

# Mindfulness and Self-esteem: A Systematic Review

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**Abstract** This main aim of this review was to synthesise and critically appraise studies investigating (i) the association between mindfulness and self-esteem, and (ii) the impact of mindfulness-based interventions (MBIs) on self-esteem. A further aim was to identify priorities for future research. A systematic review was conducted using electronic databases, resulting in 32 studies meeting the inclusion criteria. Fifteen studies explored the association between dispositional mindfulness and self-esteem, and 17 studies investigated change in self-esteem following a MBI. Cross-sectional studies found significant positive correlations between dispositional mindfulness and self-esteem, whilst the majority of MBI studies resulted in significant increases in self-esteem. Studies were quality-assessed which highlighted that these findings should be interpreted with caution due to methodological weaknesses. More robust research is needed to corroborate these findings and to investigate the impact of mindfulness as an intervention for low self-esteem.

**Keywords** Mindfulness · Self-esteem · Systematic review

## Introduction

Over the years, there have been a number of definitions of self-esteem, making it a difficult concept to operationalise (Mruk 2006). Self-esteem was originally defined as a

unidimensional construct, referring to a person's sense of competence (James, 1890/1983) or worth (Rosenberg 1965). Researchers have since described self-esteem as multidimensional, defining it as the evaluation that an individual makes regarding him or herself, and reflects one's sense of individual competence and personal worth in dealing with life challenges (Mruk 2006; Branden 1969). Self-esteem is often described as an attitude that an individual has towards oneself (Coopersmith 1967; Rosenberg 1965). Leary et al. (1995) distinguished between trait and state self-esteem. Trait self-esteem is described as an individual's average level of self-esteem over time and situations, as opposed to state self-esteem, which refers to the fluctuations in self-esteem throughout an individual's daily life.

The correlational and experimental literatures are generally consistent with the notion that self-esteem functions to buffer negative emotions, such as anxiety (Greenberg et al. 1992), and enhance personal adjustment (Leary et al. 1995). Indeed, the correlational literature consistently demonstrates positive associations between self-esteem and various indices of psychological well-being, and negative associations between self-esteem and anxiety-related difficulties more specifically (Greenberg et al. 1992). Furthermore, the experimental literature (involving the direct manipulation of self-esteem) examining threats to self-esteem is also consistent with this idea, with some studies demonstrating a causal relationship between self-esteem and negative emotions such as anxiety (Greenberg et al. 1992). Researchers have hypothesised a number of reasons for this, including self-esteem being associated with confidence and high expectations of success, increased optimism and reduced anxiety (Leary et al. 1995). Others have suggested that high self-esteem promotes goal achievement and helps people to persist when faced with challenges (e.g. Bandura 1977). High self-esteem has been shown to promote physical health (Taylor and Brown 1988) and

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enhance coping with threat (Greenberg et al. 1992). Low self-esteem, on the other hand, is associated with a range of mental health difficulties, including depression, anxiety, psychosis, personality disorder and alcohol dependence (Silverstone 1991). Despite this evidence, some studies do not support the buffer hypothesis, indicating that the negative effects of low self-esteem are mainly felt in good times (Baumeister et al. 2003). There has been some debate regarding the benefits and predictors of high self-esteem. A review by Baumeister et al. (2003) concluded that, other than happiness, self-esteem was not a major predictor of factors such as school and job performance, interpersonal relations, aggression and associated behaviour and negative health-related behaviour (e.g. smoking and alcohol). They highlighted that the suggested benefits of self-esteem may be a product of overlapping factors and argued that some effects of self-esteem disappeared when correlated variables were controlled for. This study, however, did not review the relationship between self-esteem and an exhaustive list of psychological factors and therefore warrants further examination.

Given the range of difficulties associated with low self-esteem, it is unsurprising that interventions have been tailored to specifically target the construct. For example, cognitive behavioural therapy (CBT) interventions have been developed to treat low self-esteem across a range of difficulties (Fennell 1998, 1999). Individual and group interventions have been trialled with a range of client groups, including psychosis (Lecomte et al. 1999; Hall and Tarrier 2003), depressed adolescents (Taylor and Montgomery 2007) and adults with intellectual disability (Whelan et al. 2007). Studies have demonstrated significant increases in self-esteem post-intervention but have indicated that further research is needed to explore whether benefits are maintained over time (Taylor and Montgomery 2007).

Mindfulness is commonly defined as “paying attention in a particular way: on purpose, in the present moment, and non-judgmentally” (Kabat-Zinn 1990). The concept is often associated with Buddhist traditions (Thera 1973), but it has become increasingly popular in Western culture and in clinical practice. According to Western conceptualisations, mindfulness refers to an awareness of both internal and external experiences. Bishop et al. (2004) suggest that mindfulness is comprised of two components: self-regulation of attention and orientation to experience. Self-regulation of attention refers to awareness and observation of moment-to-moment experiences, such as thoughts, feelings or sensations. Orientation to experience involves an attitude of curiosity, openness and acceptance. The term mindfulness is used when referring to either a psychological trait (dispositional or trait mindfulness), a state of awareness (state mindfulness) and in reference to the practice of cultivating mindfulness, for example, through mindfulness meditation.

Mindfulness became increasingly recognised following the introduction of mindfulness-based stress reduction (MBSR) interventions (Kabat-Zinn 1982) and, later, mindfulness-based cognitive therapy (MBCT; Segal et al. 2002). Further developments in psychological treatment have resulted in a number of interventions incorporating mindfulness approaches, such as dialectical behaviour therapy (DBT; Linehan 1993) and acceptance and commitment therapy (ACT; Hayes et al. 1999). A number of studies have attempted to explore the mechanisms underpinning mindfulness. Results indicate that increased self-compassion, positive emotions and acceptance may explain improvements following mindfulness-based interventions (MBIs), in addition to decreased rumination (Keng et al. 2011).

