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RESEARCH PAPER

# Nonattachment Mediates the Relationship Between Mindfulness and Psychological Well-Being, Subjective Well-Being, and Depression, Anxiety and Stress

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**Abstract**
The Buddhist construct of nonattachment is a related, yet distinct construct to mindfulness. Whereas mindfulness refers to an individual's open, present-centred awareness of what is happening in their field of consciousness, nonattachment denotes an absence of attempts to control what is happening in their field of consciousness. The aim of the present research was to determine whether nonattachment is a mechanism of mindfulness that mediates its relationship to psychological and subjective well-being, depression, anxiety and stress. Two sequential studies were conducted. Study 1 (N = 516) established that nonattachment mediated the relationship of mindfulness to psychological and subjective well-being. Study 2 (N = 416) demonstrated that nonattachment also mediated the relationship of mindfulness to depression, anxiety and stress. In combination, these studies are the first to demonstrate that the relationship of mindfulness to a broad range of psychological outcomes is at least partially determined by nonattachment. These findings provide insight into how mindfulness impacts mental health and have implications for the development and assessment of mindfulness-based interventions.

**Keywords** Nonattachment · Mindfulness · Psychological well-being · Subjective well-being · Depression · Anxiety · Stress

## 1 Introduction

The Buddhist construct of nonattachment refers to the "subjective quality of not being stuck or fixated on ideas, images, or sensory objects and not feeling an internal pressure to acquire, hold, avoid, or change" (Desbordes et al. 2014, p. 25). A nonattached person is free from mental fixations (Sahdra et al. 2010; Sahdra and Shaver 2013) and interacts with their experience without trying to cling on to desirable experiences or avoid unpleasant experiences (Sahdra et al. 2015; Sahdra et al. 2016). The overarching aim of the present study was to examine the role of nonattachment as a mechanism of mindfulness in relation

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to a range of well-being variables not previously investigated. Nonattachment is related but distinct from mindfulness (Feliu-Soler et al. 2016; Sahdra et al. 2016). Nonattachment has been shown to have a stronger impact on mental health when measured alongside mindfulness (Lamis and Dvorak 2013) and preliminary research suggests nonattachment may be a mechanism that helps to explain the positive impact of mindfulness on well-being (Sahdra et al. 2016). However, no comprehensive investigation into the mediating role of nonattachment has been conducted. A key contribution of the present research is to extend previous analyses by examining whether nonattachment mediates the relationship of mindfulness to psychological well-being (PWB), positive affect (PA), negative affect (NA), anxiety and stress among Australian adults. This introduction outlines the nature of nonattachment and its relationship to mindfulness and discusses previous work on mindfulness and nonattachment in relation to well-being, depression, anxiety and stress.

### 1.1 The Nature of Nonattachment

In the Buddhist context, attachment refers to the energy involved in clinging to experiences perceived as positive *and* the avoidance of experiences perceived as negative (Agarwal 1982; Altobello 2009; Sahdra et al. 2010; Shone 1992). For example, attachment can manifest an aversion to embarrassment. Here, the attachment itself causes anticipatory worry, rumination and suffering, quite separate from any embarrassment suffered. Similarly, attachment may be evident when a person attempts to cling to the identity of their youth. In this case, when that identity is inevitably challenged through aging and progression of life circumstances, the individual may experience pining, worry, or feelings of inadequacy. Theoretically, the more an individual engages with attachments, the more their well-being can be impacted by processes associated with attempts to control experience. These include fear, anxiety, worry or rumination. Further, the certain failure of efforts to control experiences diminishes the ability to interact with the experience in an open and flexible way. Achieving nonattachment, therefore, should afford an individual a greater sense of mastery over their environment and an ability to engage more adaptably with experience.

### 1.2 Nonattachment and Mindfulness

A quality that is closely related, but distinct from nonattachment, is mindfulness. Mindfulness is at the core of Buddhist teachings (Hanh 1999) and has been investigated both as a trait and in the context of mindfulness-based interventions. Although mindfulness is conceptualised in a number of different ways, two consistently identified aspects of mindfulness are; an open awareness and observing of experience, and a mindful 'acceptance' of experience (Bishop et al. 2004; Coffey et al. 2010; Lindsay and Cresswell 2015, 2017). Being more mindful is associated with better mental health in a range of areas such as psychological well-being (e.g., Brown and Ryan 2003), depression and anxiety (e.g., Desrosiers et al. 2014; Tran et al. 2014), cognitive rigidity (Greenberg et al. 2010) and emotional regulation (Teper et al. 2013).

