included an external rater to assess the social interactions between siblings minimising rater bias and enabling objective changes to be measured. Within this body of research, internal validity was evidenced, through studies considering both observed change and subjective measures rating internal changes.

Are the research designs employed by studies evaluating mindfulness interventions appropriate?

Participants in each study were selected through convenience sampling and none of the studies used randomised sampling or control group participants for comparison. Five of the fifteen papers did not specify how participants were recruited. Of those that did, Singh et al. (2004) recruited their care-giving participants in the most systematic way, observing them in terms of the levels of happiness they provoke in the participants with LD, and selecting the three highest and the three lowest, to ensure that differences between caregivers did not confound the results.

Randomised Controlled Trials (RCTs) are advantageous as they consider the scientific effect of an intervention across comparable groups and minimise the risk of systematic bias and spurious

causality (Wathen & Cook, 2006). Within this body of research, RCTs were not used, limiting the results in terms of reducing bias, generalising the results to a wider population and ensuring that mindfulness is the only factor influencing participants in these studies. However, as outlined earlier, twelve of the fifteen studies included less than ten participants, limiting the numbers of participants available for experimental and controlled conditions. In addition many of the participants had been referred to the service conducting the research (Singh et al., 2003) or worked or lived in group homes that the research team had chosen to focus on (Singh et al., 2006) and therefore randomisation was difficult. Beauchemin et al. (2008) also outlined that it was deemed unethical and impractical to include a control group. Although this is not explicitly stated, this may have been the case across a number of the studies based in clinical settings as it may have been deemed unethical to provide some participants with mindfulness training and not others, given the potential benefits. However, two of the studies (Adkins et al., 2010; Sakdalan et al., 2010) recommended that their results be considered within randomised, controlled trials for future research. Ethical dilemmas could be partially resolved in future research, by using a wait-list control group, although randomisation may still be difficult.

Nine of the fifteen research papers used a multiple baseline approach. This uses a time lagged approach with different lengths of baseline and treatment for each participant. This allows the researcher to establish whether behaviour changes are associated with the treatment phases of the intervention, or if other factors might be influencing participants. Alternating treatment phases between participants (within a residential setting) accounts for factors that might impact on all the residents.

Other studies (Lew et al., 2006; Beauchemin et al. 2008; Sakdalan et al., 2010) used comparative pre-post designs to assess differences before and after the intervention. These studies did not monitor continuous data and instead considered data at certain points in time. However, two

of these papers used t-test statistical analyses to compare the pre and post data (Beauchemin et al., 2008; Sakdalan et al., 2010) which strengthened their results by considering whether a statistically significant difference had occurred. Singh et al. (2006a) and Singh et al. (2009) both had large enough sample sizes to conduct repeated measure statistical analyses, however they did not use them, which limited the strength of these studies. Singh et al. (2006a) instead utilised a multiple baseline approach across three group homes, alternating the staffing ratios across various phases of the intervention. Singh et al. (2009) also utilised a multiple baseline approach across two daily staff shifts (am and pm). These changes to staffing ratio and shift patterns reduced the sample size within each phase (or condition) of the study, which would have decreased the power of repeated measure statistical analyses.

In terms of having distinct research phases within which changes can be monitored over time, Singh et al. (2003) collected retrospective and current baseline data, as well as data across the treatment phase and follow-up for a year. Although the baseline data were variable, the impact of the intervention on the participant's behaviour was evident. To include the retrospective data as well as the baseline data takes into account any effects that data collection might have had on the participants.

Eight of the fifteen studies collected baseline data, data during treatment and at follow up to assess the impact of the mindfulness intervention. This continuous approach to data collection allowed changes to be monitored over time and comparisons to be made between different stages. Singh et al. (2007) monitored aggressive behaviours in this way and a clear decrease during mindfulness training and at follow-up is evident. Singh et al. (2003) and Singh et al. (2008b) also had extensive baselines and therefore were able to notice and comment on behavioural changes associated with mindfulness.

Conversely, Singh et al. (2008b) used an ABCD design and Singh et al. (2006a) trained staff members in mindfulness after previous behavioural training. In both these studies, the cumulative impact of the combined treatments may have influenced the results. As mindfulness is not considered as a stand-alone intervention in these studies, the changes in behaviour cannot be attributed to mindfulness alone. In contrast, five of the twelve studies introduced mindfulness to participants with intellectual disabilities as a stand-alone intervention which minimised the risk of other factors inadvertently influencing the results.

Lew et al. (2006) and Sakdalan et al. (2008) introduce a multi-component intervention (DBT) to participants, consisting of developing four skills including interpersonal effectiveness, emotion regulation, distress tolerance and mindfulness. Their research usefully illustrates the impact of DBT on participants with intellectual disabilities, but neither paper considers the impact of different components of DBT. Brown and Hooper (2009) introduced ACT to a participant with ID. ACT also consists of a number of components including developing willingness and commitment to change. Within these therapeutic approaches, it is unclear how much of the behavioural change is due to mindfulness, and how much is due to other skills developed by participants.

What impact do the findings of studies reporting the effects of mindfulness interventions have?

Clinical Impact and Implications

In order to consider the impact of the findings in this review, the breadth of the impact (i.e. impact on services and wider systems) has been taken into consideration as well as the extent to

which it benefited the participants. These can also be considered in terms of implications for clinical practice.

Several studies outlined the impact of the research on the services within which the intervention took place. This included a cost-benefit analysis (Singh et al., 2008a) which indicated that a substantial amount of money was saved due to the participants' reduced aggression and thus lower injury-related costs for the service. Singh et al. (2003) also reported a reduction in staff and client injuries as a result of decreased aggression in their client. Both studies acknowledged the benefit for the clients, in terms of progressing towards living independently.

A number of the studies introduced new techniques to engage clients in mindfulness. Singh et al. (2008) used a mindful eating strategy to a client with Prader-Willi syndrome, to reduce his food-seeking and rapid eating. As there is little research around this rare condition, this finding could have a large clinical impact in terms of developing self-management strategies for this population.

Many studies outlined clear clinical benefits to the participants, with six of the fifteen studies highlighting reduced levels of aggression. Others highlighted reduced levels of stress in participants (Adkins et al., 2010) and in parents (Singh et al., 2007b), reduced depression and anxiety (Adkins et al., 2010; Beauchemin et al., 2008), reduced obsessive thoughts (Brown and Hooper, 2009) and decreased self-injury (Singh et al., 2006b), injury to staff (Singh et al., 2003; Singh et al., 2008a) weight loss (Singh et al., 2008b) and a decrease in staff management of aggression through restraints and medication (Singh et al., 2003; Singh et al., 2006a; Singh et al., 2009). Of these studies, five noticed additional clinical benefits that arose through participants developing mindfulness and extending it to other areas of their lives. These included a reduction in behaviours such as skin-picking and temper tantrums (Singh et al., 2008b) and mindful care staff

being more involved with the client and being more creative, flexible and adaptable than at baseline (Singh et al., 2004). This highlights that mindfulness has a far-reaching impact.

A number of positive changes were highlighted including increased pro-social behaviour (Singh et al., 2007b), social and physical activity (Singh et al., 2006a), staff satisfaction and social validation of staff (Singh et al., 2006a) increased levels of reported mindfulness (Singh et al., 2006b, 2007b) and parenting satisfaction (Singh et al., 2006b; Singh et al., 2007b) increased levels of happiness (Singh et al., 2004) and increased social functioning and academic performance (Beauchemin et al., 2008). With the exception of Singh et al. (2004), all the studies that showed positive changes also highlighted decreases in difficult and challenging behaviour and mental health difficulties, demonstrating that mindfulness brings positive changes and reduces difficult behaviours in participants.

Four studies considered the impact of 'third wave' therapeutic approaches (ACT and DBT). Of these studies, Brown and Hooper (2009) outlined how ACT was conducted and adapted to meet their participant's needs. Further information regarding the impact of ACT on her anxiety and obsessive thoughts might have been useful in terms of increasing the clinical impact. Lew et al. (2009) outlined the clinical impact of DBT in terms of an initial increase, but subsequent decrease in risk. Both studies highlighted the particular ways in which the therapy might have a broader clinical impact, including using experiential mindfulness (within ACT) to support people with limited verbal and language abilities and using DBT to support people with intellectual disabilities to manage their emotions and ultimately reduce their level of risk.

Development of Theory and Mechanisms

The studies have also been considered in terms of how much they outline the theory underlying their results and the mechanisms that might explain the result. Eight of the fifteen studies considered their results in terms of the underpinning mechanisms. Five of the studies by the authors from the One Institute outline a number of key dynamics underpinning mindfulness and affecting transformational change. These include unconditional, non-judgemental acceptance, calm attention, emptying one's mind of preconceptions, and developing a moment by moment awareness.

Three of the eight studies acknowledge that changes might occur on a physiological level and highlight this in terms of electrophysiological studies (Singh et al., 2004), neural plasticity and changes in brain function (Singh et al., 2006a; Adkins et al., 2010). Linking into this research highlights another level besides cognitive and interpersonal on which mindfulness can change individuals. This strengthens the academic impact by highlighting observable physical changes.

Beauchemin et al. (2008) differ from the studies above in that they do not consider the mechanisms of mindfulness, but instead conceptualise reduced anxiety and improved social functioning and academic performance in their participants in terms of the cognitive interference model, suggesting that their results are indicative of reduced cognitive interference. This applies a theory-driven model to the mechanisms underlying change in participants.

Singh et al. (2007a), Singh et al. (2008a) and Adkins et al. (2010) did not give much detail pertaining to mechanisms underpinning mindfulness, but instead referred to their earlier publications to identify possible mechanisms. This allowed links and similarities between papers already published to be made and set the research into the context of previous publications. This also highlights how the authors have extended previous research. However it does limit the research in terms of presenting a novel understanding of the mechanisms within the research.

In terms of considering mechanisms, Lew et al. (2009) spend time outlining why the recorded risk level increased prior to decreasing. However there is less information about the mechanism of how DBT influenced the subsequent decrease in risk to below the baseline level. Brown and Hooper (2009) outline that ACT might have helped their client to distance herself from the literal content of thought, but do not consider the underlying mechanism in depth, limiting the impact of this research. Further research considering the theory and mechanisms of ACT and DBT in terms of influencing behaviour change in an ID population would be beneficial.

Summary and Recommendations

The current research suggests that mindfulness does influence the behaviour of participants with ID, with consistently positive outcomes across all fifteen studies. However, more powerful, controlled research is necessary in order to ensure that the positive findings are solely due to mindfulness and to reduce the possibility of type II errors. Randomised controlled trials across a larger, more ethnically diverse sample size would enable these research findings to be verified further.

Further research including staff members and parents without previous behavioural training is required to confirm the generalisability of these studies. In addition, further research around mindful care-giving is needed to assess whether the current findings are generalisable across different care-home cultures. Further research could also be extended to ambivalent or un-motivated participants.

Within this body of research the methodology was consistently replicable. In addition, the effects of mindfulness on behaviour in participants with ID appear to be robust, in that they

remained consistent even when previous behaviour management strategies were removed. Participants were also able to apply mindfulness to different areas of their lives. The impact of DBT on reduced suicidal behaviours was consistent across all three DBT studies. Only one study considered the effects of ACT on participant behaviour and therefore further research in this area, in order to ensure replicability, would be beneficial.

The research considering the use of DBT and ACT would benefit from further research considering the impact of individual components of these approaches. Future research comparing the impact of different approaches (e.g. behaviour management and mindfulness) might consider using a between-group experimental design, in order to effectively assess the differences between individual therapeutic approaches. Further consideration could also be given to understanding the mechanisms within DBT and ACT that lead to behavioural changes in an LD population.

To conclude, within this body of research there is evidence suggesting that mindfulness has a positive impact in terms of reducing difficult behaviour and increasing positive behaviour in people with ID. Within this research, relevant links have been identified and underlying mechanisms of mindfulness in terms of how it influences behaviour have been considered. Although a number of methodological limitations were identified, these findings are promising. Addressing these limitations will both strengthen this body of research and enhance scientific understanding around how mindfulness can influence the behaviour of people with ID.

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Part 2: Research Report

Combining Mindfulness and Implementation-Intentions to Control Experimentally-Induced Anger

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Abstract

Mindfulness is a technique that is being developed to promote positive wellbeing and reduce anger and aggression across a range of client groups. Implementation intentions are "if-then" plans that support people to achieve their goals by using a particular strategy within a specific context. This study considers the impact of an implementation intention based on mindful principles in order to reduce experimentally induced anger in participants. Participants were students and staff members at the University of Sheffield (N = 96). The results showed that although the anger induction had been effective in terms of increasing self-reported anger, it had not been powerful enough to influence the physiological and implicit anger measures that were taken. In addition, participants exposed to the mindful implementation intention were not significantly less angry than participants in the other anger conditions. The limitations of this study are outlined and recommendations for future research using mindful implementation intentions are made.