Researchers have explored the association between dispositional mindfulness and self-esteem, with positive correlations found across studies (e.g. Brown and Ryan 2003; Thompson and Waltz 2008). A number of studies have investigated change in self-esteem following MBIs with the majority showing improvements (e.g. Biegel et al. 2009; Ree and Craigie 2007), but with some showing no change when compared to controls (e.g. Henderson et al. 2013). Of note, studies investigating the impact of MBIs have generally measured self-esteem as a secondary outcome.

The research so far suggests a relationship between mindfulness and self-esteem that warrants further exploration and discussion. To this end, the aims of this review are to (i) synthesise and critically appraise studies investigating the association between mindfulness and self-esteem, (ii) examine and synthesise the impact of MBIs on self-esteem, and (iii) identify priorities for research in this area, in particular, with reference to the potential use of mindfulness as a treatment for low self-esteem.

## Method

### Search Procedure

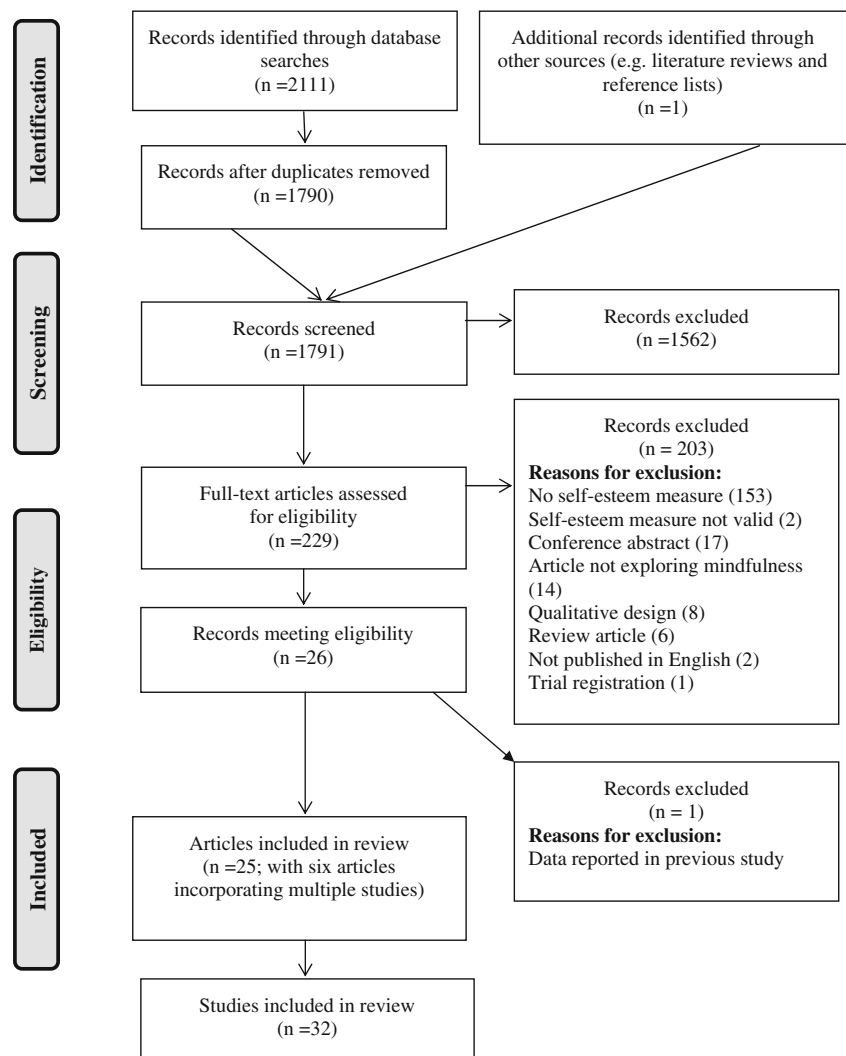
A literature search was conducted using the electronic databases PsycINFO, MEDLINE, Embase, Cochrane Central Register of Controlled Trials and CINAHL. Two search sets were used which were linked with the Boolean operator ‘AND’. The first search set related to self-esteem and included the following search terms: ‘self esteem’ OR ‘self worth’ OR ‘self concept’ OR ‘self evaluation\*’ OR ‘self attitude\*’ OR ‘self liking’ OR ‘self competen\*’ OR ‘self perception\*’. The second search set related to mindfulness and included the following search term: ‘mindful\*’. The search terms were entered for comprehensive searching in ‘All fields’ of articles. Where possible, limits were set to only include journal articles that were published in English language and peer-reviewed.

Figure 1 shows a diagram detailing the flow of studies through the different stages of the search. In total, the database searches produced 2111 articles. Throughout the search, no similar systematic review was identified.

### Inclusion Criteria

Inclusion and exclusion criteria were established prior to the literature search. The search was conducted in December 2013. Studies were included based on the following inclusion criteria: (i) published in peer-reviewed journals (as the review process acts as an independent measure of the quality of a study), (ii) written in English language, (iii) used a quantitative methodology, (iv) included mindfulness as an intervention and/or used a psychometrically reliable and validated measure of mindfulness, and (v) included a psychometrically reliable and validated measure of self-esteem. The research team made decisions about whether articles met the inclusion criteria. Articles were only included if all authors were in agreement.