Research shows mindfulness to be consistently related to nonattachment (Feliu-soler et al. 2016; Ju and Lee 2015; Lamis and Dvorak 2013; Sahdra et al. 2010, 2016). However, it is also empirically distinct from each of its components (Sahdra et al. 2016). This distinction is important as nonattachment shares similarities to the mindfulness component of 'acceptance'. The 'acceptance' component of mindfulness involves a non-reactive and non-judging interaction with experience, and is theorized to explain the positive effect of

mindfulness training on reducing negative affective experiences (Lindsay and Cresswell 2017). Measures of acceptance, such as nonjudgment and non-reactivity (from the five factor mindfulness questionnaire; FFMQ; Baer et al. 2006), capture a non-judgment of self-related stimuli (e.g., "I criticize myself for having irrational or inappropriate emotions"—reversed) and an absence of automatic reactions to challenging situations (e.g., "in difficult situations, I can pause without immediately reacting"). In contrast, nonattachment captures a broader quality associated with the process of letting go of unhelpful thoughts and feelings, as well as a general attitude of non-clinging/non-aversion towards experience (e.g., "I can enjoy my family and friends without feeling I need to hang on to them"). Theoretically, an individual's mindful, nonreactive, present-centred awareness of what is happening in their field of consciousness (Desbordes et al. 2014), can facilitate a letting go of control and a general nonattached attitude towards experience, without the need for specified outcomes.

### 1.3 Nonattachment, Mindfulness and Well-Being

Although research on the effects of nonattachment on well-being is limited, the relationship between mindfulness and positive and negative well-being outcomes is well documented. Mindfulness has been linked with two prominent models of well-being: subjective well-being (SWB) and psychological well-being (PWB; Ryff 1989; Ryff and Keyes 1995). SWB is aligned with hedonia and relates to feeling good about one's life and more short-term, pleasure-based happiness (Bauer et al. 2006). PWB is a more pervasive measure of well-being aligned with eudaimonia (Ryan and Deci 2001; Ryff 1989). PWB involves a range of areas of a person's life such as the quality of their relationships and their sense of meaning and purpose in life (Ryff 1989; Ryff and Keyes 1995). Mindfulness is associated with increased PWB (e.g., Brown and Ryan 2003; Hanley et al. 2015; Hollis-Walker and Colosimo 2011; Howell et al. 2011; Klainin-Yobas et al. 2016) and increased SWB (e.g., Hanley et al. 2015; Wenzel et al. 2015). Being more mindfully present and being wilfully open and nonjudging towards what arises in the field of consciousness appears to be associated with better well-being and quality of life, although the precise mechanisms of this relationship need further elucidation.

Unlike mindfulness, there is little research on the association of nonattachment with well-being, although the existing evidence suggests a relationship exists. When developing the nonattachment scale (NAS), Sahdra et al. (2010) found nonattachment was related to three measures of SWB; life satisfaction, positive affect (PA) and negative affect (NA), as well as four dimensions of Ryff's (1989) PWB scale; personal growth, self-acceptance, positive relationships with others and purpose in life. Wang et al. (2015) also found nonattachment to be related to life-satisfaction, PA and NA. In theory, letting go of the need for experience to be one way or other means that well-being can be experienced independently of external circumstances (Sahdra et al. 2010). This would limit the negative impact of mental fixation involved in trying to control experience and assist in maintaining a more stable sense of well-being, and a generally more positive attitude towards the world (Huxley 1937).

### 1.4 Nonattachment, Mindfulness and Depression, Anxiety and Stress

As well as increased well-being, mindfulness is also related to lower levels of negative psychological symptoms. Being more mindfully aware of experience without judgment can

assist in limiting the effects of negative psychological symptoms. Higher levels of mindfulness are related to reduced depression (e.g., Coffey and Hartman 2008; Feliu-Soler et al. 2016; Gecht et al. 2014; Kohls et al. 2009) anxiety (e.g., Coffey and Hartman 2008; Feliu-Soler et al. 2016; Kohls et al. 2009) and stress (e.g., Feliu-Soler et al. 2016; Zimmaro et al. 2016). Moreover, mindfulness-based interventions have a beneficial impact on the treatment of many negative psychological symptoms (Keng et al. 2011). Developing greater mindfulness can assist in dealing with negative psychological symptoms, however, the precise mechanisms through which this occurs are unclear.

Recent research suggests nonattachment may be an important factor in the reduction of negative psychological symptoms. Wang et al. (2015) identified a relationship between nonattachment and reduced psychological distress, and Sahdra et al. (2010) and Chao and Chen (2013) showed individuals higher on nonattachment had lower levels of depression and anxiety. The findings correspond with the Buddhist view that letting go of attachments is an important factor in the reduction of suffering (Dalai Lama 1997, 2001; Sahdra et al. 2010; Sumedho 1989). By letting go of the need to control experience, individuals may be able to reduce the negative psychological symptoms associated with trying to be in control (e.g., anxiety, worry, rumination). This may also limit the distress produced when such attempts to control experience are inevitably disrupted (e.g., fear, anxiety, and depression).

The beneficial impact of nonattachment on negative psychological symptoms is also evident when measured alongside mindfulness. Lamis and Dvorak (2013) found that in comparison to mindfulness, nonattachment was a significantly stronger predictor of reduced depressive symptoms and suicidal rumination than mindfulness. Thus, when an individual is experiencing depressive symptoms, including self-focused ruminative thinking, being engaged with an open, present-centred awareness can be helpful. However, reducing fixation on experience, and letting go of attempts to control it, may have a stronger impact on reducing these negative psychological symptoms.

