



# Development and validation of the Equanimity Barriers Scale [EBS]

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## Abstract

Whilst mindfulness as a practice is now well researched, little is known about the associated concept of equanimity or the barriers people face in achieving it. Three studies were conducted to develop and validate a self-report measure assessing barriers to equanimity. Across studies, opportunity samples comprised students and staff members from one British university, and via online social media platforms. In study 1 ( $n = 453$ ) principal component analysis revealed five internally consistent factors measuring the ways in which barriers to equanimity are conceptualised. Study 2, ( $n = 108$ ) sought to confirm these factors. Results revealed that a four-factor model best fit the data. Validity statistics were sufficient to support this model. Study 3 ( $n = 302$ ) tested convergent and discriminant validity of the four-factor Equanimity Barriers Scale (EBS). It was tested utilising the Mindfulness Attention Awareness Scale (Brown and Ryan 2003), Big Five Inventory-10 (Rammstedt and John 2007), Self Compassion Scale Short Form (Raes et al. 2011), Difficulty in Emotional Regulation Scale Short Form (Kaufman et al. 2015) and the Emotional Regulation Questionnaire (Gross and John 2003). The usefulness of the EBS for future research into individual differences in adherence to mindfulness-based interventions are discussed.

**Keywords** Mindfulness · Equanimity · Wellbeing · Compassion · Self-compassion

In recent years, mindfulness has become a popular practice in the western world to increase psychological wellbeing. Kabat-Zinn (2003) introduced mindfulness to the western world and openly confirms how this practice sits at the heart of Buddhism. Although western scales of mindfulness have been successfully developed and implemented, when Buddhism is considered, equanimity is a crucial aspect of the development of self and one that seemingly underpins western definitions of mindfulness. If we are to consider mindfulness from the Buddhist perspective, we need to further explore the concept of equanimity. The importance of cultivating a state of equanimity can be proposed in view of the connection with acceptance both of self and others (Hadash et al 2016) as well as having been suggested as

being the most important psychological element in the improvement of wellbeing (Desbordes et al 2015).

The differences between mindfulness and equanimity from a western perspective are notable when comparing definitions. “*Paying attention to the present moment without judgement*” (Kabat-Zin 2003, p 29) is widely accepted as one of the leading definitions of mindfulness. Whereas, equanimity is “*the suspension of judging experience to be intrinsically good or bad*” (Farb et al. 2012, p 71). Thus, equanimity seemingly refines the concept of judgement and relates to the recognition and absence of judgement towards one’s discrimination faculties. Weber (2017) highlights these conceptual differences in further detail. The current authors argue contemporary mindfulness measures represent attention or memory scales and anecdotal suppositions into the realm of non-judgemental acceptance rather than reflect the more profound nature of mindfulness practice, which is why understanding equanimity and its barriers are important.

In Buddhism, mindfulness is a key part of developing compassion in self and others and ultimately part of a much larger psychological and emotionally regulated process that includes the development of the four immeasurable qualities: loving kindness (metta), compassion (karuna), joy (mudita), and equanimity (upkeep). Equanimity is found in both Theravada and Mahayana Buddhist traditions. As a

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generalized statement, from the Theravada perspective, this attitude manifests as an internal reaction to one's own attachment, aversion and indifference, which is the same to say, 'the suspension of judgement to be intrinsically good or bad'. Mahayana Buddhism still incorporates this viewpoint, but then externalizes this onto friends, enemies and strangers (Wallace 2010; Zopa 2013). Thus, Farb et al.'s (2012) definition of equanimity provides a useful synthesis of the 'internalised equanimity' found in both Hinayana and Mahayana Buddhism whilst remaining pertinent with western neuroscience.

It is important to note that the concept of equanimity is gathering pace in neuroscientific research (Farb et al. 2012). Equanimity comprises a fundamental component of emotional regulation by reducing 'automatic affect processing' or the automatic expansion of initial evaluative reactions (Farb et al. 2012). These authors further exemplify how parts of the brain can be engaged constructively in the cultivation of empathy and compassion. Hence, equanimity goes beyond momentary 'acceptance' and 'non-judgement' associated with mindfulness as a western practice, to a more holistic and enduring state of being, guided through the sense of genuine concern for others. In short, Schonert-Reichl and Roeser (2016) postulated that equanimity embodies a deeper level of discernment and the approaching of phenomena from a more objective perspective than the contemporary conception of mindfulness practice would suggest, and as such allows the mindfulness practitioner a greater insight into the construction of their reality.

Not only does equanimity represent the cultivation of an even minded response to all experience, but also involves the practice of maintaining calm in the face of provocative stimuli (Carmody and Baer 2009). It is here equanimity binds itself to emotional regulation, which can alter both the quality and magnitude of responses (Gross and Thompson 2007). Thus, research into equanimity rather than into mindfulness per se that is a key factor in establishing adaptive psychological processes. It is essential to differentiate that equanimity is not apathy or indifference "*but rather of mental imperturbability*" (Thanissaro 1996, p.263).

Within the provinces of health and social psychology the fostering of equanimity can be seen as underpinning the mechanisms that encourage social connectedness and self-continuity (Sedikides et al. 2016). For example, equanimity could have an active role in goal motivation and achievement (Spence and Deci 2013), providing a buffer against psychopathology (Trompeter et al. 2017), and being central to longevity and happiness in life (Johnson and Acabchuk 2017). Therefore, developing a "barriers to equanimity scale" that highlights which areas within human experience could potentially prevent the development of wellbeing and achievement of potential, would be a useful tool in both prevention of unwellness and dis-connect in many areas of life.