Introduction

Anger

Anger is a complex emotion with many determinants. It is defined by Berkowitz and Harmon-Jones (2004, p. 108) as: "A syndrome of relatively specific feelings, cognitions and physiological reactions linked associatively with an urge to injure some target".

Anger is unique in that it is associated with approach rather than avoidance inclinations, where negative arousal is usually associated with avoidance of the causing stimuli. (Harmon-Jones & Sigelman, 2001). Berkowitz and Harmon-Jones (2004) identified a number of factors that determine anger. These include feeling that goals have been obstructed in some way, identifying and blaming external factors for an event and experiencing aversive conditions such as social stress or physical pain. Other research shows that anger can be caused by frustration (Zurawski & Houston, 1983), harassment (Lobbestael, Arntz & Weirs, 2008) delivery of social control that is perceived as illegitimate (Nugier, Niedenthal, Brauer & Chekroun, 2007) and ego threat (Bond, Ruaro & Wingrove, 2006).

Anger frequently precedes conflict and leads to negative self-evaluation, marital and occupational problems and even murder. (Beck & Fernandez, 1998). Developing methods for promoting the effective self-regulation of anger could support individuals both to control their anger and develop strategies to reduce interpersonal conflict.

People can enhance their ability to regulate their emotions through the use of psychological techniques. Such techniques include taking a cognitive behavioural approach to assess and manage anger. This could include replacing angry thoughts with more adaptive thoughts, self-reinforcement and encouragement, rewards for not being angry and

diaphragmatic breathing (Beck & Fernandez, 1998). Other similar cognitive approaches have found that activating helpful thoughts in hostile situations can influence self-regulation and reduce levels of aggression (Meier, Wilkowski & Robinson, 2008). A meta-analysis of anger-management treatments highlighted the efficacy of Cognitive Behavioural Therapy, relaxation techniques, social skills training and process group counselling for managing anger (Del Vecchio & O'Leary 2004).

In order to conduct effective research into techniques to support people to regulate their anger, it is important to be able to replicate anger under laboratory conditions. A number of techniques have been considered to establish how to best induce anger in an experimental context. Some researchers have used affective pictures to stimulate anger, such as pictures of animal cruelty (Thibodeau, Jorgensen & Jonovich, 2008) or pictures associated with racism and prejudice (Harmon-Jones, 2007). Other anger induction methods include the experimenter harassing the participants (Funkenstein, King & Drolette, 1954; Mauss, Cook, Cheng & Gross, 2007; Janssen, Spinhoven & Brosschot, 2001), exposure to anger-inducing phrases (Engebretson et al., 1999), exposure to scenarios describing ego-threatening situations (Bond et al., 2006), imagining situations that left participants feeling socially controlled (Nugier et al., 2007).

Lobbestael et al. (2008) compared four anger induction methods; a film, a stressful interview, punishment and harassment in terms of both self-reported anger and physiological measures (including blood pressure, heart rate, skin conductance level and skin conductance response). Through this study, they established that all four methods produced comparable self-reports of anger, with harassment producing the most specific anger-ratings. Methods involving human contact (interview and harassment) induced the strongest physiological

responses. This research highlights that harassment is the most accurate and effective anger-induction technique of the four techniques considered.

Mindfulness

Mindfulness is an ancient Buddhist technique defined by Kabat-Zinn (1994, p. 4) as "Paying attention in a particular way, on purpose, in the present moment and non-judgementally. This kind of attention nurtures greater awareness, clarity and acceptance of present moment reality". Mindfulness is described by Ludwig and Kabat-Zinn (2008, p. 1350) as a useful tool to "foster clear-thinking and open-heartedness". Bishop et al. (2004) propose a two-factor operational definition of mindfulness in that it firstly involves self-regulation of attention heightening awareness of the present moment and secondly an orientation towards experiencing the present moment, characterised by acceptance, openness and curiosity. It has also been described as "a state of psychological freedom that occurs when attention remains quiet and limber without attachment to any particular point of view" (Martin, 1997, pp. 291-292).

Bishop et al. (2004) consider mindfulness in the context of contemporary psychology and describe it as "an approach for increasing awareness and responding skilfully to mental processes that contribute to emotional distress and maladaptive behaviour" Kabat-Zinn (1982) first drew attention to the health benefits of mindful practice and went on to develop Mindfulness Based Stress Reduction (MBSR) techniques. Mindfulness allows people to respond to negative emotions through focused attention and acceptance of the present moment (Bishop et al., 2004).

A number of approaches have been developed to assimilate mindfulness into a therapeutic context. Such approaches include Dialectical Behaviour Therapy (Linehan, 1993) in which mindfulness is a core skill developed by clients with Borderline Personality Disorder to aid them in integrating their "emotion mind" (in which thinking and behaviour are steered predominantly by emotions) with their "reasonable mind" (in which thinking and behaviour are rational, logical and focused). Acceptance and Commitment Therapy (Hayes, Strosahl & Wilson, 1999; Hayes et al., 2006) also utilises mindful principles including acceptance, defusion (altering the undesirable function of thoughts), making contact with the present moment and self-as-context (seeing the self as the context for thoughts rather than the content of thoughts). Mindfulness interventions usually involve a number of sessions (Roemer & Orsillo, 2003). However, extensive learning might be something that clients presenting with acute or complex needs would find hard to develop, particularly prolonged meditation (Roemer & Orsillo, 2003) that requires focused attention and motivation. Short effective interventions would therefore be beneficial for such clients.

Current mindfulness interventions include encouraging people to make non-evaluative contact with the present moment, developing acceptance of unpleasant experiences, engaging in cognitive defusion, exposure to avoided events and clarification of values and life-goals (Hayes & Wilson, 2003). Bishop (2002) describes the following mindfulness techniques; focusing one's attention on the present, disengaging from other thoughts (attention-switching), controlling attention (in order to stop thinking about, elaborating on or making judgements about cognitions) and reducing reliance on biases and schema that already exist, instead focusing on available information.

Mindfulness and Anger

There is evidence indicating that mindfulness can be influential in reducing self-reported anger through meditation (Speca, Carlson, Goodey & Angen, 2000) developing self-reflection, acceptance and self-care (Shirey, 2006) disengaging from negative thoughts and behaviours and developing behavioural regulation techniques (Brown & Ryan 2003).

Mindfulness can be usefully engaged to reduce anger through encouraging people to observe angry thoughts and emotions and then allowing them to pass through their mind without becoming attached to them (Linehan, 1993). In addition, mindfulness techniques have been effectively used in clinical settings to reduce aggression and challenging behaviour in adolescents with conduct disorder (Singh et al., 2007a), people with intellectual disabilities (Singh et al., 2007b), people with mental illness (Singh et al., 2007c) and people within the criminal justice system (Singh et al., 2008) highlighting the positive clinical impact mindfulness can have on anger and aggression across specific clinical populations. To date, there have been no studies of the impact of mindfulness on experimentally induced anger in a controlled laboratory setting. This research therefore aims to consider mindfulness in this capacity.

Implementation Intentions

Implementation intentions or "if-then plans" help people to use a particular strategy within a specified context in order to attain their goals (Achtziger, Gollwitzer & Sheeran, 2008). Implementation intentions have been effectively used in research to help people achieve goals in terms of dieting and athletics (Achtziger et al., 2008), reducing

procrastination (Owens, Bowman & Dill, 2008), increasing fruit and vegetable intake (Armitage, 2007a) and smoking cessation (Armitage, 2007b).

Implementation intentions work by forming a relevant, "if-then" plan in which the goal directed response is linked to anticipated situational cues for example "Whenever opportunity X arises, then I will perform goal directed response Z" (Gollwitzer, 1999, p.493). An example of a goal intention outlined by Gollwitzer (1999) was for participants to be less prejudiced against homeless people. The following implementation intention was used to aid participants to achieve this goal intention: "Whenever I see a homeless person, I tell myself: No prejudice!" (Gollwitzer, 1999, p. 500).

In terms of considering the processes that make implementation intentions effective, Ajzen, Czasch and Flood (2009) found that implementation intentions lead participants to make a commitment that subsequently increases compliance to the change-related behaviour. In addition, Webb and Sheeran (2008) outlined that the underlying mechanism making implementation intentions effective is that firstly, an opportunity for goal striving becomes accessible through cue-response associations (e.g. 'If I see cigarettes for sale…') this opportunity primes the particular goal-directed response (e.g. '…then I will say to myself, "Don't be tempted!'). In particular, any procedure that promotes stronger cue-response associations can potentially enhance the likelihood that the goal will be attained, providing that these cues are not overly complex or ambiguous. To date, there have been no studies combining mindfulness with implementation intentions.

The Present Study

There is a limited body of research considering the use of brief mindfulness interventions to support participants with a number of difficulties. Four weekly thirty minute group sessions were used to support nursing staff to manage stress (Mackenzie, Poulin and Seidman-Carlson, 2006), three daily twenty minute sessions were used to minimise pain (Zeidan, Gordon, Merchant and Goolkasian, 2010) and a one and a half hour intervention was used to support people with urges to smoke (Bowen & Marlatt, 2009). Of the studies encompassing brief mindfulness interventions, Bowen and Marlatt (2009) and Zeidan et al (2010) used mindfulness within a laboratory setting. In order to effectively consider mindfulness under laboratory conditions, it is necessary for the intervention to be brief in order to maintain the controlled experimental conditions.

To date, there are no studies that use mindfulness as a strategy that is initiated through the use of an implementation intention. In this study, the goal directed response would be the use of a specific mindfulness technique to be implemented in situations when the participant experiences feelings of anger.

Therefore, this study considers the efficacy of using a combination of brief information around mindfulness and a mindful implementation intention to establish whether these can influence experimentally induced anger under laboratory conditions. A condition including the mindfulness information without the implementation intention was also included.

The study replicates the harassing paradigm outlined by Lobbestael et al. (2008) to accurately and effectively induce physiological measures of anger in participants. These can then be monitored through recording participants' heart rate and blood pressure in order to establish levels of anger within participants.

Hypotheses

The hypothesis therefore, is that participants who receive the implementation intention, the mindfulness information and the anger induction (henceforth referred to as 'Implementation intention' condition) will be less angry than participants who receive information about mindfulness plus the anger induction (henceforth referred to as 'Mindfulness' condition). They will also be less angry than participants who receive the anger induction without any information about mindfulness (henceforth referred to as 'Anger' condition. Participants who receive the implementation intention, the mindfulness information and the anger induction will have equivalent anger levels to participants who receive positive comments and feedback (henceforth referred to as 'Placate' condition).

Method

Power Analysis

A power analysis using software developed by Schoenfeld (2010) was conducted on the two key comparisons – anger vs. no anger and implementation intention vs. no implementation intention and sample sizes were computed for both comparisons.

1. **Anger vs. no anger.** Assuming that an anger manipulation has a large effect on anger, d = .80, one-sided test, a total of 42 patients are needed (21 in both conditions). The probability is 81 percent that the study will detect a treatment difference at a one-sided 0.05 significance level.

Based on this first comparison; a minimum of 42 participants are needed, divided between the no anger and anger conditions.

2. **Implementation intention versus no implementation intention**. Assuming that (a) the mindfulness and anger-only conditions form a single control group in testing the impact of implementation intentions, and (b) the effect of implementation intentions is d = .65 (based on the meta-analysis by Gollwitzer and Sheeran, 2006; one-sided test) a total of 60 participants are needed (30 in each condition). The probability is 80 percent that the study will detect a treatment difference at a one-sided 0.05 significance level.

Based on this comparison, a minimum of 60 participants is required, divided between the implementation intention and no implementation intention conditions. Across calculations 1 and 2, a minimum of 81 participants (21+60) are needed in this study.

As the effect sizes available from previous studies were all drawn from univariate ANOVA's, the power calculations are all drawn from these, although multivariate MANOVA's were also used within the final data analysis.

Pilot Study

Prior to the data collection, two volunteers completed the experiment in full in order to establish how long the experiment took and to provide feedback about the research process. It was established that the experiment took approximately 40 – 50 minutes depending on the

speed of the participant completing the task. The pilot study also highlighted any difficulties with the procedure to be changed prior to recruitment and helped the primary researcher to ensure that the script sounded natural.

Ethics

All procedures within this research were approved by and carried out in accordance with the ethical standards of the University of Sheffield ethics committee.

Participants

Participants were recruited in three ways:

1) Recruited from the undergraduate psychology intake of 2008 or 2009 through the Online Participation System. These participants were offered a reward of online participation credits (an incentive scheme that allows participants to collect credits so that they can use a sample of first and second years for their dissertations in their final year). These participants were also offered the opportunity to earn an additional £2 for achieving an above average score in the experiment. (This money was given to all participants regardless of their score, but they were led to believe that the money was based on their performance).