**Fig. 1** Flow diagram of systematic search



### Quality Assessment

The methodological quality of the studies was assessed to identify strengths and weaknesses in order to guide interpretation of results. Global quality ratings are provided in Tables 1 and 2, and domain-specific ratings in Table 3. Deeks et al. (2003) critically appraised a number of quality assessment tools and identified six which they deemed suitable for use in systematic reviews of both randomised and non-randomised studies. Of the six identified, the Effective Public Health Practice (EPHPP) tool (Thomas 2003) was used to evaluate studies in the current review as it provides the flexibility to quality assess a range of study designs and provides clear instructions on how to do this. The EPHPP has good content and construct validity (Thomas et al. 2004) and inter-rater reliability (Armijo-Olivio et al. 2010).

The EPHPP assesses the following six domains: (a) Selection bias, (b) Study design, (c) Confounders, (d) Blinding, (e) Data collection methods and (f) Withdrawals

**Table 1** Studies exploring the association between mindfulness and self-esteem

Authors, year and country	Participant sample	Procedure	Measure of mindfulness	Measure of self-esteem	Results	Quality assessment rating
Brown and Ryan (2003); USA	Study 1-1253 participants (adults in the community and university students)	Completed measures at one time point	Mindfulness/Mindlessness Scale (MMS) Mindful Attention Awareness Scale (MAAS)	Multidimensional Self-Esteem Inventory and Rosenberg Self Esteem Scale	Significant positive association between both self-esteem and MAAS scores	Weak
Verplanken et al. (2007); Norway	Study 4 – 155 university students	Completed measures at one time point	Mindful Attention Awareness Scale	Self-liking and Competence Scale	Significant positive correlation between mindfulness and self-esteem score	Weak
Michalak et al. (2011); Germany	216 undergraduate students	Completed measures at one time point	Kentucky Inventory of Mindfulness Skills – accept without judgment subscale (KIMS-A).	Rosenberg Self-Esteem Scale	Significant positive correlation between <i>accept without judgment</i> subscale and self-esteem	Weak
Thompson and Waltz (2008); USA	167 university students (age 18–52)	Completed measures at one time point	Mindful Attention Awareness Scale Cognitive and Affective Mindfulness Scale- Revised (CAMS-R)	Rosenberg Self Esteem Scale	Significant positive correlation between both mindfulness measures and self esteem	Weak
Denny and Steiner (2009); USA	140 Stanford University student-athletes	Completed measures at one time point	Mindfulness/Mindlessness Scale	Weinberger Adjustment Inventory (WAI)	Significant positive correlation between mindfulness and self-esteem score	Weak
Niemiec et al (2010); USA	182 undergraduate students	Completed measures at one time point	Mindful Attention Awareness Scale	Rosenberg Self Esteem Scale	Significant positive correlation between mindfulness and self-esteem scores in all studies	Weak
Study 3-	128 students	Completed measures of mindfulness and self-esteem prior to mortality salience induction versus control				Weak
Study 5-	216 students					Weak
Study 6-	96 students					Weak
Study 7-	113 students					Weak
Rasmussen and Pidgeon (2011); Australia	205 Australian undergraduate students	Completed measures at one time point	Mindful Attention Awareness Scale	Rosenberg Self Esteem Scale	Regression analyses showed mindfulness significantly predicted high levels of self-esteem.	Weak
					Significant positive correlation between mindfulness and self-esteem	Weak
Hinterman et al. (2012); USA	232 college students	Completed measures at one time point	Kentucky Inventory of Mindfulness Scale (KIMS)	Rosenberg Self Esteem Scale	Significant positive correlations between mindfulness and self-esteem	Weak
Wasyliw et al. (2012); Canada	Study 1- 142 female students Study 2- 187 female students	Completed measures at one time point	The Self-Compassion Scale ( <i>mindfulness subscale</i> )	Rosenberg Self Esteem Scale	Significant positive correlations between mindfulness and self-esteem in both studies	Weak
Pepping et al. (2013); Australia	Study 1-329 undergraduate students	Completed measures online at one time point	Five Facet Mindfulness Questionnaire (FFMQ)	Rosenberg Self Esteem Scale	Significant positive correlations between <i>describing, awareness, nonjudging</i> and <i>nonreactivity</i> subscales of mindfulness and self-esteem- not <i>observing</i>	Weak