Human nature is intrinsically judgemental, therefore there is a need to improve non-judgement. However, should one wish to hone in on the judgemental aspect of mindfulness, a scale to make this more explicit is necessary. Barriers to meditation can include motivational and informational barriers, which is exemplified by Carlson (2013). Further, Olano et al. (2015) strengthens this concept by showing how socio-demographic indicators can affect engagement with meditation. They report that men are half as likely to engage and those in vulnerable groups with lower health outcomes were also less likely to engage. Greater education was associated with mindfulness practice, highlighting the need for tools to explore barriers to practice. Further, understanding barriers to practice potentially mitigates against negative outcomes during meditation. For example, Finucane and Mercer (2006) report how mindfulness can lead to distress during meditation. Understanding barriers to practice therefore would increase the comprehension in which an individual embarks upon their practice in relation to their own judgmental modes of being.

Brahm (2016) questioned the legitimacy of mindfulness without 'kindfulness'; that is without the goal of the development of prosocial qualities such as compassion and altruism. Aldina (2015) goes onto further suggest mindfulness without such associations can come across as 'cold' and 'dull'. Barriers to meditation are further significant when taking into consideration the prosocial qualities associated with mindfulness such as the cultivation of compassion. In order to distinguish barriers in relation to equanimity, it is important to recognise barriers in mindfulness practice which could diminish the development of such qualities.

In the west, qualities such as compassion are promoted by healthcare professionals as a key element of mental wellbeing, echoed in major organisations like the UK National Health Service as one of its core values (Department of Health 2012) and has global implications for nursing care (Durkin et al. 2018). Further, there is increasing literature on the need and therapeutic approach of nurturing greater self-compassion (Neff et al. 2007). Commentators argue however, that compassion can only be achieved and nurtured through non-judgement and accepting phenomena as transient moments in time rather than as fixed and ridged reality. Shapiro et al. (2016) sum up this concept: "*When we practise judgement and criticism, we strengthen neuropathways of negativity, conversely, when we practise equanimity, openness, and acceptance, we strengthen our capacity to be with whatever arises in our field of experience, negative or positive*" (p.110).

For some individuals the experience of compassion is discomforting. Condon and Barrett (2013) demonstrated how experiencing compassion was unpleasant for individuals who were exposed to another person's suffering. As compassion is conceptualised as pleasant, yet may manifest as a difficult emotion, it is here an equanimous approach towards one's

own sense of ‘unpleasant’ that may alleviate this contradiction. A healthy construct, that facilitates compassion, would counter the potential discomfort that compassion can manifest. This is further evidence to support the need for analysing judgements and harbouring equanimity: by suggesting equanimity could enable individuals to cope with the aversive nature of compassion by cultivating even-mindedness.

The complexity of the mindfulness concept was confirmed by Baer et al. (2006) whom found that mindfulness is a multifaceted construct comprising non-reactivity, observing, awareness, describing and non-judging. Since, the origins of mindfulness are in the Buddhist philosophy (Kabat-Zinn 1990) it is apt to return to Buddhism and to explore the construct of equanimity. It is clear that mindfulness and equanimity theoretically overlap, especially around the areas of non-judgement and acceptance. These theoretical differences are encapsulated via the recent upsurge into ‘contemporary mindfulness’ and traditional ‘Buddhist mindfulness’. Van Gordon et al. (2015) identify this as ‘first generation’ and ‘second generation’ mindfulness based programmes, reflecting the original Mindfulness Based Stress Reduction programmes developed in 1970’s and its subsequent derivatives, in contrast to the more traditional Buddhist theory encapsulated within an ethical framework. Consequently, research has turned to empirical investigation between ‘first generation’ and ‘second generation’ programmes, which is why a construct that measures barriers to equanimity is significant in aiding empirical investigation into this narrative.

This is evident in the Toronto Mindfulness Scale (TMS; Lau et al. 2006) which includes two factors of de-centring and curiosity (including items mentioning openness and acceptance), but does not explicitly measure loving kindness, equanimity, compassion, or joy. Another example is the Mindfulness Attention Awareness Scale (MAAS; Brown and Ryan 2003) which does not mention non-judgement or acceptance and focusses solely on attentional and awareness capacities. Equally, scales such as the Difficulties in Emotional Regulation Strategies (DERS; Kaufman et al. 2015) and the Emotional Regulation Scale (ERQ; Gross and John 2003) that capture emotional regulation and barriers to emotional regulation do not measure mindfulness. Another measure has directly attempted to capture compassion with the Self-Compassion Scale (SCS; Neff 2003); however, this solely focusses on the self. Further, Zeng et al. (2016) highlight that the SCS was not validated in a Buddhist sample and is theoretically different from the ideas of Buddhism.

The only scale currently looking at the four immeasurables’ aimed such as compassion and loving kindness is the ‘Self-Others Four Immeasurables’ (SOFI) developed by Kraus and Sears (2009). This was designed in order to measure loving kindness, compassion, joy and acceptance toward both self and others. Interestingly, compassion for oneself has been shown to mediate improved emotion regulation processes that support compassion towards others (Holzel

et al. 2011). Although, the Freiburg Mindfulness Inventory (FMI) was influenced by the mindfulness practice found in Buddhism, this still includes the modern understanding of mindfulness, rather than reflecting the core of Buddhist philosophy (Walach et al. 2006). This is substantiated up by Zeng et al. (2013) whom analysed nine current mindfulness scales and proposed the Philadelphia Mindfulness Scale (PHLMS) as the only scale suitable for measuring awareness and equanimity. However, Zeng et al. (2014) further studied this scale and discovered this was confusing from the Goenka Vipassana meditation perspective. Therefore, the authors created a revised 10-item scale in order to address the distinction between awareness and equanimity.

Pertinently, Charters (2013) draws on similarities between therapeutic interventions of mindfulness, psychotherapy and Buddhist psychology. Gergen (2001) highlights the potential loosely overlapping theories of dependent origination and social constructivism, in order to highlight the way in which Buddhist psychology and mindfulness integrate. Moreover, as a species we are dependent on “*cultural conditioning, family upbringing, personal experience, and the basic biological predisposition toward making distinctions and measuring recent experience and future hopes and fears against a neuronal warehouse of memories*” (Swanson and Rinpoche 2010, p. 265). Therefore, the end goals of Buddhism, modern psychology and mindfulness are similar, “*eliminating mental habits associated with psychological and emotional suffering and increasing those habits associated with happiness and compassion*” (Chambers et al. 2009, p265). Therefore, if the cultivation of compassion is a goal to be realised from a therapeutic or intervention perspective, a scale that measures barriers to equanimity is particularly relevant when also considering scales that measure compassion.