2) Recruited from the volunteer email list within Sheffield University. These participants were offered a reward of £3. They were also offered the opportunity to earn an additional £2 for achieving an above average score in the experiment.

3) Because psychology student participants became suspicious in the later stages of data collection, an email was sent to recruit non-psychology undergraduate students as participants. These participants were also offered £3 plus the opportunity to earn an additional £2 for achieving an above average score in the experiment.

96 participants were recruited in total, of which 24 were from the volunteer email list. 16 were non-psychology undergraduates and 56 were psychology undergraduates. Of these participants, 24 were male and 72 were female. The participants were aged between 17 – 63. The mean age was 25.74 years (SD. = 12.45).

Participants were then randomly allocated to one of the following conditions:

'Implementation intention': This was the first experimental condition assessing the impact of mindfulness as a strategy within an implementation intention. Participants in this condition were provided with an introduction to mindfulness. They were also provided with an implementation intention strategy based on mindfulness and were then exposed to the anger-induction.

'Mindfulness': This was the second experimental condition assessing the impact of reading the introduction about mindfulness but without any strategy to use the techniques. These participants were also exposed to the anger-induction.

'Anger': This was the first control condition, testing the efficacy of the anger induction to ensure that it worked in terms of inducing anger in participants.

'Placate': This was the second control condition and assessed the impact of completing the tasks without any information about mindfulness or anger induction.

All participants were informed by email that they were due to take part in two separate studies, in order to differentiate the mindfulness intervention from the subsequent anger induction and minimise suspicion in participants. On arriving for the experiment, they were then told that the other researcher 'David Jones' was unable to attend the experiment due to illness and therefore the researcher present has offered to "run the study on David's behalf". Participants were then informed that the two studies would take no longer than an hour and that they would receive their credits/money at the end of the second study. They were told that 'David Jones' experiment considered how mindfulness might influence emotions such as anger and that the researcher's experiment measures physiological responses to intelligence testing. Participants were then provided with an information sheet and consent form for the first study (Appendix 1).

Measures

Measures of mindfulness:

The Mindfulness Attention Awareness Scale (Appendix 4) was used to indicate participants' levels of mindfulness (Brown & Ryan, 2004). This scale includes items such as "I could be experiencing some emotion and not be conscious of it until some time later" (Item 1). The scale has a Cronbach's alpha of .76 indicating good internal validity.

Physiological Measures:

The participants' systolic and diastolic blood pressure was measured using a Homedics automatic arm blood pressure monitor BPA-200. Their heart rate was monitored through the use of a Heart Math monitor, which clips to participants' earlobes.

Measures of Implicit, Trait and State Anger:

Participants then had their blood pressure measured again by the researcher, and were asked to complete a "cognitive processing task", which was actually a sequential priming task (Bayer et al., 2008). Within this task, participants were presented with a fixation cross for 2000ms. The prime was either a picture of the experimenter or a control picture, and was then presented for 10ms, followed by a pattern mask for 100ms (to prevent conscious recognition of the picture). After this, a blank screen was presented for 900ms followed by a word or a non-word for 500ms (see Appendix 8). Participants had to indicate as quickly as possible across 54 trials whether or not a word was presented by pressing the relevant key. Among the words presented were 8 anger related words (e.g. angry, annoyed), 19 non-anger related words (e.g. fishtank, glasses) and 28 non words, sourced from an online database (Rastle, Harrington & Coltheart, 2002). The differences in reaction times to anger words preceded by the experimenter's versus the control face served as a measure of implicit anger. Once participants completed this, they were told to complete the state scale of the State Trait Anger Expression Inventory II (Appendix 9) that measures anger as an emotional state, including expressed, suppressed and controlled anger (Spielberger, 1999). Two scales were used, one considering state anger which had strong internal consistency (Cronbach's alpha = 0.91). The other considered trait anger and also had strong internal consistency, (Cronbach's alpha =

0.84). Participants were also asked to complete the brief version of the State Trait Anxiety Inventory (Spielberger, 1983) to measure any anxiety that may have arisen throughout the experiment (Appendix 10). This measure also had strong internal consistency (Cronbach's alpha = 0.86).

Procedure

Participants in the 'Implementation intention' condition were provided with a double-sided sheet of paper outlining an anger-management mindfulness technique taken from the book "Act on life, not on anger" (Eifert, McKay and Forsyth, 2006) that involves firstly observing and then allowing thoughts and emotions to pass through your mind without becoming attached to them. These participants were also instructed on the same sheet of paper to use the following implementation intention strategy whenever they become angry:

If I feel angry, then I will tell myself; "This is just a feeling. I will notice it, and then I'll let it go!"

A copy of the information given to participants is provided in Appendix 2. This group were also provided with written instructions to complete the anger-monitoring diary sheet (Appendix 3) over the forthcoming week. They were asked to provide their email addresses in order that the absent researcher "David" could follow up their progress. A space for their email address was provided on the sheet they were given.

Participants in the 'Mindfulness' condition were provided with the same mindfulness technique, however they were not provided with the implementation intention. They were also provided with written instructions to complete the anger-monitoring diary sheet over the forthcoming week and asked to provide their email address for the absent researcher.

Participants in the ‘Anger’ and ‘Placate’ conditions were provided with written instructions to complete the anger-monitoring diary sheet and asked to provide their email addresses. They received no further information.

Once all participants had read through the information provided, they were asked to complete the Mindfulness Attention Awareness Scale (Brown & Ryan, 2004). On completion, participants were then informed that they had finished ‘David’s experiment’. They were asked to read the information sheet and consent form for the next part of the experiment (Appendix 5).

Participants were then informed that they would complete a series of tasks for the next experiment. They were told that these tasks measure physiological responses to intelligence testing. At this point their systolic and diastolic blood pressure was measured.

Participants were then asked to complete a Stroop task (Appendix 6). This was a filler task used to minimise the possibility of participants linking the mindfulness intervention with the anger induction. The Stroop task presents participants with colour congruent (e.g. RED written in red ink) and incongruent (e.g. BLUE written in green ink) words. Participants’ task is to identify the colour of the ink across 174 words, regardless of the written content. This task was chosen as it is challenging for participants, setting an automatic process against a controlled process and requiring high levels of attention (MacLeod, 1992). After participants had completed the Stroop task, they were then asked to complete a computerised intelligence test that also contained the anger induction.

Anger Induction

Participants were presented with a paradigm similar to that used in Lobbestael et al. (2008). The researcher instructed participants that the next part of the experiment involved completing some computer tasks. They were told that during the first computer task they would have their heart rate monitored. They were advised that due to the sensitivity of the equipment, they were to sit as still as they could and that they were not to speak during the task (unless they wished to end the experiment) as it would affect the measurements. They were also told that the researcher would be able to monitor their movement from the adjoining room via the camera link in the corner of the room, and that what they wrote on the screen would also appear on the researcher's screen. Participants were then given the Heart Math monitor to clip to their ear. As the equipment was calibrating, participants were asked to follow the instructions on the screen. The researcher then left the room and moved into the adjoining room.

The instructions on the screen stated that the questions were taken from the Wide Range Intelligence Test. The instructions re-iterated the verbal instruction to remain still and highlighted that this part of the task allowed participants the opportunity to earn an extra £2 and therefore it was important that participants did their best on this task. Participants were also reminded that the researcher would be able to see their answers on the monitor in the other room and would monitor their movement via the camera.

Participants then answered twenty difficult general knowledge question, e.g. 'Who designed the Clifton Suspension Bridge?' (see Appendix 7). Relevant participants received an anger provocation four times over the course of the test.

When participants made their first mistake after the fourth question, the researcher gave them verbal feedback (within the next three questions). For participants in the 'Implementation intention', 'mindfulness' and 'anger' conditions, the researcher shouted through to participants: "Can you try a bit harder to get the questions right, otherwise it's not going to work". When participants in the 'placate' condition reached this question, and answered a question correctly (within the next three questions) the researcher shouted "You are doing a good job, keep going".

At question ten, participants in the 'Implementation intention', 'mindfulness' and 'anger' conditions were told by the researcher "Can you sit still? You are moving about too much and it's affecting the measurements!" Participants in the 'Placate' condition, on the other hand, were told "It's good to have a participant who knows what they are doing".

Finally, at question twenty, participants in the 'Implementation intention', 'Mindfulness' and 'Anger' conditions were told "I'll just process your results, but it doesn't look like you'll get the extra £2 now". Participants in the 'Placate' condition were told "I'll just process your results – it looks like you will get the extra £2".

The computer program then informed participants that their answers had been sent to the researcher next door. The researcher then typed into a keyboard that was not attached to a computer, to give the impression that they were typing out the feedback.

The researcher then pressed tab on the computer program which led to the computer programme giving feedback to the participant. Participants in the 'Implementation Intention', 'Mindfulness' and 'Anger' conditions received feedback that "You have only achieved an average score on this intelligence test. This suggests you may struggle to process information and think logically in the workplace. Your score is not sufficient to receive the £2 reward".

Participants in the 'Placate' condition received feedback that "You have achieved a higher than average score on this intelligence test. This suggests you will be able to process information and think logically in the workplace. Your score is sufficient to receive the £2 reward".

Debriefing

Participants were then debriefed on the purpose of the experiment. A copy of the debrief sheet is available in Appendix 11. They were informed that there was only one experiment, not two and that they did have to complete the monitoring sheet over the forthcoming week. The participants in the anger conditions were reassured that the feedback and comments made during the experiment were not true, but designed to induce anger in participants. They were given the opportunity to ask questions and were given the full reward at this point. Participants were asked not to discuss the experiment with other members of their cohort in order to maintain the integrity of the experiment.

Procedure for Data Analyses

All data were inputted into a main SPSS database for the purpose of statistical analysis. Data from specialist programmes including emWave and ePrime needed separate preparation before the data could be transferred into SPSS. These procedures are outlined below.

emWave.

In order to analyse the data from emWave (heart rate and variability data) the data were opened using Kubios HRV. If the file would not open in KubiosHRV, the notepad file was opened and additional numerical data were removed to allow Kubios HRV to open the file. As each participant took different lengths of time to complete the task, the time range was adjusted for each participant to incorporate these differences. The time range adjustments were also made when the last three minutes of the data were calculated.

Kubios HRV highlighted a number of time domain results, including Mean RR (mean heart rate) and STD (RR) SDNN (heart rate variability). These two results were then incorporated into a main data set within SPSS (Statistical Package for Social Scientists) Version 16.

ePrime.

To analyse the data from ePrime, data from each participant were selected in e-merge and all the participants' data were merged into one dataset. This dataset was then copied into Microsoft Excel. Each participant's data were sorted by the prime (neutral/experimenter) and then by the word type (neutral/angry/non-word). Only the neutral and angry words were considered in the final analysis. Each participant's mean response time was then calculated for the following combinations, neutral prime, angry words, (2) neutral prime, neutral words, (3) experimenter prime, angry words and (4) Experimenter prime, neutral words. These response times were then inputted into the main SPSS database.

Results

The key hypothesis was that participants in the '*Implementation Intention*' condition will be less angry than participants in the '*Mindfulness'* and '*Anger*' conditions. Instead, participants in the '*Implementation Intention*' condition will be as angry as participants in the *'Placate'* condition.

In order to test this; self-report, physiological, and implicit priming measures of anger were taken. The physiological measures included measuring participants' blood pressure and heart rate. The implicit priming task used participants' response time to a prime of the face of the experimenter as compared to a neutral other, when paired with angry words as compared to neutral words. The self-report measures included participants rating their anger through completion of two scales from the State Trait Anger Expression Inventory. Participants also rated their levels of implicit mindfulness through the Mindfulness Attention Awareness Scale and their anxiety levels using the six item State Trait Anxiety Inventory in order to control for the impact of these variables.

Randomisation Check

In order to ensure there were no significant differences in demographics (age, gender, marital status, occupation, highest level of education) between the four conditions, a series of chi-squared tests were conducted. There were no significant differences between the conditions in *ns*, gender, χ^2 (3, N = 95) = .57, *ns*, marital status: χ^2 (9, N = 64) = 6.54, *ns*, occupation: χ^2 (15, N = 85) = 16.02, *ns*, education: χ^2 (9, N = 80) = 8.62, *ns*.

A MANOVA was used to ensure that there were no significant differences between the four conditions in terms of participants' age, anxiety levels after the intervention, implicit levels of mindfulness and reported trait anger. The multivariate test was not significant $F(3,88) = 1.03$, *ns*, and none of the univariate tests were significant, Fs$(3,88) < 2.52$, *ns*.

Data Screening

The dependent variables and covariates were examined for skewness and kurtosis. Only the covariates, systolic blood pressure (pre-intervention) and the Mindfulness Awareness Assessment Scale scores were normally distributed ($z < 2$ in all cases). On inspecting the distributions, the data were distributed symmetrically in all the dependent variables and co-variates apart from 'State Anger' and 'Heart Rate Variability'. Therefore these were tested for skewness and kurtosis again to assess whether there was a bell-shaped distribution within each condition. The data were both skewed and kurtotic, so these three dependent variables were later analysed using non-parametric Kruskal-Wallis tests.