**Table 2** Studies investigating change in self-esteem following a mindfulness-based intervention

Authors, year and country	Participant sample	Intervention	Measure of mindfulness	Measure of self-esteem	Outcomes	Quality assessment rating
Emavardhana and Tori (1997); Thailand	719 adolescents and adults recruited to intervention or control group through school and colleges	7-day Vipassana meditation retreat versus Non-treated control group	None	Tennessee Self-Concept Scale (TSCS)	MANOVA showed significant change in pre and post scores on TSCS. No change in control group	Weak
Roth and Creaser (1997); USA	$N=79$ Varied medical or mental health problems. Referred to program at the Community Health Center of Meridan	8-week stress reduction and relaxation program (2-h session)	None	Coopersmith Self Esteem Inventory (CSEI) or Rosenberg Self Esteem Scale (RSE)	Paired $t$ tests using pre and post measures indicated significant increase in self-esteem on both measures	Weak
Ree and Craigie (2007); Australia	26 psychiatric outpatients with mood and/or anxiety disorders	8-week MBCT course (2.5-h session)	Mindful Attention Awareness Scale	Rosenberg Self Esteem Scale	Paired $t$ tests using pre-post scores on SES showed significant increase	Weak
Samuelson et al. (2007); USA	1350 inmates in correctional facilities. Quasi waiting list control group ( $n=181$ )	6–8-week MBSR course (1–1.5 h)	None	Rosenberg Self Esteem Scale (RSE)	Significant change in pre-post scores on RSE following completion of MBSR.	Weak
Koole et al. (2009); USA and Netherlands	Study 1 ( $n=130$ psychology students at Ohio State University) Study 2 ( $n=58$ paid students at the VU University of Amsterdam)	Randomly assigned to complete 11-min body scan meditation before or after self-esteem measures Randomly assigned to complete 11-min body scan or count number of verbs in narrative as control	None	Rosenberg Self Esteem Scale (explicit self-esteem) and Name-letter task (implicit self-esteem) in both studies.	Meditation did not affect mean levels of implicit or explicit self-esteem in either study	Weak
Biegel et al. (2009); USA	102 adolescents aged 14–18 from outpatient child and adolescent psychiatry department. Randomized to MBSR ( $N=50$ ) or TAU ( $N=52$ )	8-week MBSR group (2-h sessions) TAU= Individual or group psychotherapy and/or medication management	None	Rosenberg Self Esteem Scale	Experimentally induced mindfulness increased association between implicit and explicit self-esteem in both studies	Weak
Goldin et al. (2009); USA	$N=16$ . Met DSM-IV criteria for social anxiety disorder	8-week MBSR group (2.5-h sessions) and half day retreat	None	Rosenberg Self Esteem Scale	Relative to TAU, participants showed significant improvements in self-esteem	Moderate
Brinkborg et al (2011); Sweden	106 Swedish social workers	Stress management intervention based on ACT versus waiting list control	None	The Performance-based self-esteem scale (PBSE)	Paired $t$ tests using baseline and post-MBSR scores showed significant increase in self-esteem ( $p<.05$ ) and medium effect size (.51)	Weak
Roepke et al (2011); Germany	40 female inpatients with diagnosis of borderline personality disorder	12-week DBT (2-h mindfulness session each week) versus waiting list control	None	Multidimensional Self Esteem Scale (MSE) Basic Self-Esteem Scale (BSE)	There was no significant change regarding performance-based self-esteem ANCOVA for BSE revealed significant interaction effect between group and time indicating significant improvement in the DBT group but no significant changes in the waitlist control group	Weak

Table 2 (continued)

Authors, year and country	Participant sample	Intervention	Measure of mindfulness	Measure of self-esteem	Outcomes	Quality assessment rating
Jazaieri et al. (2012); USA	56 adults who met DSM-IV criteria for social anxiety disorder (SAD) Healthy control group ( $n=48$ ) Untreated SAD group ( $n=29$ )	Randomised to 8-week MBSR program (2.5-h sessions, 1-day retreat) or 8-week aerobic exercise (AE)	Kentucky Inventory of Mindfulness Scale (KIMS)	Rosenberg Self Esteem Scale	ANOVA revealed main effect of time for self-esteem in MBSR and AE groups. No significant differences between groups	Weak
Meyer et al. (2012); USA	16 outpatients with diagnoses of schizophrenia or schizoaffective disorder	10-week positive living group (incorporating mindfulness)	None	Self-esteem rating scale-short form (SERS-SF)	Self-esteem improved from baseline to post-intervention	Weak
Pinniger et al. (2012); Australia	97 participants with self-reported depression. Randomised to tango dance ( $n=33$ ) mindfulness meditation ( $n=33$ ) or control/waiting list ( $n=31$ )	6-week programmes (1.5-h sessions of tango or meditation)	Mindful Attention Awareness Scale	Rosenberg Self Esteem Scale	ANCOVA revealed no significant effect of time for self-esteem. Self-esteem improved more in meditation group ( $d=0.35$ ) than tango ( $d=0.17$ ). Significant correlation between mindfulness and self-esteem	Weak
Tan and Martin (2012); Australia	10 adolescents (13–17 years) from Child and Youth Mental Health Service, Brisbane	5-week Taming the Adolescent Mind program (adapted from MBSR protocol)	Children's Acceptance and Mindfulness Measure (CAMM)	Rosenberg Self Esteem Scale	ANOVA revealed significant effect of time for self-esteem and mindfulness. Paired <i>t</i> tests showed significant pre/post change	Weak
White (2012); USA	150 school age girls (mean age 9) Intervention ( $n=70$ ) Control ( $n=85$ )	8-week stress reduction program using mindful movement	None	Self Perception Profile for Children <i>Global Self-Worth subscale</i>	No significant difference between groups on self-esteem scores. Over time, both groups' scores increased	Weak
Henderson et al. (2013); USA	172 women (age 20–65) with breast cancer	8-week MBSR or nutrition education or usual care	None	Rosenberg Self Esteem Scale	No reported significant difference between groups on RSE scores	Weak
Pepping et al. (2013); Australia	Study 2-68 undergraduate students	Randomly assigned to complete measures after: experimental condition, 15-min mindfulness meditation or control, reading a story	Mindful Attention Awareness Scale-State version (MAAS-State)	Rosenberg Self Esteem Scale (instructed to respond based on current feelings to assess state self-esteem)	Significant pre-post increase in state self-esteem and mindfulness in experimental condition but not in control	Weak