Greenberg and Turksma (2015) postulate how compassion can be cultivated and nurtured. However, Verplanken (2012) discovered linkages between past nostalgia, depression and anxiety. Thus, it was hypothesised a person with low mindfulness is likely to be unaware of their sense of self or caught up in experience and therefore face greater barriers to equanimity than those with high mindfulness. Afshar et al. (2015), highlights the relationship between stress and personality traits. The authors found traits such as conscientiousness could predict adaptive coping strategies, whereas traits like neuroticism were negatively related to avoidance coping. Further, Bartley and Roesch (2011) highlight how conscientiousness acts as a protective factor in stress through its influence on coping strategy selection. Moreover, Buss and Pomins, (1984) have highlighted how temperament manifests difficulties in emotional expression and behaviors’ such as being overly aggressive and easily manipulated. Thus, should compassion be practiced, investigating personality traits, emotional regulation, and mindfulness appears central.

## Aims and Rationale

The current research builds on the work of Desbordes et al. (2015) by developing and validating a scale to assess barriers to equanimity. Desbordes et al. (2015) advocated equanimity as the most significant psychological element in the improvement of wellbeing. If we want to cultivate a state of equanimity, we foremost need to understand the barriers to its achievement. Since there is no current scale that measures barriers to equanimity it is important to consider existing mindfulness scales due to the overlapping theoretical content. Several reviews of mindfulness measurement have been conducted (Baer 2011; Bergomi et al. 2013; Park et al. 2013; Sauer et al. 2013). Whilst there are items that investigate ‘non-judgement’ and ‘acceptance’ in the majority of the contemporary mindfulness scales there is no explicit measurement of equanimity barriers. An individual or person centred therapist would be able to identify barriers and explore these with more contextual relevance, consequently facilitating improved wellbeing. Further, when considering the maladaptive effects of meditation, identifying barriers acts as a preventative measure. The current research aims to validate a scale to measure barriers to equanimity to bridge this gap in the literature.

## Development of the Item Pool

Through a review of the extant literature on both the western concept of mindfulness and its measurement (see Bergomi et al. 2013; Park et al. 2013; Sauer, et al. 2013 for reviews) and Buddhist psychology, four broad domains germane to equanimity barriers were highlighted and an initial pool of 60 items generated. The innate domain was based on a literature review of Buddhist psychology (Wallace 2006, 2010; Zopa 2013). This was conceptualised as the ‘innate’ domain. The authors reviewed the current mindfulness measures and conceptualised the ‘interactive’ and ‘reflective’ domains. Finally, the authors discussed the overlap between Buddhist and Social psychology and conceptualised the ‘social’ domain. Two domains encompass barriers to achieving mindfulness from a westernised perspective, and two from a broader stance, based on Buddhist philosophy. Each domain is individually considered next.

The interactive domain is based on western definitions of mindfulness (Kabat-Zinn 1994; Jha, Krompinger & Baine 2007), and items within this domain area adapted from existing measures, namely: The Kentucky Inventory of Mindfulness Skills [KIMS] (Baer et al. 2004), Toronto Mindfulness Scale [TMS] (Lau et al. 2006) and the Five Facet Mindfulness Questionnaire [FFMQ] (Baer et al.

2006), Freiburg Mindfulness Inventory [FMI] (Walach et al. 2006) and the Philadelphia Mindfulness Scale [PHLMS] (Cardaciotto et al. 2008). An example is “How I behave with others is influenced by my sense of physical wellbeing”. The reflective domain was also based on existing measures adapted from the Cognitive Affective Mindfulness Scale [CAMS] (Feldman et al. 2007). An example is “My memories influence how I act with others.”

The innate domain was based on a literature review of Buddhist psychology (Wallace 2006, 2010, Zopa 2013). An example is “I am what I feel”. This domain is not currently explored in western mindfulness scales and is based on pre-dispositional tendencies and emotional regulation. Finally, the social domain is based on Buddhist psychology and social psychological aspects of the self and social conditioning (Swanson and Rinpoche 2010). Examples of this domain are “Social expectations influence the way I perceive others”, and “I feel like the media influences the way I feel about others”. This further goes beyond western views of mindfulness scales.

Collectively, domains reflected identification with self-concept (innate), mindful awareness and attention (interactive), memory (reflective) and social (social internal and external). The term “equanimity” was not stated to avoid priming effects. Instead judgements and feelings of ‘like’, ‘dislike’ and ‘neutrality’ were used. The purpose of this was to obtain information of how individuals naturally assume judgements arise so that scale items would be relevant and understood by the ‘typical’ person. This was crucial as equanimity is a concept largely undiscussed in western psychology, and is largely an unfamiliar topic for the general population. Items were worded so that they represented the way in which feelings may or may not influence our behaviour and or emotions. Responses were on a Likert-type scale, ranging from 1 = “Strongly disagree”, 7 = Strongly Agree”.

## Overview of Studies

In study 1, Principal Components Analysis (PCA) were utilised on the 60 items, and an initial five factor solution comprising 25 items were isolated and explored further in study 2. These 25 items were subjected to Confirmatory Factor Analysis (CFA), and a satisfactory model comprising 15 items, henceforth known as the Equanimity Barriers Scale (EBS) was attained. Study 3 tested convergent and discriminant validity of the EBS. The entire research protocol was approved by the University Ethics Review Committee of the authors’ institution and complied with the ethical guidelines of the British Psychological Society. The methods and results of each study are now outlined.