Levene's test of homogeneity of variance was also conducted on the dependent and covariates. One of the dependent variables from the priming task (response time to experimenter prime and angry word) and one covariate (total anxiety score) had p values a little less than .05. This was deemed not to be of significant concern as the sample sizes were equal and reasonably large ($n > 20$).

Table 1 outlines the frequency data (means, standard deviations) across the four conditions for each dependent variable for which parametric tests were used.

Table 1.

Table of means across the four experimental conditions				
Dependent Variable	**II, mindfulness and anger**	**Mindfulness and anger**	**Anger**	**Placate**
	Mean (SD)	**Mean (SD)**	**Mean (SD)**	**Mean SD**
Blood pressure (systolic)	117.6 (12.12)	119.67 (14.49)	113.58 (15.36)	115.79 (19.74)
Blood pressure (diastolic)	74.91 (9.18)	78.46 (11.43)	74.21 (11.32)	78.38 (10.05)
Mean heart rate (overall)	80.11 (8.29)	85.59 (12.77)	80.57 (14.12)	82.36 (9.87)
Mean heart rate (last three minutes)	79.24 (9.23)	83.30 (11.31)	80.67 (14.91)	80.52 (9.85)
Response time (expt prime, angry word)	663.67 (166.14)	707.16 (264.21)	701.19 (275.53)	643.88 (101.85)

Table 2 outlines the frequency data (medians, standard deviations) across the four conditions for each dependent variable for which non-parametric tests were used.

Table 2.

Table of medians across the four experimental conditions				
Dependent Variable	**II, mindfulness and anger**	**Mindfulness and anger**	**Anger**	**Placate**
	Mdn (SD)	**Mdn (SD)**	**Mdn (SD)**	**Mdn (SD)**
State anger	15.50 (4.05)	15.50 (5.50)	17.00 (6.80)	15.00 (1.06)
Heart rate variability (overall)	74.10 (111.64)	75.90 (126.49)	74.05 (54.51)	70.10 (81.43)
Heart rate variability (last three minutes)	71.65 (205.50)	67.20 (44.74)	70.20 (60.62)	82.20 (80.91)

Self-Reported Measures

Due to the data not being normally distributed, a non-parametric Kruskal-Wallis test was used to analyse between-group differences (condition) on state anger. A significant effect of condition on state anger was found, H (3) = 13.25, p =.004.

Mann-Whitney U tests with a Bonferroni correction (Significance level: 0.0083) were conducted to establish where the significant differences lay. There were no significant differences between 'Implementation Intention' and 'Mindfulness' condition (U = 259.00, N^1 = 22, N^2 = 24, Z = -.11 *ns*). 'Implementation Intention' and 'Anger' conditions (U = 189.00, N^1 = 22, N^2 = 24, Z = -1.69 *ns*). or 'Implementation Intention' and 'Placate' conditions (U = 192.00, N^1 = 22, N^2 = 24, Z = -1.80 *ns*). There were no significant differences between 'Mindfulness' and 'Anger' conditions (U = 200.00, N^1 = 24, N^2 = 24, Z = -1.86 *ns*) or 'Mindfulness' and 'Placate' conditions (U = 211.00, N^1 = 24, N^2 = 24, Z = 1.80 *ns*) There was

a significant difference between ‘Placate’ and ‘Anger’ conditions (U = 120.50, N^1 = 24, N^2 = 24, *Z* = -3.64, *p* =.000).

Further inspection of the frequency data, indicated that the two experimental conditions’ median scores were closer to that of the placate group, however this difference was not significant.

Blood Pressure

Blood pressure was divided into two types (Systolic and Diastolic). A 2-within (time: pre and post anger induction) by 4-between (condition: ‘Implementation intention’, ‘mindfulness’, ‘anger’, ‘placate’) repeated measures ANOVA was conducted with blood pressure as the dependent variable. Systolic blood pressure was analysed in the first ANOVA; diastolic in the second ANOVA.

There was no significant effect of condition on systolic blood pressure, *F*(3, 91) = 1.00, *ns* or condition on diastolic blood pressure, *F*(3, 91) = 1.93, *ns*. There was also no significant effect of time (pre/post anger induction) on systolic blood pressure *F*(1, 91) = 0.15, *ns* or time (pre/post anger induction) on diastolic blood pressure *F*(1, 91) = 2.08, *ns*.

There was also no significant interaction between condition and time on systolic blood pressure, *F*(3, 91) = 1.98, *ns* and no significant interaction between condition and time on diastolic blood pressure, *F*(3, 91) = 2.40, *ns.*

Heart Rate

Two 4-between (condition: 'Implementation intention', 'mindfulness', 'anger', 'placate') univariate ANOVAs were used to analyse participants' mean heart rate (first ANOVA) during the anger induction. The effect of condition was non-significant, Heart Rate: $F(3, 87) = 1.05$, *ns*. As the data for heart rate variability did not have a symmetrical distribution, a Kruskal-Wallis test was used to analyse participants' mean heart variability. The effect of condition on heart rate variability was non-significant: $H(3) = .21$, *ns*.

The data during the last three minutes of the anger induction (when participants were exposed to a comment from the interviewer and the feedback provided by the computer) were analysed. However, a univariate ANOVA highlighted that there were still no significant effects of mean heart rate, $F(3, 85) = 0.50$, *ns*. As the heart-rate variability data were not symmetrical, a further Kruskal-Wallis test was used, but showed no significant effects of condition on heart rate variability in the last three minutes, $H(3) = .79$, *ns*.

Implicit Priming Task

Participant's response times to angry or neutral words when primed by pictures of either the experimenter or a neutral other, were analysed through the use of a 2-within (Faces: Neutral, Experimenter) by 2-within (Words: Angry, Neutral) by 4-between (Condition: Implementation intention', 'mindfulness', 'anger', 'placate') repeated measures ANOVA. Participants' response times were the dependent variable.

There were no significant effects of Condition $F(1,91) = 0.65$, *ns*. There were also no significant effects of Faces: $F(1, 91) = 1.16$, *ns* or Word: $F(1,91) = 1.09$, *ns*. There were also no significant interactions between Faces and Condition: $F(3, 91) = 1.33$, *ns*; Word and

Condition $F(3, 91) = 1.04$, *ns*; Faces and Word $F(1, 91) = 0.26$, *ns* or Faces and Word and Condition: $F(3, 91) = 1.51$, *ns.*

Suspicion

Participants were divided into 'suspicious' ($n = 7$) and 'not suspicious' groups ($n = 89$) based on their verbal feedback during the debriefing session. The analyses were run again to assess whether suspicion significantly influenced the results.

A Kruskal-Wallis test was run to analyse if there were any significant differences between the suspicious and non-suspicious participants based on their state anger ratings. There was no significant effect: $H(1) = 0.68$, *ns*.

To assess whether there were any significant differences between suspicious and non-suspicious participants in terms of blood pressure, a Multivariate Analysis of Variance (MANOVA) was performed on the data with the following dependent variables: pre-intervention systolic blood pressure, post-intervention systolic blood pressure, pre-intervention diastolic blood pressure, post- intervention diastolic blood pressure. Suspicion was the independent variable. There were no significant differences based on suspicion in the pre-intervention systolic blood pressure $F(1, 95) = 1.27$, *ns*, the post-intervention systolic blood pressure, $F(1,94) = 0.29$, *ns,* the pre-intervention diastolic blood pressure $F(1,95) = 3.22$, *ns* or the post-intervention diastolic blood pressure $F(1, 94) = 2.07$, *ns.*

A univariate ANOVA was run to analyse if there were any significant differences between the suspicious and non-suspicious groups based on mean heart rate. There were no significant effects of suspicion on mean heart rate $F(1, 87) = 2.34$, *ns.* There were also no

significant effects of suspicion on the mean heart rate measured across the last three minutes $F(1, 85) = 2.35$, *ns.*

A Kruskal-Wallis test was run to analyse if there were any significant differences between the suspicious and non-suspicious groups based on heart rate variability. There were no significant effects of suspicion on heart rate variability $H(1) = 0.87$, *ns.* There were also no significant effects of suspicion on the heart rate variability measured across the last three minutes $H(1) = 2.52$, *ns*.

To assess whether there were any significant differences between suspicious and non-suspicious participants in terms of response time, a MANOVA was performed on the data with the following dependent variables, response time to: 'Experimenter face, neutral word', 'Experimenter face, angry word', 'Neutral face, neutral word', 'Neutral face, angry word' . Suspicion was the independent variable. There were no significant differences based on suspicion in the 'Experimenter face, neutral word' measures $F(1, 93) = .001$, *ns*, the 'Experimenter face, angry word' , $F(1,93) = .17$, *ns*, the 'Neutral face, neutral word' $F(1,93) = .06$, *ns* or the 'Neutral face, angry word' $F(1, 93) = .08$, *ns.* In sum, participants' levels of suspicion did not appear to influence the findings.

Discussion

The results showed that there was a significant difference on the self-report state anger measure. The Mann-Whitney U tests highlighted that this significant difference was between participants in the 'Anger' condition and participants in the 'Placate' condition. This suggests that the anger manipulation was effective in influencing participants reported levels of anger.

However it does not support the experimental hypothesis that those in the 'Implementation intention' condition would be significantly less angry than those in the 'Mindfulness' and 'Anger' conditions and equivalent to those in the 'Placate' condition.

As the median scores of the 'Implementation Intention' and 'Mindfulness' conditions were closer to the 'Placate' condition than the 'Anger' condition, it is possible that the information about mindfulness had a mediating effect, reducing the efficacy of the anger induction. Borders, Earleywine and Jajodia (2010) identify that mindfulness can reduce rumination and enhance relaxation. It is possible that participants exposed to information about mindfulness ruminated less on the negative feedback and felt slightly more relaxed than participants in the anger condition, thus their anger ratings were closer to those in the 'Placate' condition. However, as there is no significant difference between these conditions and the 'Anger' condition, this is speculative and further research would be required to confirm this.

The results of this research highlight that there was no significant impact of the mindfulness implementation intention on participants' blood pressure and heart rate. There were also no significant differences between the 'Placate' and 'Anger' groups. This suggests that the anger manipulation was not powerful enough to elicit physiological changes in participants. There are a number of reasons why this might be the case. Firstly, it is possible that the participants were not sufficiently concerned about losing the small sum of £2. Secondly participants may not have been motivated to do well in the study, as the majority were undergraduate psychology students who took part in research in order to gain online credits, enabling them to conduct research using first year students in their final year. Thirdly, it is possible that the delivery of the final piece of negative feedback through the computer had less of an impact on participants than delivering the feedback verbally as Lobbestael et

al. (2008) did. Although the participants in the 'anger' condition reported increased levels of state anger, the induction was not sufficiently powerful to influence their heart rate or blood pressure.

The results also showed that in terms of implicit anger, there was no significant differences between the 'Implementation Intention', ' Mindfulness', 'Anger' and 'Placate' groups response time to anger related words associated with a subliminally presented picture of the experimenter's face. This indicates that the anger manipulation did not lead the participants to react negatively towards the experimenter, despite the negative comments and feedback. This might have been influenced by the fact that the experimenter sat in an adjoining room to the participant. Therefore, participants saw the experimenters face prior to the anger induction during the mindfulness part of the experiment and the Stroop task, however they did not see the experimenter's face during the anger induction. They saw the experimenter immediately after the anger induction when the blood pressure measure was taken. This lack of exposure during the anger induction may have influenced the results in this instance.

There are several reasons why the mindfulness intervention may not have worked. Firstly, much of the previous research into the impact of mindfulness on anger has considered participants who are facing significant life stressors such as cancer (Speca et al., 2000), participants who are engaging in intensive nurse training that is known to commonly lead to stress and anger (Shirey, 2006) or have focused on outward expressions of anger in participants such as challenging behaviour in an intellectual disabled population (Singh et al., 2007b). The participants within this study were not selected on the basis of life-stressors, nor were they selected on the basis of external expressions of anger. Therefore, it might be the case that mindfulness is only effective in reducing anger in participants with high levels of

anger based on life stressors, or participants who struggle to control their outward expressions of anger.

Another explanation for why this mindfulness intervention did not work is linked to the mechanisms behind effective mindfulness. Shapiro, Carlson, Astin and Freedman (2006) outlined that there are three fundamental axioms of mindfulness. These include: Intention, in which mindfulness practice begins with an intention to achieve something (e.g. self-regulation); Attention, including attending to moment-to-moment experiences, both internal and external; and Attitude, including a conscious commitment to developing qualities of patience, compassion and non-striving in everything one does.