**Table 3** Quality ratings (weak, medium or strong) for the six domains of the EPHPP and the overall quality rating

Study reference	Selection bias	Study design	Confounder	Blinding	Measures	Attrition	Overall
Emavardhana and Tori (1997)	W	S	S	W	S	S	W
Roth and Creaser (1997)	W	M	W	W	S	M	W
Brown and Ryan (2003)	W	W	W	W	S	N/A	W
Ree and Craigie (2007)	W	M	W	W	S	S	W
Samuelson et al. (2007)	W	S	W	W	S	M	W
Thompson and Waltz (2008)	W	W	W	W	S	N/A	W
Verplanken et al. (2007)	W	W	W	W	S	N/A	W
Biegel et al. (2009)	W	S	S	M	S	M	M
Denny and Steiner (2009)	W	W	W	W	S	N/A	W
Goldin et al. (2009)	W	M	W	W	W	W	W
Koole et al. (2009)							
<i>Study 1</i>	W	S	W	M	S	N/A	W
<i>Study 2</i>	W	S	W	M	S	N/A	W
Niemiec et al. (2010)							
<i>Study 2</i>	W	S	W	M	S	N/A	W
<i>Study 3</i>	W	S	W	S	S	N/A	W
<i>Study 5</i>	W	S	M	S	S	N/A	M
<i>Study 6</i>	W	S	W	S	S	N/A	W
<i>Study 7</i>	W	S	W	S	S	N/A	W
Brinkborg et al. (2011)	W	S	S	W	W	S	W
Michalak et al. (2011)	W	W	W	M	S	N/A	W
Rasmussen and Pidgeon (2011)	W	W	W	M	S	N/A	W
Roepke et al. (2011)	W	S	W	M	M	S	W
Jazaieri et al. (2012)	W	S	S	M	S	W	W
Hinterman et al. (2012)	W	W	W	M	S	N/A	W
Meyer et al. (2012)	W	M	W	W	S	S	W
Pinniger et al. (2012)	W	S	W	W	S	M	W
Tan and Martin (2012)	M	M	W	W	S	S	W
Wasylikiw et al. (2012)							
<i>Study 1</i>	W	W	W	M	S	N/A	W
<i>Study 2</i>	W	W	W	M	S	N/A	W
White (2012)	W	S	S	W	W	M	W
Henderson et al. (2013)	W	S	S	M	S	W	W
Pepping, O'Donovan and Davis (2013)							
<i>Study 1</i>	W	W	W	M	S	N/A	W
<i>Study 2</i>	W	S	W	M	S	W	W

W weak, M medium, S strong, N/A not applicable

and drop-outs. Each domain is rated as 'strong', 'moderate' or 'weak'. A global rating is then allocated as follows: strong (no weak ratings), moderate (one weak rating) or weak (two or more weak ratings). The intervention integrity and analysis are also assessed but, according to the EPHPP, do not contribute to the overall quality rating

assigned to individual studies and so are not reported in this review. The studies were quality-assessed by the first author, and a proportion of these (20 % of the total yielded) were rated by a colleague independent to the study to ensure inter-rater reliability, with high levels of agreement found (90 %).

## Selection of Studies

Of the 229 articles, a total of 26 articles met eligibility. Closer inspection revealed that Goldin et al. (2009) and Goldin and Gross (2010) reported the same data in relation to mindfulness and self-esteem. The paper by Goldin and Gross (2010) was therefore excluded from this review, resulting in 25 articles meeting the inclusion criteria. Six of the articles included multiple studies. Only studies reporting the relationship between mindfulness and self-esteem were extracted from these papers, resulting in 32 relevant studies included in the current study.

## Overview of Reviewed Studies

Tables 1 and 2 provide an overview of all reviewed studies. Table 1 presents the studies exploring the association between mindfulness and self-esteem, whilst Table 2 displays the studies investigating change in self-esteem following a MBI. The studies were conducted across a number of countries: USA ( $n=18$ ), Australia ( $n=6$ ), Germany ( $n=2$ ), Canada ( $n=2$ ), Netherlands ( $n=1$ ), Norway ( $n=1$ ), Sweden ( $n=1$ ) and Thailand ( $n=1$ ). Sample size ranged from 10 to 1350, with a large proportion of studies ( $n=21$ ) including over 100 participants. The majority of studies used either adult ( $n=28$ ) or student ( $n=20$ ) samples.

Seven studies investigated populations with specific psychological and/or health difficulties (social anxiety disorder ( $n=2$ ), depression/anxiety ( $n=2$ ), borderline personality disorder ( $n=1$ ), schizophrenia-related disorder ( $n=1$ ), breast cancer ( $n=1$ )). Three studies included participants with a range of psychological problems (e.g. mood/anxiety disorders and problems related to abuse/neglect), one study used a sample of prisoners and another study examined social workers. Many of the studies did not specify the methodological design used. However, based on the methodology described and the descriptions used for rating study design in the EPHPP, the following were identified: randomised controlled trial ( $n=4$ ), controlled clinical trial ( $n=13$ ), cohort pre–post design ( $n=5$ ) and cross-sectional design ( $n=10$ ).

Seventeen studies explored change in participants' self-esteem following a MBI using the following types of intervention: mindfulness-based stress reduction group ( $n=6$ ), adaptation of mindfulness-based stress reduction group for children ( $n=1$ ), mindfulness-based cognitive therapy group ( $n=1$ ), mindfulness meditation group ( $n=1$ ), Vipassana meditation retreat ( $n=1$ ), laboratory-induced mindfulness exercise ( $n=3$ ) and a mindful yoga group ( $n=1$ ). Three studies used aspects of mindfulness within their intervention: positive living group incorporating mindfulness practice ( $n=1$ ), acceptance and commitment therapy group ( $n=1$ ) and dialectical behaviour therapy ( $n=1$ ). The remaining 15 studies reviewed were cross-sectional, exploring the association between

mindfulness and self-esteem at one time point using self-report measures.