## Study 1: Principal Components Analysis

### Method

#### Participants and Procedure

Participants in study 1 ( $n = 400$ ) were recruited via opportunity sampling and comprised students and staff from the Universities health and psychology courses. A further 53 participants were recruited via online social media platforms. Combined therefore, the sample comprised 453 participants; 91 males (20.2%) and 357 females (79.1%) and 3 participants did not report their gender (0.7%). Participants ranged in age from 18 to 71 years old ( $M = 30.55$ ;  $SD = 11.26$ ). Upon providing consent, participants completed demographic questions about age, gender, profession and highest qualification, as well as the 60 item questionnaire.

### Results

Analyses were conducted using IBM SPSS version 23. Responses were subjected to Principal Axis Factoring with oblique rotation and Kaiser normalisation. To identify whether a factor analysis was an appropriate method to analyse the items, the KMO statistic and Bartlett's test of sphericity were inspected. The KMO value for the data was .91, indicating that the items correlated. The Bartlett test of sphericity was also significant ( $\chi^2 = 10,945.533$   $df = 1770$ ,  $p < .001$ ). The initial analysis yielded 15 factors with eigenvalues greater than 1.0. Inspection of the pattern matrix revealed that only 5 factors had 4 or more items with loadings over 0.4. Therefore, a 5-factor solution was examined. An example is 'I recognize my habits are linked to my feelings'.

The derived factors supported the five domains assumed in the formulation of the EBS. PCA with varimax rotation was performed in order to reduce the data and determine the strongest features. Factor loadings were inspected. Following the recommendations of Tabachnick and Fidell (2012), any factor loadings of .45 or higher were retained, with 20% overlapping variance. These are shown in Table 1. These 25 items were selected for the revised domains to be considered in study 2.

In line with the theorised domains it was identified that factor 1 measured the interactive sphere of judgment [5 items], control factor 2 measured the levels of reflective judgment [5 items], factor 3 reflected the participants external social judgment [5 items], factor 4 was the internal domain of judgment [5 items] and factor 5 demonstrated the participant's innate level of judgment [5 items]. A good level of reliability was shown for each of the factors; interactive ( $\alpha = .73$ ), reflective ( $\alpha = .80$ ), participant's external social judgment ( $\alpha = .79$ ), internal judgment ( $\alpha = .80$ ) and innate judgments ( $\alpha = .75$ ).

## Discussion

The PCA identified five factors from the original 60-item pool. The study confirms the multiplicity of barriers to equanimity. The factors have been conceptualized as the innate, internal social, external social, interactive and reflective domains. Study 2 aimed to validate the 25 item five factor structure identified in the previous PCA using the cross-validation sample described earlier.

## Study 2: CFA and Model Fit Analysis

### Method

#### Participants and Procedure

Data for Study 2 were collected from 108 participants; 35 males (32.4%), 70 females (64.8%), and three with unreported gender (2.8%). Age ranged from 18 to 54 years ( $M = 28.79$ ;  $SD = 10.58$ ). Participants were all undergraduate students from the University, recruited via opportunity sampling from health courses. Participants provided consent, demographic questions about age, gender, profession and highest qualifications as well as the 25 items isolated in study 1.

### Results

Analyses were conducted on 25 items (see Table 1) using IBM SPSS Amos 23, utilizing Confirmatory Factor Analysis (CFA). Model fit was measured through inspection of the comparative fit index (CFI), Chi-Squared statistic ( $\chi^2$ ), the Tucker Lewis index (TLI) and Root Mean Square of Error (RMSEA). Ideally, the  $\chi^2$  should be non-significant; however, this value is very sensitive to large sample sizes and is often significant, even for well-fitting models (Bentler and Bonnet 1980). Hu and Bentler (1999) proposed several additional criteria to establish a good fitting model, which were adopted in this study. More specifically, adequate fit required a CFI value higher than .95, a TLI value greater than .95 and a RMSEA value of less than .08 (Hu and Bentler 1999).

Inspection of inter-item bivariate correlations revealed that four items did not correlate with the questionnaire above 0.75 ( $r = -.126$  to  $0.75$ ) and were subsequently excluded from further analyses (Tabachnick and Fidell 2012). No items were highly correlated with one another ( $>.80$ ) suggesting that the items were parsimonious, with a low risk of multi-collinearity. This left a total of 21 items for further inspection. These items showed five factors with each item loading on one factor only. Overall, a total of three models (see Table 2) for best model fit.

**Table 1** Items and factor loadings in study 1

	Factor loading
<b>Factor 1 (Interactive) (5 items)</b>	
My feelings can undermine how I wish to behave in certain circumstances	.45
<b>When I know I should be feeling positive but actually feel negative, I feel a sense of frustration</b>	.69
<b>I sometimes wish I could control my feelings rather than be controlled by them</b>	.81
<b>When someone says something I disagree with, I notice a sense of tension inside me</b>	.44
If I could change the way I felt about things I would	.57
Eigenvalue	14.13
% variance explained	23.55
<b>Factor 2 (External social) (5 items)</b>	
<b>I feel that my feelings towards others are influenced by my culture?</b>	.65
<b>I feel that the media influences my feelings towards others?</b>	.66
My gender influences my feelings towards others?	.73
My age influences how I feel towards others?	.65
<b>Organisations or institutions influence the way I perceive others?</b>	.72
Eigenvalue	3.41
% variance explained	5.68
<b>Factor 3 (Reflective) (5 items)</b>	
<b>My memories are strongly linked with my feelings</b>	.83
<b>My memories influence how I interact with others</b>	.83
My emotions are governed by how I feel	.80
When I communicate with others do I notice how I feel?	.93
<b>How I behave with others is influenced by my sense of physical wellbeing</b>	.88
Eigenvalue	2.70
% variance explained	4.51
<b>Factor 4 (Internal social) (5 items)</b>	
My feelings are influenced by external social factors	.98
<b>My sense of self feels threatened by ‘socially desirable’ norms and expectations?</b>	1.05
The social world changes the feelings that I came into the world with	.33
<b>Societal expectations influence the way I perceive my feelings?</b>	1.01
My feelings are influenced by internal social factors	.94
Eigenvalue	2.46
% variance explained	4.10
<b>Factor 5 (Innate) (6 items)</b>	
<b>If my feelings change then I will change</b>	.35
<b>I am what I feel</b>	.36
<b>My emotions are governed by how I feel</b>	.80
<b>All my actions are governed by emotions</b>	.64
My emotions are governed by how I feel	.80
Eigenvalue	1.90
% variance explained	3.17

\*\*Items in bold included in final model

The suitability of each model was assessed by inspection of goodness of fit indices. The CFI,  $\chi^2$ , TLI and RMSEA were used to assess model fit (see Table 3). The first model consisted of five factors onto which all 21 items were loaded. This revealed an inadequate fit ( $\chi^2 = 440.698$ ) = 1.633,  $p < .001$ ,  $p < .001$ , CFI = .829, TLI = .807, RMSEA = .079).