In relation to this research, the intention and attention axioms of mindfulness may have been effectively utilised by the participants (particularly with the support of the implementation-intention). The attitude axiom, however, was not outlined explicitly in the mindfulness information provided for participants and therefore this may not have been effectively utilised by the participants. The attitude axiom of mindfulness ensures not only that moment-to-moment awareness occurs, but that the quality of this awareness is appropriate. Shapiro et al. (2006) illustrate this by comparing a cold and over-critical attitude to an accepting, open and kind attitude. Shapiro et al. (2006) also outline the importance of making the attitude component of mindfulness explicit, through consciously committing to develop certain qualities including kindness, curiosity and openness. This explicit commitment to developing a mindful attitude is one of the three key components in terms of developing mindfulness.

Implementation intentions work most effectively when the goal-associated cues are highly accessible (Webb & Sheeran, 2008). In this research, the results show a significant effect of the anger induction on self-reports of anger, but no difference in terms of

physiological measures or implicit anger. In addition, there was no significant difference between the 'Anger' and 'Implementation intention' conditions. This might suggest that although a level of anger was induced, it was not strong enough to influence the physiological measures. This may have meant that the cues (physical feelings of anger) associated with the goal-directed response (letting the angry thought go) were not accessible enough to mediate the response. Higher levels of induced anger might have strengthened the goal-directed cues, making them accessible enough for the implementation intention to be effective. In addition Gollwitzer and Sheeran (2006) found that implementation intentions were particularly effective when people acknowledged a specific problem that they required support with. As the participants in this study were not selected on the basis of having particular problems with anger, this may have limited the efficacy of the implementation intentions in this case.

Limitations to this research

In terms of the specific limitations of this research, much of the earlier literature around mindfulness interventions included a meditation exercise to aid participants in developing the ability to attend to the internal and external environment (Speca et al., 2000; Singh et al., 2007b). This therefore may have been a limitation of this particular study. In addition, although brief mindfulness interventions have been documented previously, these other interventions were longer, ranging from one and a half hours (Bowen & Marlatt, 2009) to four weekly 30-minute groups (Mackenzie et al., 2006). It may be that in order to effectively internalise mindfulness, more time is needed for the initial mindfulness training.

There were some limitations in terms of the research process. Firstly, although participants were asked to stay still and quiet in order to avoid influencing the physiological

measurements, at times they did move about and respond verbally to comments made. This may have influenced the heart rate monitoring for some participants across the four conditions. In particular, participants tended to respond verbally to the negative comments such as "Can you sit still, you are moving about too much and I can't measure anything". Participants would frequently respond verbally to such comments by either apologising, or becoming defensive.

Secondly, although participants were not always suspicious about the research in terms of questioning the research process as a whole, some participants commented that the questioning phase of the research didn't seem like a standard intelligence test. This was not measured, but again may have influenced the results for some participants across the four conditions.

Another limitation to this research was that for practical recruiting and room booking reasons, the two parts of the research (mindfulness intervention and the anger induction) were introduced to participants within one hourly slot. The Stroop task was introduced as a filler task, to differentiate the two parts of the research as separate 'experiments'. However, in order to allow the participants more time to practice and internalise the mindfulness implementation intention, a longer time delay may have been more effective.

As mentioned briefly earlier, the use of computerised rather than verbal feedback at the end of the anger induction may also have limited the impact of this feedback on participants. Berkowitz and Harmon Jones (2004, p. 109) stated that:

"There is also near complete agreement that someone or something, an external agent, must be seen as responsible for the negative event if there is to be anger".

Based on this, if the 'external agent' (the experimenter) is distanced from the participant by a computer screen, this might decrease their perceived responsibility for the negative event. Therefore a limitation of this study was using partially computerised feedback.

This location of the experimenter into an adjoining room might also have had a negative impact on the implicit anger task, in that their exposure to the experimenter was limited to the mindfulness intervention, Stroop task and taking physiological measures, however they were not exposed to the experimenter during the anger induction. Therefore the association between the anger-related words and the experimenter's face would be weak. In addition, there was no initial learning of the concept dimension (experimenter vs. neutral face). Other studies using implicit association tasks include an initial exposure to the different pictures used to prime the implicit association (Nosek, Greenwald & Banaji, 2005). As this research only included two pictures rather than categories of people (e.g. male, female, Black, White), this would have made it difficult to introduce the concept dimension without exposing the task. However, in not doing this, the association may not have been strong enough for participants to differentially respond.

Finally, undergraduate psychology students formed the majority of research participants, with a White female majority. This limited the research in terms of participant diversity, and also in terms of their prior knowledge of psychological research and deception studies. Although this was monitored by assessing whether or not participants were suspicious about the methodology, undergraduate psychology students may have had a higher level of general suspicion regarding psychological experiments in general. As a result, they may not have engaged emotionally at the same level as non-psychology students.

Suggestions for Future Research

Future researchers might consider replicating and extending this study, through using further techniques to ensure that participants develop all the axioms of mindfulness identified by Shapiro et al. (2006). These might include introducing a meditation exercise to increase moment-by-moment awareness (Speca et al., 2000) and introducing a commitment to influence participants' attitude by developing mindful personal qualities that might enhance the efficacy of the mindfulness intervention in influencing anger.

In addition, this research could also be extended by using additional physiological measures such as measuring galvanic skin reflexes. This might pick up on further physiological changes that were not considered within this research.

Future research might also consider conducting a closer assessment of participants thoughts about the research process, in order to better distinguish suspicious from non-suspicious participants, and the areas evoking suspicion. To reduce the risk of suspicious participants, future research might consider recruiting non-psychology participants who are less likely to have awareness of deception studies. This would have the dual benefit of being more generalisable across a broader population.

Due to the difficulties that arose in this research in which only the self-reported measures showed that participants were angry, future researchers might consider intensifying the anger induction to ensure that the anger influences the physiological and implicit priming measures. This might involve providing direct verbal feedback to participants rather than utilising a computerised procedure. It may also involve more face-to-face contact with the primary experimenter in order to strengthen the implicit association.

In addition future research might consider the impact of life-stressors and lack of emotional self-regulation or self-control in terms of how effectively these are influenced by mindfulness in comparison to participants who are not facing such difficulties, as it may be that these participants have a higher level of motivation, or that their anger levels are more sensitive to the introduction of mindfulness than participants not facing such difficulties.

Finally, in terms of practical issues that arose, participants in the 'placate' condition were able to pass on questions, although they were verbally requested to try and answer every question. Therefore future researchers might modify the computer program so that these participants had no choice but to guess the answer. Multiple choice questions might be effective in terms of ensuring that this occurs. This will therefore ensure that the positive feedback given to 'placate' participants is believed.

Clinical Implications

As the anger-induction did not sufficiently influence the physiological or the implicit measures of anger, it is difficult to conclude how effectively mindfulness works as part of an implementation intention in terms of moderating anger. The brief mindfulness approach used in this study may have a mild buffering approach in terms of participants' self-reported anger, but further research is required to confirm this. For mindfulness to effectively influence anger, previous research studies highlight the importance of both using and practicing mindfulness techniques such as 'Meditation on the soles of the feet' used in Singh et al's (2007b, 2007c) studies. This enables mindfulness to be internalised and drawn on without conscious thought by participants to effectively manage their anger. Consideration should

also be given to ensuring that any mindfulness program allows participants to develop the three axioms of attitude, intention, attention and attitude as outlined by Shapiro et al. (2006).

Conclusion

In conclusion, this study outlines a novel approach, combining mindfulness with implementation intentions in order to reduce experimentally-induced anger. Although there were no significant results in this research, there is scope for further research that addresses the limitations highlighted in this study. Therefore future researchers might consider extending this research, by utilising a practical meditation technique to support participants to internalise and habitually use mindfulness. This might then be used alongside an implementation intention to consider if the implementation intention enhances internalised mindfulness techniques.

Despite this study not yielding any significant results, it paves the way for future researchers to consider whether implementation intentions can be considered alongside mindfulness interventions. It also adds to the literature considering the efficacy of brief mindfulness interventions and the use of mindfulness in a controlled, experimental study.

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Part 3: Appendices

Literature Review

ISI Web of Knowledge℠

NB/ This search was re-run for the purpose of the appendix on the 28th July 2010 and therefore the top six documents were not available for the original search in March 2010. Items that were selected for the review have a tick to the left.

Print | E-mail | Add to Marked List | Save to EndNote Web
Save to EndNote, RefMan, ProCite more options

Analyze Results

1. Title: THE VALUE OF MINDFULNESS-BASED METHODS IN TEACHING AT A CLINICAL FIELD PLACEMENT
Author(s): Gokhan, N; Meehan, EF; Peters, K
Source: **PSYCHOLOGICAL REPORTS** Volume: **106** Issue: **2** Pages: **455-466** Published: **2010**
Times Cited: **0**
Find It

2. Title: Mindfulness Training for Parents and Their Children With ADHD Increases the Children's Compliance
Author(s): Singh, NN; Singh, AN; Lancioni, GE, et al.
Source: **JOURNAL OF CHILD AND FAMILY STUDIES** Volume: **19** Issue: **2** Pages: **157-166** Published: **2010**
Times Cited: **1**
Find It

3. Title: Training in Mindful Caregiving Transfers to Parent-Child Interactions
Author(s): Singh, NN; Lancioni, GE; Winton, ASW, et al.
Source: **JOURNAL OF CHILD AND FAMILY STUDIES** Volume: **19** Issue: **2** Pages: **167-174** Published: **2010**
Times Cited: **1**
Find It

4. Title: Mindful Parenting and Care Involvement of Fathers of Children with Intellectual Disabilities
Author(s): MacDonald, EE; Hastings, RP
Source: **JOURNAL OF CHILD AND FAMILY STUDIES** Volume: **19** Issue: **2** Pages: **236-240** Published: **2010**
Times Cited: **0**
Find It

5. Title: Psychological Acceptance Mediates the Impact of the Behaviour Problems of Children with Intellectual Disability on Fathers' Psychological Adjustment
Author(s): MacDonald, EE; Hastings, RP; Fitzsimons, E
Source: **JOURNAL OF APPLIED RESEARCH IN INTELLECTUAL DISABILITIES** Volume: **23** Issue: **1** Pages: **27-37** Published: **2010**
Times Cited: **0**
Find It

6. Title: Mindfulness as a potential intervention for stimulus over-selectivity in older adults
Author(s): McHugh, L; Simpson, A; Reed, P
Source: **RESEARCH IN DEVELOPMENTAL DISABILITIES** Volume: **31** Issue: **1** Pages: **178-184** Published: **2010**
Times Cited: **0**
Find It

7. Title: A Sales Force-Specific Theory-of-Mind Scale: Tests of Its Validity by Classical Methods and Functional Magnetic Resonance Imaging
Author(s): Dietvorst, RC; Verbeke, WJMI; Bagozzi, RR, et al.
Source: **JOURNAL OF MARKETING RESEARCH** Volume: **46** Issue: **5** Pages: **653-668** Published: **2009**
Times Cited: **0**
Find It

8. Title: Acceptance and Commitment Therapy (ACT) with a learning disabled young person experiencing anxious and obsessive thoughts.
Author(s): Brown, Freddy Jackson; Hooper, Sian
Source: **J Intellect Disabil** Volume: **13** Issue: **3** Pages: **195-201** Published: **2009 Sep**
Find It

9. Title: Asperger's syndrome and mindfulness: taking refuge in the Buddha
Author(s): Purton, C
Source: **INTERNATIONAL JOURNAL OF CHILDRENS SPIRITUALITY** Volume: **14** Issue: **3** Pages: **299-300** Published: **2009**
Times Cited: **0**
Find It

10. Title: Participants' Experiences of Mindfulness-Based Cognitive Therapy: "It Changed Me in Just about Every Way Possible"
Author(s): Allen, M; Bromley, A; Kuyken, W, et al.
Source: **BEHAVIOURAL AND COGNITIVE PSYCHOTHERAPY** Volume: **37** Issue: **4** Pages: **413-430** Published: **2009**
Times Cited: **1**
Find It

11. Title: Patient-Clinician Eye Contact: Social Neuroscience and Art of Clinical Engagement
Author(s): MacDonald, K
Source: **POSTGRADUATE MEDICINE** Volume: **121** Issue: **4** Pages: **136-144** Published: **2009**
Times Cited: **0**
Find It

12. Title: Mindful Staff Can Reduce the Use of Physical Restraints When Providing Care to Individuals with Intellectual Disabilities
Author(s): Singh, NN; Lancioni, GE; Winton, ASW, et al.
Source: **JOURNAL OF APPLIED RESEARCH IN INTELLECTUAL DISABILITIES** Volume: **22** Issue: **2** Pages: **194-202** Published: **2009**
Times Cited: **0**
Find It

13. Title: Mindfulness Approaches in Cognitive Behavior Therapy
Author(s): Singh, NN; Lancioni, GE; Wahler, RG, et al.
Source: **BEHAVIOURAL AND COGNITIVE PSYCHOTHERAPY** Volume: **36** Issue: **6** Pages: **659-666** Published: **2008**
Times Cited: **5**
Find It