As part of the inclusion criteria, all studies measured self-esteem using a validated self-report self-esteem scale. The majority of studies used the Rosenberg Self-Esteem Scale (RSE; Rosenberg 1965;  $n=25$ ). Nineteen studies measured mindfulness using self-report measures; the remaining 13 studies did not use a mindfulness measure. The most popular self-report measure of mindfulness used was the Mindful Attention Awareness Scale (MAAS; Brown and Ryan 2003;  $n=11$ ).

## Results

Results are discussed as follows: (i) investigations of the association between dispositional mindfulness and self-esteem, and (ii) evaluations of change in self-esteem following a mindfulness-based intervention.

### Association Between Dispositional Mindfulness and Self-esteem

The first aim of this review paper was to synthesise and critically appraise studies investigating the association between mindfulness and self-esteem, of which 15 studies were identified. The majority of studies measured dispositional mindfulness using the Mindful Attention Awareness Scale (MAAS) and self-esteem using the Rosenberg Self-Esteem Scale (RSE; Rosenberg 1965), with most correlation analyses producing significant and positive associations between the two factors in all studies reviewed (range  $r=0.39$ – $0.50$ ; Brown and Ryan 2003; Thompson and Waltz 2008; Niemiec et al. 2010). Significant positive correlations between mindfulness and self-esteem were also found in studies that used other validated mindfulness and self-esteem self-report measures (Denny and Steiner 2009; Wasylkiw et al. 2012).

In relation to the different facets of mindfulness, the strongest correlations have been found between the *acceptance* subscales of mindfulness and self-esteem ( $r=0.51$ – $0.61$ ; Pepping et al. 2013; Hinterman et al. 2012; Michalak et al. 2011). Interestingly, no association was found between the *observing* subscales of mindfulness and self-esteem (Pepping et al. 2013; Hinterman et al. 2012).

Researchers have investigated whether mindfulness can predict levels of self-esteem. Specifically, Rasmussen and Pidgeon (2011) examined the relationship between mindfulness, self-esteem and social anxiety. Using regression procedures, Rasmussen and Pidgeon (2011) tested the hypothesis that self-esteem mediated the effects of mindfulness on social anxiety. Mediation analysis showed that mindfulness significantly predicted social anxiety and that mindfulness (MAAS) was a significant predictor of self-esteem (RSE) scores. When



controlling for the indirect effect of mindfulness via self-esteem, mindfulness significantly predicted social anxiety. However, Verplanken et al. (2007) found that other factors, such as rumination, appear to impact on the relationship between mindfulness and self-esteem.

In sum, all of the studies reviewed demonstrated significant positive associations between mindfulness and self-esteem, but all shared similar limitations. They all used cross-sectional designs, which prevent identification of cause and effect, they used student samples, which limit the generalisability of findings, and the self-report nature of measures used may lead to potential response bias. As such, all studies were rated as weak in quality due to the strength of the evidence they produce. Nevertheless, the overwhelming consistent findings support the need for further exploration of the relationship between mindfulness and self-esteem.

### Change in Self-esteem Following a Mindfulness-Based Intervention

Seventeen studies investigated change in self-esteem following a MBI. The most common intervention used in studies was mindfulness-based stress reduction (MBSR). Six studies investigated change in self-esteem following MBSR for adults. Samples included women with breast cancer (Henderson et al. 2013), prisoners (Samuelson et al. 2007), adults with self-reported depression (Pinniger et al. 2012), adults with social anxiety disorder (Goldin et al. 2009; Jazaieri et al. 2012) and adults with a range of medical and/or psychological problems (Roth and Creaser 1997). Sample sizes ranged from  $n=16$  (Goldin et al. 2009) to  $n=1350$  (Samuelson et al. 2007). Three studies investigating change following MBSR found significant improvements in self-esteem, as measured using the RSE (Roth and Creaser 1997; Samuelson et al. 2007; Goldin et al. 2009;  $\eta^2=.51$ ). Jazaieri et al. (2012) conducted a randomised controlled trial (RCT) to compare MBSR with aerobic exercise for adults with social anxiety disorder. Self-esteem (RSE) and mindfulness (Kentucky Inventory of Mindfulness Skills (KIMS)) improved in both conditions. However, post-intervention, there was a larger effect size for self-esteem in the MBSR group ( $\eta^2=.50$ ) compared to aerobic exercise ( $\eta^2=.23$ ). The percentage of participants meeting the threshold for a clinically significant change was 25 % for the MBSR group compared to 6.3 % for aerobic exercise. Two studies found no significant change in self-esteem when compared to controls (Henderson et al. 2013; Pinniger et al. 2012). In relation to study quality, four studies were rated as strong in terms of their design (Henderson et al. 2013; Samuelson et al. 2007; Pinniger et al. 2012; Jazaieri et al. 2012) as they included a control condition. However, all of the six studies received a weak overall quality rating due to issues such as high selection bias, lack of blinding and high attrition rates.

Three studies investigated change in self-esteem following an adapted version of MBSR for children and adolescents (Biegel et al. 2009; Tan and Martin 2012; White 2012). Two of the studies, using samples of adolescents with a range of mental health difficulties, found significant improvements in self-esteem, as measured using the RSE (Biegel et al. 2009;  $d=.59$ ; Tan and Martin 2012;  $\eta^2=.50$ ). In contrast, White (2012) using a controlled trial found no significant differences between groups in self-esteem, for younger children aged 8–11. Intervention length ranged from 5 weeks (Tan and Martin 2012) to 8 weeks (Biegel et al. 2009; White 2012). The studies varied in overall quality, with one RCT rated as moderate (Biegel et al. 2009) and two studies rated as weak due to issues such as lack of blinding (Tan and Martin 2012; White 2012) and no control over confounding variables (Tan and Martin 2012).