Following this, the second model contained four factors to reflect the strength of the factors of the PCA. It was decided that the external and internal factors could be amalgamated to provide one overarching social factor as the items strongly correlated as the two factors both explore societal influences upon an individual. Upon inspection of the second model, it

**Table 2** CFA. Model fit of each of the models tested in the confirmatory factor analysis

	No. of items	$\chi^2$	df	CFI	TLI	RMSEA	90% CI	
							Lower	Upper
Model 1: Principal Components Factor Analysis Model	21	notadmissible***		.83	.81	.078	.065	.091
5 subscales; Interactive judgements, Innate Judgements, External Social judgements, Internal Social judgements, Reflective Judgements								
Model 2: Thematic	16	130.10***	98	.95	.93	.055	.026	.079
4 subscales; Interactive judgements, Innate Judgements, Combined external and internal Social judgements, Reflective Judgements								
Model 3: Thematic	15	103.592***	84	.97	.98	.047	.000	.074
4 subscales; Interactive judgements, Innate Judgements, Combined external and internal Social judgements, Reflective Judgements								

CFI, comparative fit index; RMSEA, root mean square of error; TLI, Tucker Lewis index

\*\*\* =  $p < .001$ **Table 3** Factor loadings for each subscale of the final model of the EBS

	Factor loading
Innate (2 items)	
I am what I feel	.66
If my feelings change then I will change	.75
Social (5 items)	
I feel like my feeling towards others are influenced by my culture	.79
I feel like the media influences the way I feel about others	.70
Organizations or institutions influence the way I perceive others	.78
My sense of self feels threatened by 'socially desirable' norms and expectations	.62
Social expectations influence the way I perceive my feelings	.85
Interactive (6 items)	
How I behave with others is influenced by my sense of physical wellbeing	.51
When I know I should be feeling positive but actually feel negative I notice a sense of frustration	.45
I sometimes wish I could control my feelings rather than be controlled by them	.47
When someone says something I disagree with I notice a sense of tension within me	.49
My behavior with others is dependent on how I feel	.61
All my actions are governed by emotions	.65
Reflective (2 items)	
My memories are strongly linked with my feelings	.72
My memories influence how I interact with others	.76

was thought that responses regarding innate judgements and reflective judgement may affect the quality of the model. A number of weakly loaded items were excluded from the analysis. The second model consisted of four factors onto which 16 items were loaded. This was improved from model one, but the fit was inadequate ( $\chi^2$  130.104 =, 1.328  $p < .001$ , CFI = .945., TLI = .933, RMSEA = .055).

This revealed that 6 items were loading on to multiple factors and those items were removed from the model to ensure that each of item clearly loaded on to one distinct factor (Matsunaga 2010). Similarly, items that loaded onto the same factor, and were theoretically justifiable, were co-varied (Brown and Moore 2014; Jöreskog and Long 1993). If these were not theoretically justifiable, they were not allowed to covary. A further item was excluded from the model. Following this, the third model revealed an acceptable fit ( $\chi^2$  103.592 = 84,  $p < .001$ , CFI = .964, TLI = .955, RMSEA = .047). Model three was therefore selected as the final model for the experiences of equanimity barriers, as it demonstrated acceptable  $\chi^2$ , CFI, TLI and RMSEA statistics. The factor loadings of each item in the final model are shown in Table 3.

The reliability and validity statistics for the final model were additionally examined (See Table 4). In order to assess the convergent and discriminant validity, Average Variance Explained (AVE) was tested, which highlights the degree to which the distinct items on the questionnaire represent the overall subscale. Hair et al. (2011) denotes how these values should ideally exceed .50. Moreover, construct reliability was examined with values preferably surpassing .70 (Hair et al. 2011) therefore demonstrating both the internal consistency and reliability of the subscale. A high level of reliability and validity for the EBS is demonstrated in Table 4, as the AVE and construct reliability statistics for the definitive 15-item model surpassed their desired values. CFA was tested again and it confirmed the aforementioned factors.

## Discussion

The CFA has refined the 5-factors identified in study 1 to reveal a more sophisticated 4-factor model. The internal and external social domains have been integrated to establish a more robust domain. This refined model encompasses four

**Table 4** CFA reliability and validity statistics for the four subscales of EBS

Subscale	Construct reliability	AVE
1. Innate	.66	.93
2. Social	.86	1.04
3. Interactive	.70	.82
4. Reflective	.71	.85

distinct features of barriers to equanimity, namely: innate, social, interactive and reflective. Study 3 aimed to test convergent and discriminant validity of the EBS.

## Study 3: Convergent and Discriminant Validity of the EBS

Results of study 2 suggest that the EBS measures a variety of challenges an individual may face in cultivating equanimity. It was also necessary to determine how this particular construct is correlated with mindfulness, non-judgemental acceptance and emotional regulation by testing convergent and discriminant validity. It was predicted that the EBS would be correlated the Mindfulness Attention Awareness Scale [MAAS] (Brown and Ryan 2003), Big Five Inventory-10 [BFI-10] (Rammstedt and John 2007), Self Compassion Scale Short Form [SCS-SF] (Raes et al. 2011), Difficulty in Emotional Regulation Scale Short Form [DERS-SF] (Kaufman et al. 2015) and the Emotional Regulation Questionnaire [ERQ] (Gross and John 2003).