14. Title: Mindfulness Training for Adolescents with Externalizing Disorders and their Parents
Author(s): Bogels, S; Hoogstad, B; van Dun, L, et al.
Source: **BEHAVIOURAL AND COGNITIVE PSYCHOTHERAPY** Volume: **36** Issue: **2** Pages: **193-209** Published: **2008**
Times Cited: **3**
Find It

15. Title: Clinical and benefit-cost outcomes of teaching a mindfulness-based procedure to

adult offenders with intellectual disabilities
Author(s): Singh, NN; Lancioni, GE; Winton, ASW, et al.
Source: **BEHAVIOR MODIFICATION** Volume: **32** Issue: **5** Pages: **622-637** Published: **2008**
Times Cited: **4**
Find It

16. Title: A mindfulness-based health Wellness program for an adolescent with Prader-Willi syndrome
Author(s): Singh, NN; Lancioni, GE; Singh, AN, et al.
Source: **BEHAVIOR MODIFICATION** Volume: **32** Issue: **2** Pages: **167-181** Published: **2008**
Times Cited: **4**
Find It

17. Title: Psychological variables as correlates of adjustment in mothers of children with intellectual disabilities: cross-sectional and longitudinal relationships
Author(s): Lloyd, T; Hastings, RP
Source: **JOURNAL OF INTELLECTUAL DISABILITY RESEARCH** Volume: **52** Pages: **37-48** Published: **2008**
Times Cited: **8**
Find It

18. Title: Clinical holistic medicine (mindful short-term psychodynamic psychotherapy complimented with bodywork) in the treatment of schizophrenia (ICD10-F20/DSM-IV Code 295) and other psychotic mental diseases.
Author(s): Ventegodt, Soren; Kandel, Isack; Merrick, Joav
Source: **ScientificWorldJournal** Volume: **7** Pages: **1987-2008** Published: **2007**
Find It

19. Title: Clinical holistic medicine (mindful short-term psychodynamic psychotherapy complimented with bodywork) in the treatment of schizophrenia (ICD10-F20/DSM-IV code 295) and other psychotic mental diseases
Author(s): Ventegodt, S; Kandel, I; Merrick, J
Source: **THESCIENTIFICWORLDJOURNAL** Volume: **7** Pages: **1987-2008** Published: **2007**
Times Cited: **2**
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20. Title: Mindful parenting decreases aggression and increases social behavior in children with developmental disabilities
Author(s): Singh, NN; Lancioni, GE; Winton, ASW, et al.
Source: **BEHAVIOR MODIFICATION** Volume: **31** Pages: **749-771** Published: **2007**
Times Cited: **18**
Find It

21. Title: Mindfulness training assists individuals with moderate mental retardation to maintain their community placements
Author(s): Singh, NN; Lancioni, GE; Winton, ASW, et al.
Source: **BEHAVIOR MODIFICATION** Volume: **31** Pages: **800-814** Published: **2007**
Times Cited: **5**
Find It

22. Title: Individuals with mental illness can control their aggressive behavior through mindfulness training
Author(s): Singh, NN; Lancioni, GE; Winton, ASW, et al.
Source: **BEHAVIOR MODIFICATION** Volume: **31** Issue: **3** Pages: **313-328** Published: **MAY 2007**
Times Cited: **9**
Find It

23. Title: Using acceptance and commitment training in the support of parents of children diagnosed with autism
Author(s): Blackledge, JT; Hayes, SC

Source: **CHILD & FAMILY BEHAVIOR THERAPY** Volume: **28** Issue: **1** Pages: **1-18** Published: **2006**
Times Cited: **9**
Find It

24. Title: Advanced paternal age: How old is too old?
Author(s): Bray, I; Gunnell, D; Smith, GD
Source: **JOURNAL OF EPIDEMIOLOGY AND COMMUNITY HEALTH** Volume: **60** Issue: **10** Pages: **851-853** Published: **OCT 2006**
Times Cited: **14**
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25. Title: Mindful parenting decreases aggression, noncompliance, and self-injury in children with autism
Author(s): Singh, NN; Lancioni, GE; Winton, ASW, et al.
Source: **JOURNAL OF EMOTIONAL AND BEHAVIORAL DISORDERS** Volume: **14** Issue: **3** Pages: **169-177** Published: **FAL 2006**
Times Cited: **22**
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26. Title: Mindful staff increase learning and reduce aggression in adults with developmental disabilities
Author(s): Singh, NN; Lancioni, GE; Winton, ASW, et al.
Source: **RESEARCH IN DEVELOPMENTAL DISABILITIES** Volume: **27** Issue: **5** Pages: **545-558** Published: **SEP-OCT 2006**
Times Cited: **12**
Find It

27. Title: An overview of research on increasing indices of happiness of people with severe/profound intellectual and multiple disabilities
Author(s): Lancioni, GE; Singh, NN; O'Reilly, MF, et al.
Source: **DISABILITY AND REHABILITATION** Volume: **27** Issue: **3** Pages: **83-93** Published: **FEB 4 2005**
Times Cited: **17**
Find It

28. Title: Caught in the continuum: A critical analysis of the principle of the least restrictive environment
Author(s): Taylor, SJ
Source: **RESEARCH AND PRACTICE FOR PERSONS WITH SEVERE DISABILITIES** Volume: **29** Issue: **4** Pages: **218-230** Published: **WIN 2004**
Times Cited: **0**
Find It

29. Title: Emergence of mucormycosis in onco-hematology after prolonged use of voriconazole: Attention required.
Author(s): Vigouroux, S; Morin, D; Moreau, P, et al.
Conference Information: **46th Annual Meeting of the American-Society-of-Hematology**, Date: **DEC 04-07, 2004 San Diego CA**
Source: **BLOOD** Volume: **104** Issue: **11** Pages: **348B-348B** Published: **2004**
Meeting Abstract: **5061**
Times Cited: **0**
Find It

30. Title: Soles of the Feet: a mindfulness-based self-control intervention for aggression by an individual with mild mental retardation and mental illness
Author(s): Singh, NN; Wahler, RG; Adkins, AD, et al.
Source: **RESEARCH IN DEVELOPMENTAL DISABILITIES** Volume: **24** Issue: **3** Pages: **158-169** Published: **MAY-JUN 2003**
Times Cited: **13**
Find It

31. Title: Mentoring treatment teams to integrate behavioral and psychopharmacological treatments in developmental disabilities
Author(s): Singh, NN; Wahler, RG; Sabaawi, M, et al.
Source: **RESEARCH IN DEVELOPMENTAL DISABILITIES** Volume: **23** Issue: **6** Pages: **379-389** Published: **NOV-DEC 2002**
Times Cited: **13**
Find It

32. Title: A mindful approach to mental retardation
Author(s): Reiss, S
Source: **JOURNAL OF SOCIAL ISSUES** Volume: **56** Issue: **1** Pages: **65-79** Published: **SPR 2000**
Times Cited: **5**
Find It

33. Title: Developmental assessment - Its role in comprehensive psychiatric assessment of young children
Author(s): Gilliam, WS
Source: **CHILD AND ADOLESCENT PSYCHIATRIC CLINICS OF NORTH AMERICA** Volume: **8** Issue: **2** Pages: **225-+** Published: **APR 1999**
Times Cited: **1**
Find It

34. Title: The relationship between self-determination and quality of life for adults with mental retardation
Author(s): Wehmeyer, M; Schwartz, M
Source: **EDUCATION AND TRAINING IN MENTAL RETARDATION AND DEVELOPMENTAL DISABILITIES** Volume: **33** Issue: **1** Pages: **3-12** Published: **MAR 1998**
Times Cited: **85**
Find It

35. Title: SOCIAL ACCEPTANCE BY THEIR PEERS OF CHILDREN WITH MENTAL-RETARDATION
Author(s): ROTHLISBERG, BA; HILL, R; DAMATO, RC
Source: **PSYCHOLOGICAL REPORTS** Volume: **74** Issue: **1** Pages: **239-242** Published: **FEB 1994**
Times Cited: **3**
Find It

36. Title: DISABLED CLIENTS, CONSTITUENCIES, AND COUNSEL - REPRESENTING PERSONS WITH DEVELOPMENTAL-DISABILITIES
Author(s): HERR, SS
Source: **MILBANK QUARTERLY** Volume: **67** Pages: **352-379** Part: **2** Supplement: **2** Published: **1989**
Times Cited: **1**
Find It

37. Title: [Some developmental questions on the organization of psychiatric care in East Germany--25 years after Rodewisch]
Author(s): Uhle, M; Weise, K
Source: **Psychiatr Neurol Med Psychol (Leipz)** Volume: **40** Issue: **12** Pages: **697-703** Published: **1988 Dec**
Find It

Pubmed Search.

NB/ The top article was not used, as it was not available when the original search was conducted.

Complementary and alternative medicine in autism: an evidence-based approach to negotiating safe and efficacious interventions with families.

Akins RS, Angkustsiri K, Hansen RL.

Neurotherapeutics. 2010 Jul;7(3):307-19.PMID: 20643384 [PubMed - in process]Related citations

2.

Acceptance and Commitment Therapy (ACT) with a learning disabled young person experiencing anxious and obsessive thoughts.

Brown FJ, Hooper S.

J Intellect Disabil. 2009 Sep;13(3):195-201.PMID: 19786502 [PubMed - indexed for MEDLINE]Related citations

3.

Psychological variables as correlates of adjustment in mothers of children with intellectual disabilities: cross-sectional and longitudinal relationships.

Lloyd T, Hastings RP.

J Intellect Disabil Res. 2008 Jan;52(Pt 1):37-48.PMID: 18173571 [PubMed - indexed for MEDLINE]Related citations

4.

Clinical holistic medicine (mindful short-term psychodynamic psychotherapy complimented with bodywork) in the treatment of schizophrenia (ICD10-F20/DSM-IV Code 295) and other psychotic mental diseases.

Ventegodt S, Kandel I, Merrick J.

ScientificWorldJournal. 2007 Dec 18;7:1987-2008. Review.PMID: 18167614 [PubMed - indexed for MEDLINE]Related citations

5.

Mindfulness training assists individuals with moderate mental retardation to maintain their community placements.

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Behav Modif. 2007 Nov;31(6):800-14.PMID: 17932236 [PubMed - indexed for MEDLINE]Related citations

6.

Mindful parenting decreases aggression and increases social behavior in children with developmental disabilities.

Singh NN, Lancioni GE, Winton AS, Singh J, Curtis WJ, Wahler RG, McAleavey KM.

Behav Modif. 2007 Nov;31(6):749-71.PMID: 17932234 [PubMed - indexed for MEDLINE]Related citations

7.

Advanced paternal age: how old is too old?

Bray I, Gunnell D, Davey Smith G.

J Epidemiol Community Health. 2006 Oct;60(10):851-3.PMID: 16973530 [PubMed - indexed for MEDLINE]**Free PMC Article**Free textRelated citations

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Mindful staff increase learning and reduce aggression in adults with developmental disabilities.

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Res Dev Disabil. 2006 Sep-Oct;27(5):545-58. Epub 2005 Sep 26.PMID: 16188424 [PubMed - indexed for MEDLINE]Related citations

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Soles of the Feet: a mindfulness-based self-control intervention for aggression by an individual with mild mental retardation and mental illness.

Singh NN, Wahler RG, Adkins AD, Myers RE; Mindfulness Research Group.

Res Dev Disabil. 2003 May-Jun;24(3):158-69.PMID: 12742385 [PubMed - indexed for MEDLINE]Related citations

10.

Mentoring treatment teams to integrate behavioral and psychopharmacological treatments in developmental disabilities.

Singh NN, Wahler RG, Sabaawi M, Goza AB, Singh SD, Molina EJ, Winton AS, Strand PS, Hill OW, Singh J, Barber JW, El-Sabaawi M, Dumas J; Mindfulness Research Group.

Res Dev Disabil. 2002 Nov-Dec;23(6):379-89.PMID: 12426007 [PubMed - indexed for MEDLINE]Related citations

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Gilliam WS.

Child Adolesc Psychiatr Clin N Am. 1999 Apr;8(2):225-38. Review.PMID: 10202587 [PubMed - indexed for MEDLINE]Related citations

12.

Disabled clients, constituencies, and counsel: representing persons with developmental disabilities.

Herr SS.

Milbank Q. 1989;67 Suppl 2 Pt 2:352-79.PMID: 2534156 [PubMed - indexed for MEDLINE]Related citations

Ovid Search.

NB/The top two papers were not used, as they was not available when the original search was conducted.

Search Results

Results of your search: (((Intellect* disab or learning disab or developmental disab* or autis* or retard* or asperg*) and mindful*) or (acceptance and commitment therapy) or dialectical behaviour therapy).ab.