Despite the growing interest in MBCT, only one study measured self-esteem specifically as an outcome. Ree and Craigie (2007) found a statistically significant increase ( $d=.64$ ) in self-esteem (RSE) following an 8-week MBCT course for psychiatric outpatients with mood and/or anxiety disorders. One limitation is the absence of a control group, which limits the extent to which changes in self-esteem can be attributed to increases in mindfulness. Furthermore, the sample size was small ( $n=26$ ) and participants were all Caucasian, further limiting the generalisability of the findings. A strength of the study was the low attrition rate, indicating that participants perhaps showed good engagement with the programme.

A number of studies incorporated mindfulness components into their intervention. Significant improvements in self-esteem were found following a positive living group for people with diagnoses of schizophrenia/schizoaffective disorder (Meyer et al. 2012). Significant improvements were found in both basic and multidimensional self-esteem ( $\eta^2=.28$ ;  $\eta^2=.21$ ) in a controlled trial of an inpatient DBT programme for women with borderline personality disorder (Roepke et al. 2011). No significant change was found in a RCT investigating performance-based self-esteem (PBSE) following an ACT-based stress management group for social workers (Brinkborg et al. 2011). Of note, the latter study used a briefer intervention (four sessions) compared to the majority of studies reviewed and measured performance-based self-esteem. A limitation of the aforementioned studies is that they did not include a measure of mindfulness, and given that the interventions incorporated mindfulness in the context of other treatment approaches, it is not possible to ascertain whether mindfulness specifically contributed to the changes in self-esteem.

In addition to clinical and community settings, changes in self-esteem have been investigated following meditation retreats. Specifically, Emavardhana and Tori (1997) explored changes in self-concept following a Vipassana meditation retreat in Thailand for adolescents and adults recruited through

schools and colleges ( $N=438$ ). Significant improvements in self-esteem were found compared to controls. Limitations included non-randomisation of groups, which may have biased results. However, the control group was matched on demographics in an attempt to reduce confounding variables, and a large sample size was used. Participants were recruited throughout the country allowing a more representative sample; however, participants responded to adverts at school/college which is likely to have led to selection bias, limiting the generalisability of findings. In contrast to other studies reviewed, the intervention specifically included religious elements. Therefore, it is possible that the focus on religion, and not mindfulness, contributed to changes in self-esteem.

Finally, researchers have investigated the effects of brief mindfulness interventions and their impact on self-esteem (Pepping et al. 2013; Koole et al. 2009). Pepping et al. (2013) found significant increases, compared to controls, in state self-esteem and state mindfulness (MAAS-State) following a 15-min mindfulness meditation. In two studies by Koole et al. (2009), no improvement in self-esteem was found following an 11-min body scan exercise. However, compared to controls, meditation led to greater congruence between explicit and implicit self-esteem. These findings indicate that meditation allows people to bring their explicit views of the self in line with their intuition. A limitation of these studies is that they only focused on the short-term effects of a brief meditation exercise; thus, it is unclear whether these changes would be maintained over time. Furthermore, these studies were given a weak overall quality rating because they did not control for confounding variables and demonstrated high selection bias. As such, further research is needed to explore the longer-term benefits of brief mindfulness interventions on self-esteem.

## Discussion

This review incorporates a comprehensive synthesis and critical appraisal of the research that examines the association between dispositional mindfulness and self-esteem, as well as the impact of MBIs on self-esteem. The review identified 15 cross-sectional studies exploring the association between mindfulness and self-esteem. All in all, there is a significant relationship between mindfulness and self-esteem, with some evidence of changes in self-esteem following a MBI. All 15 studies exploring this relationship found significant positive correlations (ranging from  $r=0.32$  to  $0.61$ ). Three studies extended these findings to explore the relationship between specific facets of mindfulness and self-esteem. The ‘nonjudging’ subscale of the Five Facet Mindfulness Questionnaire (FFMQ) and the ‘accept without judgement’ subscale of the KIMS had the strongest correlations with self-esteem (Pepping et al. 2013; Michalak et al. 2011). No association was

found between the observing aspect of mindfulness and self-esteem (Pepping et al. 2013; Hinterman et al. 2012). The review identified 17 intervention studies that examined the impact of a MBI on self-esteem. The majority of studies ( $n=11$ ) indicated that MBIs could lead to increased self-esteem in both adults and children. Improvements were found across a range of populations, including adults with mental/physical health difficulties (Ree and Craigie 2007; Roth and Creaser 1997), social anxiety (Goldin et al. 2009; Jazaieri et al. 2012), BPD (Roepke et al. 2011) and psychosis (Meyer et al. 2012); children and adolescents with mental health difficulties (Tan and Martin 2012; Biegel et al. 2009); a prison sample (Samuelson et al. 2007); students (Pepping et al. 2013); and adults and adolescents from the general population (Emavardhana and Tori 1997). Significant findings did not appear to be a function of study quality as they were found across a number of studies that ranged from moderate to strong in their study design. None of the studies exploring change were rated as weak on this domain. Of the 17 studies exploring change in self-esteem following a MBI, 12 were rated as strong for their study design, and of these 12, 6 showed significant increases in self-esteem and 6 did not.