## Method

### Participants and Procedure

Participants were recruited via opportunity sampling, comprising 302 undergraduate students from a university in North west England, studying health and psychology course (64 males [21.2%], 235 females [77.8%], 3 gender fluid [1%]). Age ranged from 18 to 58 years old ( $M = 30.24$ ;  $SD = 9.52$ ). Questionnaires were distributed during the beginning of lectures. Upon providing consent, participants completed demographic questions about age, gender, ethnicity, profession and highest qualification, as well as the 74-item questionnaire encompassing all scales described next.

### Measures

In addition to the 15 items finalized in study 2 the following measures were administered. The 14 item MAAS (Brown and Ryan 2003). Globally, this scale is the one of the most commonly used measure of mindfulness attention and awareness and has demonstrated significant reliability and validity in a multitude of studies. The scale has also been validated in a wide variety of populations and countries (Abdi et al. 2015; Jose Ruiz et al. 2016; Phang et al. 2016). Measuring the EBS with the MAAS was important as equanimity is proposed to be related to mindfulness. This scale was chosen as it focuses solely on awareness and attention as opposed to non-judgement. It was therefore expected that there would be a significant negative correlation between the EBS interactive and reflective subscales and the MAAS.



The BFI-10 (Rammstedt and John 2007). The Short form has five subscales of extraversion, agreeableness, conscientiousness, neuroticism and openness. The BFI is a globally recognised scale with proven reliability and validity which has been validated in different countries (Alansari 2016; Fossati et al. 2011). The results of the BFI-10 indicate the subscales retain significant levels of reliability and validity (Rammstedt and John 2007). The BFI-10 was chosen in order to examine personality traits of agreeableness, conscientiousness and neuroticism in relation to equanimity. It was expected that these personality traits would indicate negative relationships between the social, interactive and reflective subscales of the EBS.

The SCS-SF (Raes et al. 2011) was chosen to relate the EBS to the different subscales of compassion. The short form has six subscales namely; self kindness, self judgement, common humanity, isolation, mindfulness and over identified. The SCS has sufficient evidence of reliability and validity and strong internal reliability across a wide variety of populations (Neff 2016). It has also been validated in different languages (Azizi et al. 2013; Eirini et al. 2017). The SCS-SF confirmed adequate internal consistency and an almost perfect correlation with the long form SCS (Raes et al. 2011) and was chosen as the final measure. It was expected that the self kindness subscale would correlate positively with the social subscale of the EBS. It was also expected that the self-judgement, isolation and over identified subscales were expected to correlate positively with all the subscales of the EBS. Further, the common humanity subscale was expected to correlate positively with the social and interactive subscale of the EBS. Finally, it was assumed that the mindfulness subscale would correlate negatively with the interactive and reflective subscales of the EBS.

The DERS-SF (Kaufman et al. 2015). The Difficulties in Emotion Regulation Scale (DERS) is a well validated and widely used self-report measure for assessing emotion regulation problems (Gratz and Roemer 2004) The scale has been validated in different countries (Yamada and Suige 2012) and subsequently a more accessible short form has been produced. The short form has six subscales including strategies, non-acceptance, impulse, goals, awareness and clarity. The Difficulty in Emotional Regulation Short Form [DERS-SF] was expected to demonstrate significant convergent validity due to the similarity of the overall construct. This scale however, is not related to mindfulness and does not distinguish mindfulness awareness, therefore does not identify equanimity as a construct. Whereas the DER-SF hones in on an individual's emotional regulation, the EBS identifies wider challenges incorporating mindfulness awareness. It was expected that the subscales of strategies, impulse, goals and clarity would positively correlate with each of the EBS subscales. It was also expected that non-acceptance would positively correlate with the social, interactive and reflective subscales of

the EBS. Finally, it was anticipated that the awareness subscale would positively correlate with the innate and social subscales.

The ERQ (Gross and John 2003). Again, this is a well-used and widely accepted psychometric measure that has been validated in different countries (Enebrink et al. 2013). The ERQ has been designed to highlight the habitual use of reappraisal and suppression strategies, thus supporting the hypothesis that a person who has little equanimity will have difficulty in regulating emotion. The scale has two subscales of experience and expression. The ERQ was chosen as it was expected that an individual who finds it difficult to regulate emotion would face barriers to equanimity. It was expected that the ERQ would correlate positively with the EBS Innate subscale.

## Results and Discussion

The purpose of study 3 was to assess how the EBS would be related to theoretically overlapping constructs of mindfulness, non-judgemental acceptance and emotional regulation by testing convergent and discriminant validity. Overall, the findings in this study were in accordance with predictions. The reliability for each of the measures and subscales is reported in Table 5. The correlations matrix and convergent and discriminant validity are reported in Table 6.

### Mindfulness Attention Awareness Scale [MAAS]

There was a very strong negative relationship, as expected, between the MAAS and both the EBS interactive and reflective subscales. This negative correlation suggests a person with low mindfulness is likely to be unaware of their feelings, sense of physical well-being during the present moment, or likely to be caught up with past experiences or nostalgia.

### Big Five Inventory-10 [BFI-10]

As predicted, The BFI-10 Agreeableness and Conscientiousness subscales, correlates strong negative relationships with the Social, Interactive and Reflective subscales of the EBS. Furthermore, the BFI neuroticism scale reports a strong negative relationship with the Interactive subscale.