1. The Effectiveness of an Acceptance and Commitment Therapy Self-help Intervention for Chronic Pain.
Johnston, Marnie MSocSci/PGDip Clin Psych *; Foster, Mary PhD *; Shennan, Jeannette MSocSci/PGDip Clin Psych +; Starkey, Nicola J. PhD *; Johnson, Anders MD, PhD +

Clinical Journal of Pain. 26(5):393-402, June 2010.
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AN: 00002508-201006000-00006.

2. Telephone-delivered Acceptance and Commitment Therapy for adult smoking cessation: A feasibility study.
Bricker, Jonathan B. Ph.D. 1,2; Mann, Sue L. M.P.H. 1; Marek, Patrick M. M.S. 1; Liu, Jingmin M.S. 1; Peterson, Arthur V. Ph.D. 1,3

Nicotine & Tobacco Research. 12(4):454-458, April 2010.
[BRIEF REPORTS]

Acceptance and Commitment Therapy: A Meta-Analytic Review.
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Psychotherapy & Psychosomatics. 78(2):73-80, 2009.

3. [Special Article]

AN: 00006847-200978020-00002.

Mindfulness and Cognitive Behavioral Therapy: Are They Compatible Concepts?.
Harrington, Neil; Pickles, Charles

Journal of Cognitive Psychotherapy. 23(4):315-323, 2009.

4. [Articles]

AN: 00120478-200923040-00004.

Acceptance and Commitment Therapy for Smoking Cessation: A Preliminary Study of Its Effectiveness in Comparison With Cognitive Behavioral Therapy.
Hernandez-Lopez, Monica 1; Luciano, M. Carmen 1; Bricker, Jonathan B. 2 3; Roales-Nieto, Jesus G. 1; Montesinos, Francisco 4

5. Psychology of Addictive Behaviors. 23(4):723-730, December 2009.
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AN: 00011970-200912000-00023.

Current empirical status of acceptance and commitment therapy.
Pull, Charles B

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Boelen, Paul A. 1; Reijntjes, Albert 2

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AN: 00011794-200830040-00001.

A Preliminary Community Study of Dialectical Behaviour Therapy (DBT) with Adolescent Females Demonstrating Persistent, Deliberate Self-Harm (DSH).
James, Anthony C.; Taylor, Annie; Winmill, Louise; Alfoadari, Kielly

8. Child & Adolescent Mental Health. 13(3):148-152, September 2008.
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AN: 00133623-200809000-00008.

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Vowles, Kevin E. 1,2; McCracken, Lance M. 1,2

9. Journal of Consulting & Clinical Psychology. 76(3):397-407, June 2008.
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AN: 00004730-200806000-00004.

Psychological Inflexibility in Childhood and Adolescence: Development and Evaluation of the Avoidance and Fusion Questionnaire for Youth.
Greco, Laurie A. 1; Lambert, Warren 2; Baer, Ruth A. 3

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McCracken, Lance M. 1,2,3; Vowles, Kevin E. 1,2

☐ Health Psychology. 27(2):215-220, March 2008.

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Pasillas, Rebecca M.; Follette, Victoria M.

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Gaudiano, Brandon A. a; Miller, Ivan W. a; Herbert, James D. b

☐ Psychotherapy & Psychosomatics. 76(5):271-277, 2007.

14. [Special Article]

AN: 00006847-200776050-00004.

☐ AUGMENTING CONTINUING EDUCATION WITH PSYCHOLOGICALLY FOCUSED GROUP CONSULTATION:

15. EFFECTS ON ADOPTION OF GROUP DRUG COUNSELING.

LUOMA, JASON B. 1,5; HAYES, STEVEN C. 1; TWOHIG, MICHAEL P. 1; ROGET, NANCY 2; FISHER, GARY 2; PADILLA, MICHELLE 2; BISSETT, RICHARD 2; HOLT, CHARLES 3; KOHLENBERG, BARBARA 4

Psychotherapy: Theory, Research, Practice, Training. 44(4):463-469, December 2007.
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AN: 00011673-200744040-00012.

The Same but Different: Autistic Children.
Mecke, Viola

PsycCRITIQUES. 52(50), December 12, 2007.

16. [Book Review]

AN: 01258377-200712120-00012.

Dialectical behaviour therapy for young offenders: lessons from the USA, Part 2.
McDougall, Tim Dip nursing (mental health), BSc (Hons), PGdip (health professional education); Jones, Carys Dip Nursing Studies (mental health), RGN, RN (Mental Health), PgDip (CBT for Children & Adolescents)

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[Behaviour Therapy]

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Baer, Ruth A.; Lykins, Emily L. B.

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18. [Video Review]

AN: 01258377-200709050-00017.

Dialectical behaviour therapy for people who self-harm: lessons from the USA. Part 1.

19. Jones, Carys Dip Nursing Studies (mental health), RGN, RN (Mental Health), PgDip (CBT for Children &

Adolescents); McDougall, Tim Dip nursing (mental health), BSc (Hons), PGdip (health professional education)

Mental Health Practice. 11(1):12-15, September 2007.
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AN: 00130799-200709000-00017.

Improving Diabetes Self-Management Through Acceptance, Mindfulness, and Values: A Randomized Controlled Trial.
Gregg, Jennifer A. 1,4; Callaghan, Glenn M. 1; Hayes, Steven C. 2; Glenn-Lawson, June L. 3

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20. Journal of Consulting & Clinical Psychology. 75(2):336-343, April 2007.
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AN: 00004730-200704000-00014.

Evaluation of Acceptance and Commitment Therapy for Drug Refractory Epilepsy: A Randomized Controlled Trial in South Africa-A Pilot Study.
Lundgren, Tobias *; Dahl, JoAnne *; Melin, Lennart *; Kies, Bryan +

21. Epilepsia. 47(12):2173-2179, December 2006.
[Original Research]

AN: 00003606-200612000-00026.

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Brassington, Jan; Krawitz, Roy

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[BORDERLINE PERSONALITY DISORDER]

AN: 00127911-200609000-00016.

Evidence-Based Psychotherapy for Schizophrenia.
Dickerson, Faith B. PhD, MPH *; Lehman, Anthony F. MD, MSPH +

Journal of Nervous & Mental Disease. 194(1):3-9, January 2006.

23. [Original Articles]

AN: 00005053-200601000-00002.

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Robb, Hank 1; Ciarrochi, Joseph 2

Journal of Rational-Emotive & Cognitive Behavior Therapy. 23(2):169-173, October 2005.

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AN: 00012290-200523020-00005.

CAN RATIONAL-EMOTIVE BEHAVIOR THERAPY (REBT) AND ACCEPTANCE AND COMMITMENT THERAPY (ACT) RESOLVE THEIR DIFFERENCES AND BE INTEGRATED?.
Ellis, Albert

Journal of Rational-Emotive & Cognitive Behavior Therapy. 23(2):153-168, October 2005.

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AN: 00012290-200523020-00004.

STABILITY AND CHANGE IN COGNITIVE BEHAVIOR THERAPY: CONSIDERING THE IMPLICATIONS OF ACT AND RFT.
Hayes, Steven C.

Journal of Rational-Emotive & Cognitive Behavior Therapy. 23(2):131-151, October 2005.

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AN: 00012290-200523020-00003.

LETTING A LITTLE NONVERBAL AIR INTO THE ROOM: INSIGHTS FROM ACCEPTANCE AND COMMITMENT

27. THERAPY PART 2: APPLICATIONS.

Ciarrochi, Joseph 1; Robb, Hank 2

Journal of Rational-Emotive & Cognitive Behavior Therapy. 23(2):107-130, October 2005.
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NEE, CLAIRE; FARMAN, SARAH

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AN: 00012203-200515010-00002.

The Third Wave: New Directions in Cognitive-Behavioral Intervention.
Hayes, Steven C.; Follette, Victoria M.; Linehan, Marsha M. Eds.; Baer, Ruth A.

30. PsycCRITIQUES. 50(52), December 28, 2005.
[REVIEW]

AN: 01258377-200512280-00019.

The Practicality of a Practical Guide to Acceptance and Commitment Therapy.
Hayes, Steven C.; Strosahl, Kirk D.; Karekla, Maria; Charilaou, Marianna

31. PsycCRITIQUES. 50(52), December 28, 2005.

[REVIEW]

AN: 01258377-200512280-00015.

Catching the Third Wave of Behavior Therapy.
Eifert, Georg H.; Forsyth, John P.; Evans, Ian M.

PsycCRITIQUES. 50(49), December 7, 2005.

32. [REVIEW]

AN: 01258377-200512070-00015.

Deliberate self-harm in children and adolescents: a research update.
Fortune, Sarah A; Hawton, Keith

Current Opinion in Psychiatry. 18(4):401-406, July 2005.

33. [Child and adolescent psychiatry]

AN: 00001504-200507000-00009.

Australian and New Zealand clinical practice guidelines for the management of adult deliberate self-harm.
Royal Australian and New Zealand College of Psychiatrists Clinical Practice Guidelines Team for Deliberate Self-harm

34. Australian & New Zealand Journal of Psychiatry. 38(11-12):868-884, November/December 2004. [Clinical practice guidelines]

AN: 00000929-200411000-00002.

FACT: THE UTILITY OF AN INTEGRATION OF FUNCTIONAL ANALYTIC PSYCHOTHERAPY AND ACCEPTANCE AND COMMITMENT THERAPY TO ALLEVIATE HUMAN SUFFERING.
CALLAGHAN, GLENN M. 1,6; GREGG, JENNIFER A. 2; MARX, BRIAN P. 3; KOHLENBERG, BARBARA S. 4,5;

35. GIFFORD, ELIZABETH 2

Psychotherapy: Theory, Research, Practice, Training. 41(3):195-207, Fall 2004.

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AN: 00011673-200404130-00001.

Practice-based outcomes of dialectical behaviour therapy (DBT) targeting anger and violence, with male forensic patients: a pragmatic and non-contemporaneous comparison.
EVERSHED, SUE 1; TENNANT, ALLISON 1; BOOMER, DEBBIE 1; REES, ANNE 2; BARKHAM, MICHAEL 2; WATSON, ALISON 3

36. Criminal Behaviour & Mental Health. 13(3):198-213, 2003.
[Original Articles]

AN: 00012203-200313030-00005.

Summary Australian and New Zealand clinical practice guideline for the management of adult deliberate self-harm (2003).
Boyce, Philip; Carter, Greg; Penrose-Wall, Jonine; Wilhelm, Kay; Goldney, Robert RANZCP Clinical Practice Guideline Team for Deliberate Self-Harm

37. Australasian Psychiatry. 11(2):150-155, June 2003.
[RANZCP Clinical Practice Guidelines]

AN: 00127911-200306000-00006.

Dialectical behaviour therapy for women with borderline personality disorder: 12-month, randomised clinical trial in The Netherlands.
VERHEUL, ROEL; VAN DEN BOSCH, LOUISE M. C.; KOETER, MAARTEN W. J.; DE RIDDER, MARIA A. J.; STIJNEN, THEO; VAN DEN BRINK, WIM

38. British Journal of Psychiatry. 182:135-140, February 2003.
[Papers]

AN: 00002405-200302000-00012.

39. The Use of Acceptance and Commitment Therapy to Prevent the Rehospitalization of Psychotic Patients: A Randomized Controlled Trial.

Bach, Patricia 1; Hayes, Steven C. 1,2

Journal of Consulting & Clinical Psychology. 70(5):1129-1139, October 2002.
[Regular Articles]

AN: 00004730-200210000-00007.

Exploring Compatibilities Between Acceptance and Commitment Therapy and 12-Step Treatment for Substance Abuse.
Wilson, Kelly G. 1; Hayes, Steven C. 2; Byrd, Michelle R. 2

40. Journal of Rational-Emotive & Cognitive Behavior Therapy. 18(4):209-234, 2000.
[RESEARCH ARTICLE: PDF Only]

AN: 00012290-200018040-00003.

Mediators of Change in Emotion-Focused and Problem-Focused Worksite Stress Management Interventions.
Bond, Frank W. 1,2; Bunce, David 1

41. Journal of Occupational Health Psychology. 5(1):156-163, January 2000.
[Articles]

AN: 00060745-200001000-00014.

Manual-assisted cognitive-behaviour therapy (MACT): a randomized controlled trial of a brief intervention with bibliotherapy in the treatment of recurrent deliberate self-harm.
EVANS, K.; TYRER, P.; CATALAN, J.; SCHMIDT, U.; DAVIDSON, K.; DENT, J.; TATA, P.; THORNTON, S.; BARBER, J.; THOMPSON, S.

42. Psychological Medicine. 29(1):19-25, January 1999.
[Original Articles]

AN: 00006826-199901000-00003.

Deliberate self harm: systematic review of efficacy of psychosocial and pharmacological treatments in preventing repetition.