## Methodological Issues

A significant limitation of the studies reviewed is that almost all (31 out of 32) studies were rated as weak with regard to study quality. None of the studies appeared to have representative samples, as most participants were recruited through self-referral or referred by professionals. This may have resulted in selection bias, potentially limiting the generalisability of the results. Other issues included the lack of control of confounding variables due to the study designs. Although all studies exploring the association between mindfulness and self-esteem showed significant correlations, they all shared a number of limitations. All 15 studies used cross-sectional designs with participants completing measures of mindfulness and self-esteem at one time point. The nature of this design allows association to be explored through correlational analysis, but causal inferences cannot be made. From these studies, it is unclear whether increased mindfulness leads to increased self-esteem, or vice versa. A small number of studies used regression analyses to further investigate the relationship, for example, Rasmussen and Pidgeon (2011) found that mindfulness significantly predicted high levels of self-esteem. However, further research is needed to expand these findings and explore the way in which mindfulness and self-esteem are related.

Regarding intervention studies, only four of the studies investigating MBIs were RCTs and the results of these studies were not consistent. Despite the inconsistent findings, overall, the majority of studies showed improvement in self-esteem following MBIs. Limitations of these, in addition to the lack

of randomly allocated control groups, included sample size and generalisability. Furthermore, a number of studies included mindfulness components within their interventions but did not measure mindfulness, making it difficult to identify the specific impact of mindfulness on change in self-esteem. Two of the studies that did not find a significant increase in self-esteem used a brief laboratory-based 11-min meditation exercise; these non-significant findings may not generalise to longer-term interventions.

The majority of studies used the RSE to measure self-esteem, which enables comparisons of findings across studies. However, the RSE is a unidimensional measure of self-esteem, whereas some studies used multidimensional measures (e.g. Roepke et al 2011), indicating that studies may be measuring different aspects of self-esteem. The lack of consistency across studies in the use of measures makes it difficult to compare results.

Researchers have highlighted the difficulty in defining mindfulness. Indeed, the different conceptualisations of mindfulness across different measures raise problems in comparing findings across studies (e.g. Chiesa 2013). The measures used in the studies reviewed in this paper varied, with some measuring mindfulness as a single faceted trait (e.g. MAAS) and others as a multifaceted trait (e.g. KIMS and FFMQ). As such, it is important to note that comparison of findings across studies may be limited. In addition, where group-based interventions were reviewed, it was unclear whether adjustment for non-independence associated with grouping within the data was controlled for. Finally, the intervention studies reviewed in the current study are varied. In some studies, mindfulness is a very small component of the intervention, while in other studies, mindfulness is the main component of the intervention delivered. As such, it is difficult to draw robust conclusions with regards to the relationship between mindfulness and self-esteem from the intervention studies reviewed.

### Limitations of Review

A limitation of the review is that only articles published in English language were reviewed; findings from other cultures may therefore have been excluded. Furthermore, data was not co-extracted by an independent reviewer. Additionally, as previously highlighted, self-esteem has been defined in a number of ways and has been criticised for its lack of conceptual clarity (Ellis 1996). It may, therefore, be that broader search terms could have been used in the review to encompass all definitions. However, as decisions were based on both theory and self-esteem measures, we expect that all relevant articles were captured. The review may have benefited from further investigation of the effects of MBIs on self-esteem by way of meta-analysis. However, we felt that the intervention studies reviewed here were too varied in their design, focus and outcomes measured to warrant such analysis.

### Implications and Future Research

Despite the limitations presented above, the findings of this review demonstrate a significant positive correlation between mindfulness and self-esteem, with some evidence indicating improvements in self-esteem following a MBI. This has important implications for the understanding and treatment of low self-esteem. The research so far allows us to make hypotheses regarding the mechanism by which mindfulness enhances self-esteem. Specifically, research examining the relationship between particular facets of mindfulness and self-esteem (Pepping et al. 2013; Hinterman et al. 2012) suggests that the non-judgemental stance fostered through mindfulness may explain increases in self-esteem as an individual may be less likely to become preoccupied by critical thoughts about the self. Furthermore, increased awareness and describing through mindfulness may encourage a person to maintain attention on present experiences, making them less likely to focus on past negative beliefs or critical thoughts, further enhancing self-esteem. Mindfulness promotes non-reactivity towards thoughts, feelings and sensations. By adopting a non-reactive stance towards critical thoughts, a person may be less likely to internalise these and experience negative emotions, possibly increasing self-esteem. Overall, mindfulness encourages individuals to identify thoughts as mental processes rather than facts. It is possible that this distinction allows people to notice self-critical thoughts and identify them as thoughts rather than the truth, acting as a buffer for low self-esteem. These hypotheses need to be investigated in future research using sophisticated mediation analysis to uncover important underlying mechanisms by which mindfulness enhances self-esteem. The development of psychological models of self-esteem incorporating mindfulness as a factor would enable investigation of suggested mechanisms, using both cross-sectional and longitudinal research studies.

More robust research is needed to investigate change in self-esteem following a MBI. Studies need to control for confounding variables and include a randomisation element, with an active comparison group and untreated control condition. Thorough measures of mindfulness (e.g. FFMQ) should be used to enable exploration of improvements across all facets of mindfulness. Validated and reliable measures of self-esteem should be used, perhaps including both unidimensional (e.g. RSE) and multidimensional (e.g. MSEI) measures. Analyses could then be conducted to identify changes in specific facets of mindfulness and self-esteem. Further research needs to be conducted across both adults and children with a range of problems as well as non-clinical samples for results to be generalisable. Positive findings resulting from better quality research could lead to increased implementation of MBIs for treatment of low self-esteem. More robust research is required to establish whether study findings can be attributed to treatment effects or whether they were confounded by other unmeasured factors.

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