The negative correlations with the above subscales can be explained via awareness of social construction and conformity. Further, if a person is uncomfortable or distracted in the present moment they may blame this on others or use past experiences to infiltrate how they perceive others. In terms of neuroticism, this would suggest a lack of positive coping strategies when dealing with stress or lack of awareness to feelings in the present moment. In relation to conscientiousness, the relationships suggests a person is either driven to conformity or likely to drift into apathy. At the interactive

**Table 5** Scale Reliability Table 5

	Alpha
Mindfulness attention awareness scale [MAAS] (Brown and Ryan 2003)	.850
Difficulties in emotional regulation scale [DERS] (Kaufman et al. 2015)	
Strategies: 10,15,18	.803
Non-acceptance: 7,12,16	.708
Impulse: 9,14,17	.875
Goals: 8,11,13	.855
Awareness: 1,4,6	.700
Clarity: 2,3,5	.779
Emotional regulation scale [ERS] (Gross and John 2003)	
Emotional experience 1, 3, 5, 7, 8,10	.875
Emotional expression 2, 4, 6, 9	.735
Equanimity barriers Scale [EBS]	
Innate domain 1,2	.607
Social domain 3,4,5,6,7	.874
Interactive domain 8,9,10,11,12,13	.716
Reflective domain 14,15	.715
Self compassion scale [SCS short form] ** (Raes et al. 2011)	
Self-kindness items: 2, 6	.456
Self-judgment items: 11, 12	.625
Common humanity items: 5, 10	.382
Isolation items: 4, 8	.592
Mindfulness items: 3, 7	.612
Over-identified items: 1, 9	.609

subscale, a person with lower mindful awareness will likely have a negative sense of conscientiousness. In terms of the reflective subscale, an individual weighed down with nostalgia or memories are likely to face significant barriers to productivity.

### The Difficulties in Emotional Regulation Scale Short Form [DERS-SF]

The EBS subscales were all expected to be closely related to DERS-SF subscales. The DERS-SF subscales, Strategies, Goals and Impulse reported strong positive relationships with each of the EBS subscales. Non-Acceptance and Clarity reported strong positive relationships with the Social, Interactive and Reflective subscales. Additionally, the Awareness subscale reported positive relationships with the innate and social subscales. These relationships were expected.

These positive correlations indicate individuals who face barriers to equanimity are less able to develop positive coping strategies, more likely to drift into non-acceptance and less able to develop resilience when dealing with difficult situations. The results further suggest that the further from equanimity a person may be, the more impulsive they become and lack in self-awareness and clarity.

### Emotional Regulation Questionnaire [ERQ]

As expected, The ERQ subscale Expression, reported a positive relationship with the Innate subscale of the EBS. The positive correlation indicates individuals who are aware of, and strongly identify with their emotions are able to express themselves.

### Self-Compassion Scale Short Form [SCS-SF]

As anticipated, The SCS-SF self-kindness subscale correlates positively with the social subscale of the EBS. Additionally, the self-judgement, isolation and over-identified subscales also reported strong positive relationships with the EBS subscales. Further, Common Humanity reported strong positive relationships to the social and interactive subscales. Finally, the Mindfulness subscale reported strong negative relationships with both the interactive and reflective subscales.

The positive correlations with the SCS-SF confirm how this affects an individual's relationship with self-compassion. Similarly, the negative correlation with mindfulness indicates low mindfulness results in low self-compassion. The higher the barriers a person faces, the less likely they are to be kind to themselves and more likely they are to judge themselves as inferior. Individuals who report high levels of self-judgement strongly believe in the negative emotions they experience.

**Table 6** Scale correlations the EBS

	Equanimity barriers scale innate (EBSI)	Equanimity barriers scale social (EBSS)	Equanimity barriers scale interactive (EBSINT)	Equanimity barriers scale reflective (EBSR)
Mindfulness attention awareness scale [MAAS]	.034	-.064	-174**	-.166**
Big five inventory-10 [BFI]	.553	.267	.002	.004
Extraversion	.012	-.048	-.071	-.104
Agreeableness	.830	.409	.221	.070
Conscientiousness	-.076	-.166**	-.249**	-.227**
Neuroticism	.190	.004	<.001	<.001
Openness	-.061	-.201**	-.300**	-.172**
Difficulties in emotional regulation scale (DERS)	.291	<.001	<.001	.003
Strategies	.003	.071	.210**	.143*
Non-acceptance	.955	.218	<.001	0.13
Impulse	.006	-.060	.028	.093
Goals	.912	.297	.628	.108
Awareness	.184**	.252**	.398**	.283**
Clarity	<.001	<.001	<.001	<.001
Emotional regulation scale [ERS]	.121	.238**	.389**	.279**
Experience	.036	<.001	<.001	<.001
Expression	.213**	.319**	.446**	.331**
Self compassion scale short form [SCS – short form]	<.001	<.001	<.001	<.001
Self-kindness	.250**	.172**	.370**	.246**
Self-judgement	<.001	<.001	<.001	<.001
Common humanity	.144*	.117*	.050	.015
Isolation	.012	.042	.388.	.800
Mindfulness	.032	.219**	.292**	.162**
Over-identified	.580	<.001	<.001	.005
Experience	.129*	.055	-.038	.060
Expression	.025	.340	.507	.295
Self-kindness	.112	.013	.051	.068
Self-judgement	.051	.825	.374	.238
Common humanity	-.064	.147*	-.065	-.089
Isolation	.271	.011	.261	.122
Mindfulness	.241**	.201**	.428**	.319**
Over-identified	<.001	<.001	<.001	<.001
Common humanity	.094	.188**	.122*	.101
Isolation	.102	.001	.034	.080
Mindfulness	.224**	.152**	.354**	.248**
Over-identified	<.001	.008	<.001	<.001
Common humanity	-.176	-.080	-.221**	-.127*
Isolation	.190	.163	<.001	.028
Mindfulness	.272**	.249**	.373**	.260**
Over-identified	<.001	<.001	<.001	<.001

Those who lack self-compassion and equanimity are more likely to face feelings of isolation and inadequacy. The less mindful of emotions and thoughts, the more likely they are to

blame themselves or others rather than view experiences as transitory moments in time. Further, individuals with lower levels of self-compassion have less equanimity given their

unforgiving self-judgement, over identification with negative thoughts and feelings and sense of isolation. Equally, those high in self-compassion have more equanimity given their kinder treatment of themselves and mindful-awareness that inadequacies are part of the wider human condition. This linkage with common humanity is possibly due to a lessening of rigid boundaries between ‘self’ and ‘others’ and a deeper recognition that we are one human family.