Hawton, Keith; Arensman, Ella; Townsend, Ellen; Bremner, Sandy; Feldman, Eleanor; Goldney, Robert; Gunnell, David; Hazell, Philip; van Heeringen, Kees; House, Allan; Owens, David; Sakinofsky, Isaac; Traskman-Bendz, Lil

BMJ. 317(7156):441-447, August 15, 1998.

[Papers]

43.

AN: 00002591-199808150-00020.

Part 3: Appendices

i) Formats

The University Of Sheffield.

Department Of Psychology.
Clinical Psychology Unit.

Doctor of Clinical Psychology (DClin Psy) Programme
Clinical supervision training and NHS research training & consultancy.

Clinical Psychology Unit
Department of Psychology
University of Sheffield
Western Bank
Sheffield S10 2TP UK

Telephone: 0114 2226550
Fax: 0114 2226610
Email: c.harrison@sheffield.ac.uk

14 May 2010

Sarah Harper
Third year trainee
Clinical Psychology Unit
University of Sheffield

Dear Sarah

I am writing to indicate our approval of the journal(s) you have nominated for publishing work contained in your research thesis.

Literature Review: Behavior Modification

Research Report: Cognition and Emotion

Please ensure that you bind this letter and copies of the relevant Instructions to Authors into an appendix in your thesis.

Yours sincerely

Dr Andrew Thompson
Director of Research Training

The University Of Sheffield.

Department Of Psychology.
Clinical Psychology Unit.

Doctor of Clinical Psychology (DClin Psy) Programme
Clinical supervision training and NHS research training & consultancy.

Clinical Psychology Unit
Department of Psychology
University of Sheffield
Western Bank
Sheffield S10 2TP UK

Telephone: 0114 2226570
Fax: 0114 2226610
Email: dclinpsy@sheffield.ac.uk
Please address any correspondence to Ms. Christie Harrison, Research Support Officer

7th May 2009

To: Research Governance Office

Dear Sir/Madam,

RE: Confirmation of Scientific Approval and indemnity of enclosed Research Project

Project title: Combining mindfulness and implementation-intensions to control experimentally-induced anger

Investigators: Sarah Harper (DClin Psy Trainee, University of Sheffield); Dr Thomas Webb (Academic Supervisor, University of Sheffield); Prof Paschal Sheeran (Academic Supervisor, University of Sheffield)

I write to confirm that the enclosed proposal forms part of the educational requirements for the Doctoral Clinical Psychology Qualification (DClin Psy) run by the Clinical Psychology Unit, University of Sheffield.

Three independent reviewers appointed by the Clinical Psychology Unit Research Sub-committee have scientifically reviewed it.

I can confirm that all necessary amendments have been made to the satisfaction of the reviewers, who are now happy that the proposed study is of sound scientific quality. Consequently, the University will also indemnify it, and would be happy to act as research sponsor once ethical approval has been gained.

Given the above, I would remind you that the Unit already has an agreement with your office to exempt this proposal from further scientific review. However, if you require any further information, please do not hesitate to contact me.

Yours sincerely

Dr. Andrew Thompson
Director of Research Training

Cc. Sarah Harper; Dr Thomas Webb; Prof Paschal Sheeran

The University Of Sheffield.

Research & Innovation Services.

A Section of the Academic Division, Research Services

New Spring House
231 Glossop Road
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S10 2GW

Telephone: +44 (0) 114 222 1448
Fax: +44 (0) 114 222 1452
Email: r.j.hudson@sheffield.ac.uk

Ms Sarah Harper
Student
Pyschology

12th May 2009

Dear Sarah,

CONDITIONAL AGREEMENT TO BE THE PROJECT'S RESEARCH GOVERNANCE SPONSOR

Title: Combining mindfulness & implementation –intensions to control experimentally-induced anger
URMS Reference: 125580

This is to confirm that in respect of the above project, of which your Supervisors are Dr Thomas Webb and Professor Paschal Sheeran, the University of Sheffield agrees conditionally to be the project's 'research governance sponsor'. In agreeing conditionally to be the research governance sponsor the University confirms that:

1. The research proposal has been discussed with the Supervisor and investigator and agreement in principle to sponsor the research is in place;
2. An appropriate process of scientific critique has demonstrated that this research proposal is worthwhile and of high scientific quality;
3. Any necessary indemnity/insurance arrangements will be in place before the research starts;
4. Arrangements will be in place before the study starts for the research team to access resources & support to deliver the research as proposed;
5. Arrangements to allocate responsibilities for the management, monitoring & reporting of the research will be in place before the research starts;
6. The duties of the research governance sponsor will be undertaken in relation to the research.
7. A lay summary of the project will be published on the website of the National Research Ethics Service (NRES), together with the contact point for enquiries named in the application. Publication will take place no earlier than 3 months after issue of the NHS research ethics committee's final opinion or withdrawal of the application.

Please enclose this letter with your ethics application when submitting it to the NHS Research Ethics Committee (in the sponsor declaration section of the NHS ethics form state 'please refer to the enclosed letter from the University of Sheffield'). In due course please provide Mr Richard Hudson (r.j.hudson@sheffield.ac.uk) with evidence of independent ethical approval (e.g. a copy of the letter from an NHS Research Ethics Committee). Please note Annex 1 attached to this letter where the responsibilities of the Supervisor and Head of Department in relation to research governance are outlined. The expectation is that the Supervisor's responsibilities are fulfilled with your support and input.

Yours sincerely

Suzanne Bushnell-Watson
Research Development Manager
The University of Sheffield

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2007

Part 3: Appendices

i) Ethical Approval

The University Of Sheffield.

SK Harper <pcp07skh@sheffield.ac.uk>

ethics approval

1 message

Chris Eiser <c.eiser@sheffield.ac.uk> **26 June 2009 15:27**
To: pcp07skh@sheffield.ac.uk, Paschal Sheeran <p.sheeran@sheffield.ac.uk>, Tom Webb <t.webb@sheffield.ac.uk>

Dear Sarah,
This is to confirm that your study 'Combining mindfulness and implementation intentions to control experimentally induced anger' has been approved by
the department ethics committee and you may proceed with the work. Please inform the committee if any changes to your method are proposed. Congratulations and good luck, Chris Eiser

–
Christine Eiser, PhD
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Director: MSc Research Methods
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Part 3: Appendices

iii) Measures and others

Information Sheet

Date:

Before you decide whether to take part it is important that you understand why the research is taking place and what it will involve. Please take the time to read the following information.

You are invited to take part in a Doctoral research study.

The study, led by David Jones (Trainee Clinical Psychologist) is investigating anger and the use of a technique called mindfulness to manage anger. It is supervised by Dr. Thomas Webb, a psychologist who has conducted research on emotions for several years.

This study will take place at the Department of Psychology, at the University of Sheffield in a private room.

There is no obligation to take part, and you can choose not to finish the study at any time. You do not have to answer any questions that you do not want to answer.

Your answers are anonymous and confidential and will only be used for research and teaching purposes. The overall responses from everyone who takes part in these studies will be used for journal publications and conferences. Your answers are strictly private, and you will not be directly identifiable. Once your answers to the questionnaires have been put on computer for statistical analysis, the original questionnaires will be destroyed to make sure that the information you give is kept confidential. Data may need to be accessed by authorised persons for audit purposes.

If you have any further queries or wish to place a complaint about any aspect of the research, you can contact the primary researcher, Sarah Harper (pcp07skh@shef.ac.uk). If

you wish to take this further, you can contact Dr Thomas Webb (t.webb@shef.ac.uk). If you are still not satisfied, you can contact the University Registrar and Secretary, Dr David Fletcher (D.E.Fletcher@sheffield.ac.uk) to take the matter further.

CONSENT FORM

Name of Researcher: David Jones

Please initial box:

1. I confirm that I have read and understood the information sheet dated 24/02/2010 ☐
2. I have had the opportunity to ask questions and these have been adequately answered. ☐
3. I understand that my answers to the questionnaires and the computer task will be recorded. ☐
4. I understand that I am free to withdraw from the study at anytime, without giving any reason. ☐
5. I agree to take part in the above study. ☐
6. I agree that my anonymised answers may be used for teaching and research purposes. ☐

Name of Participant:

Date

Signature

Name of Researcher:

Date

Signature

Omitted: Mindfulness information.

Over the next week, please try and implement this technique. To do this, use the following plan:

"If I feel angry, then I will tell myself;

"This is just a feeling. I will notice it, and then I'll let it go!"

Please say this to yourself three times now.

Over the next week, please try and use this technique as frequently as you can, completing the diary sheet provided, in which you notice times when you feel angry, rate your anger on a scale of 0-10 and explain how you coped with the situation. Do not fill this in now, but take it away with you. Please provide your email address below for the purpose of follow-up.

Email address:

_____

Thank you

Diary of Anger Experiences

Date and Time	Describe the situation that made you feel angry.	Rate your anger on a scale of 0-10 (0 being not at all angry and 10 being extremely angry).	How did you cope with the situation?

Omitted: Mindful Awareness Assessment Schedule

Information Sheet

Date:

Before you decide whether to take part it is important that you understand why the research is taking place and what it will involve. Please take the time to read the following information.

You are invited to take part in a Doctoral research study.

This study, led by Sarah Harper (Trainee Clinical Psychologist) is investigating an intelligence test, designed to assess verbal comprehension and perceptual organisation and corresponding physiological measures.

This study will take place at the Department of Psychology, at the University of Sheffield in a private room.

This research project is supervised by Prof. Paschal Sheeran, a psychologist who has conducted research on cognitive processing for several years.

There is no obligation to take part, and you can choose not to finish the study at any time. You do not have to answer any questions that you do not want to answer.

Your answers are anonymous and confidential and will only be used for research and teaching purposes. The overall responses from everyone who takes part in these studies will be used for journal publications and conferences. Your answers are strictly private, and you will not be directly identifiable. Once your answers to the questionnaires have been put on computer for statistical analysis, the original questionnaires will be destroyed to make sure that the information you give is kept confidential.

If you have any further queries or wish to place a complaint about any aspect of the research, you can contact the primary researcher, Sarah Harper (pcp07skh@shef.ac.uk). If you wish to take this further, you can contact Prof Paschal Sheeran (P.Sheeran@shef.ac.uk). If you are still not satisfied, you can contact the University Registrar and Secretary, Dr David Fletcher (D.E.Fletcher@sheffield.ac.uk) to take the matter further.

CONSENT FORM

Name of Researcher: Sarah Harper

Please initial box:

7. I confirm that I have read and understood the information sheet dated……

8. I have had the opportunity to ask questions and these have been adequately answered.

9. I understand that my answers to the questionnaires and the computer task will be recorded.

10. I understand that I am free to withdraw from the study at anytime, without giving any reason.

11. I agree to take part in the above study.

12. I agree that my anonymised answers may be used for teaching and research purposes.

13. I understand that authorised persons may see my data for the purpose of audit.

_____ _____

Name of Participant Date Signature

_____ _____

Name of Researcher. Date Signature

Omitted: Stroop Task

Omitted: Trivial Pursuits General Knowledge Questions.

Omitted: Implicit Anger Task (Including pattern mask, non-words and words and photographic primes)

Omitted: State Trait Anger Expression Inventory

Omitted: State Trait Anxiety Inventory (6 Items)

Debrief Sheet

1) Did you have any idea what the experiment was about?

2) Both experiments were actually part of the same study and David Jones does not exist. You therefore do not have to complete the monitoring sheet over the next week.

3) Purpose of the experiment is to see whether mindfulness can be integrated into an 'if then plan' to reduce induced anger in participants. You were in:

   Condition A: Experimental condition (anger, if-then, mindfulness)

   Condition B: Experimental condition (without the if-then plan)

   Condition C: Control group (testing the efficacy of anger induction)

   Condition D: Control group (testing the impact of completing the tasks)

4) These comments and feedback you received are not true, but designed to make participants feel angry.

5) The word/non-word task was actually a priming measure of implicit anger, with the measurement being your response time to anger-related words when a picture of my face was subliminally presented as compared to a control face.

6) You were not actually being monitored by camera.

7) You will receive your cash reward (and credits)

8) It is really important in order to maintain the integrity of this experiment that you don't discuss this experiment with anyone else on your course.

9) Have you any further questions?

Thank you very much for participating.

CONSENT FORM

Name of Researcher: Sarah Harper

Please initial box:

14. I confirm that I have read and understood the information sheet dated……

15. I have had the opportunity to ask questions and these have been adequately answered.

16. I understand that my answers to the questionnaires and the computer task will be recorded.

17. I understand that I am free to withdraw from the study at anytime, without giving any reason.

18. I agree to take part in the above study.

19. I agree that my anonymised answers may be used for teaching and research purposes.

20. I understand that authorised persons may see my data for the purpose of audit.

_____ _____

Name of Participant Date Signature

_____ _____

Name of Researcher. Date Signature