## General Discussion

The aim of this research was to develop and provide initial validation of a scale that measures barriers to equanimity. Little research attention thus far has focused upon barriers toward the non-judgmental, acceptance aspects of mindfulness and the concept of equanimity is rarely considered (Desbordes et al. 2015). The development of a scale to measure these constructs is therefore timely.

Considered together, results from studies 1 and 2 provide evidence for the construct validity of the EBS. The CFA confirmed the expected factors which subsequently encompass Innate, Social, Interactive and Reflective subscales. This highlights the layers of complexity upon individuals’ ability to abide in equanimity (Wallace 2010; Zopa 2013). To judge based upon our own experience of likes, dislikes and feelings of neutrality is to reaffirm pre-existing and learned traits and behaviours. It is particularly significant to address maladaptive schemas that may have detrimental effects on wellbeing. *“To set up what you like against what you dislike is the disease of the mind”* (Seng ts’an, Cited in Putkonen, p7 Putkonen 1974, p 7). The EBS can play a key role in understanding therapeutically why we may think and behave the way we do and subsequently support healthier counterintuitive change. Thus, the EBS aids the identification of the myriad reasons why individuals may experience little or no equanimity in certain contextual scenarios.

Recent research has turned towards the question of how and why mindfulness results in pro-social change (Chiesa et al. 2014; Gu et al. 2015; Holzel et al. 2011). Future use of the EBS within literature on mindfulness experience and practice would enable the exploration into why some individuals face barriers to equanimity and would foster research into the causal factors that facilitate wellbeing. Should an individual strive for equanimity then it is vital that one is able to dissect the ways in which they may judge phenomena. The EBS to an extent may also help bring out unconscious bias once an individual has addressed the ways in which they formulate judgements (Baer 2011). Further, this research could build on Condon and Barrett (2013) in understanding why individuals experience differing levels of compassion and also may help in understanding the reason why some people may

experience a fear of compassion (Gilbert et al. 2011). From a therapeutic point of view, through the discovery of specific barriers to equanimity, an individual is able to reflect and explore these isolated matters in greater depth. Moreover, a person centred therapist is better able to facilitate this process via the identification of such barriers. In this way, work on compassion and other prosocial behaviours has more contextual relevance.

Such is the complexity of individual layers of judgement; the ways in which we judge needs to be carefully and methodologically assessed should one hope to develop positive qualities such as compassion and so forth. Therefore, the EBS is helpful in distinguishing these barriers in practice. Self-awareness is measured within mindfulness yet little attention has been given solely to what judgements mean for an individual and how they might influence a persons’ ability to cultivate equanimity. In order for an individual to reach equanimity, first and foremost an individual must deconstruct their own barriers in practice.

Assessing barriers to practice is also significant when taking into consideration the potential negative consequences of mindfulness practice. For example, Finucane and Mercer (2006) reported that some participants became more distressed during meditation due to extreme negative past experience. Preventative work on reasons why an individual thinks and behaves the way they do may enable mindfulness teachers to facilitate sensitive discussions prior and post meditation. Again, this suggests the EBS may play a therapeutic role in person centred development by facilitating discussion around barriers to practice.

The confirmed model of the EBS has resulted in a measure of barriers to equanimity that is; 1) developed from current mindfulness scales and 2) does not focus on one specific domain of judgement. Using this scale complementary to current mindfulness scales, especially those that focus on attention and awareness will have the ability to provide a deeper level of context about individuals’ experience. More significantly, individuals will be able to understand the current ways in which they formulate feeling tones and could act as a therapeutic tool in psychological development. In order to promote wellbeing and self-development, overcoming barriers to equanimity presents one part of a healthy therapeutic process. This is significant to explore further as current scales predominantly focus on gathering data on attention or combine attention with non-judgement in one scale, and no scales measure the relative barriers to practice. As the EBS measures individuals’ judgements using differing subscales, the behaviour can be viewed in comparison, with subscales for attention, awareness or loving kindness. This would allow the contribution of each of these factors to be explored within both mindfulness and equanimity concepts. This allows a richer exploration of this construct and opens new doors in research.

## Future Research

Although the EBS consisted of four factors, the relationship between innate, social, interactive and reflective demonstrate multiple correlating relationships. The EBS does not identify the strength of an individual's cultivation of equanimity and so separate scales will need to be developed for this. Future research should more closely identify questions relating to an individual's likes, dislikes and feelings of neutrality. Further, a significant outcome of the study concerns the lack of information gathered by innate and reflective judgment exemplified by the small number of items in the final model. This subsequently may deliver questionable reliability. Future research should endeavour to revise these subscales.

## Limitations

The present studies were conducted using relatively large sample sizes, however further opportunity samples in different demographics would be beneficial. Future research is suggested to examine whether the results represent distinct factors in more diverse samples. Similarly, although the results suggest an overarching theme of barriers to equanimity, the scale needs external validation. Moreover, the empirical work did not capture test-retest reliability.

## Conclusion

In conclusion, being able to measurably assess barriers to mindfulness practice via the multifaceted construct of equanimity has the potential for future research to investigate how individuals might best achieve a calm state of non-judgment and compassion. In addition, for those already engaged in mindfulness meditative practice, understanding specific barriers to equanimity may allow mindfulness teachers to facilitate sensitive discussions prior and post meditation. This suggests the EBS may play a diagnostic and therefore a therapeutic role in person centred therapy and personal development (Desbordes et al. 2015; Hadash et al. 2016; García-Campayo et al. 2016). Future research needs to consider the complexity of equanimity judgments further by investigating it in longitudinal studies as well as more diverse demographics. This supports further research built on differentiating 'non-judgemental acceptance' within current mindfulness understanding and proposes equanimity as a separate entity for future studies.

## Compliance with Ethical Standards

**Ethical Approval** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

**Informed Consent** Informed consent was obtained from all individual participants included in the study.

**Conflict of Interest** The authors declare there were no conflict of interest in these studies.

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