### 1.5 Nonattachment as a Mediator of the Relationship of Mindfulness to Positive and Negative Well-Being Outcomes

Prior to this study there has been no comprehensive investigation on the mechanistic relationship of nonattachment to the effect of mindfulness on well-being. However, some preliminary evidence supports nonattachment as a mechanism that explains the impact of mindfulness on well-being. Sahdra et al. (2016) found nonattachment significantly mediated the relationship of three facets of the Five Factor Mindfulness Questionnaire (FFMQ; Baer et al. 2006); describing, nonjudgment, and non-reactivity with life satisfaction and life effectiveness. Coffey et al. (2010) also found that nonattachment mediated the relationship between the mindfulness component of 'acceptance' and the well-being factor of 'flourishing'. These preliminary findings suggest the influence of mindfulness on certain aspects of well-being may be at least partially explained by nonattachment. However, it is uncertain whether this mediating role of nonattachment extends to other measures of well-being.

Although mindfulness has shown to be related to increased positive affect and decreased negative affect (e.g., Brown and Ryan 2003), the mediating influence of nonattachment has not been explored. Theoretically, being mindful of the flow of experiences assists in developing nonattachment towards affective experiences. Being more nonattached towards experience could limit the impact of negative affect (e.g., distress, nervousness, irritability) when attempts to control experiences fail. The same may be true for positive affect, although the process is less straight forward. While nonattachment may allow for a greater

flow of positive affective experiences, rather than impeding the flow of positive affective experiences by clinging to them, whether this mediates the impact of mindfulness on positive affect is unclear.

The mediating role of nonattachment has not been studied in relation to mindfulness and PWB among Australian adults. So far, only one study has investigated this relationship. Ju and Lee (2015) used translated Korean versions of the mindful attention and awareness scale (MAAS; Brown and Ryan 2003), NAS, and PWB scales to investigate whether nonattachment mediated the relationship between mindfulness and PWB among Korean adults. Using the Baron and Kenny (1986) method for mediation they found the impact of mindfulness on PWB was partially explained by the relationship of nonattachment to PWB. However, this study was on a Korean sample using variations of the MAAS, NAS and PWB measures, and used a method of mediation considered to be outdated (Hayes 2009). The present study sought to investigate whether these findings are applicable to Australian adults when using the more robust bootstrapping approach to mediation and a measure of mindfulness more closely aligned with its Buddhist origins.

The present study also investigated nonattachment as a mediator of mindfulness in relation to depression, anxiety and stress. There is some previous evidence to suggest that the extent to which individuals engage in attachments can mediate the impact of mindfulness-based interventions (MBIs). When conducting a meta-analysis on the mechanisms of MBIs, Gu et al. (2015) found evidence that worry and rumination significantly mediated the effect MBIs on reducing negative mental symptoms. As worry and rumination both represent attachments and an inability to let go of fixation on experience, the findings indicate that the impact of mindfulness practice on mental health can be mediated by reducing levels of attachment.

Similarly, using the FFMQ to measure mindfulness, Tran et al. (2014) showed the influence of mindfulness on depression was mediated by nonattachment. Nonattachment predicted lower levels of depression, even when the general effects of mindfulness were taken into account. Tran et al. (2014) noted the potential for nonattachment to be an important mechanism in the treatment of depression and in reducing depressive symptoms. Tran et al.'s findings provide some initial insights into the possible mechanisms through which mindfulness impacts depressive symptoms. However, whether this relationship extends to other negative psychological symptoms (e.g., anxiety, stress) needs further investigation.

### 1.6 The Present Project

The aim of the present study was to investigate the relationship of mindfulness and nonattachment to positive and negative psychological outcomes in two sequential studies. Study 1 investigated the relationship of mindfulness and nonattachment to psychological and subjective well-being. Study 2 was then developed to test whether the relationship of mindfulness and nonattachment extended to high prevalence clinical symptoms of depression, anxiety and stress. Specifically, the first study sought to replicate and extend previous research and ascertain whether nonattachment represents a mechanism through which mindfulness positively impacts PWB and SWB. It was hypothesised that (1) nonattachment and mindfulness would be positively related to higher PWB, life satisfaction and PA, and negatively related to NA, and that (2) nonattachment would mediate the relationship of mindfulness to PWB, life satisfaction, PA and NA. The focus of Study 2 was to replicate and extend previous research to determine whether nonattachment represents a mechanism which mediates the (ameliorating) effect of mindfulness on depression, anxiety and stress. It was

hypothesised that (1) higher levels of nonattachment and mindfulness would be related to decreased depression, anxiety and stress and that (2) nonattachment would mediate the relationship of mindfulness on depression, anxiety and stress.

## 2 Study 1: The Relationship of Mindfulness and Nonattachment to Psychological and Subjective Well-Being

### 2.1 Method

#### 2.1.1 Participants and Procedure

Participants were students from a mid-sized Australian university who participated in a university-wide project on student well-being. Students received an email inviting them to complete an online survey which provided the opportunity to receive personalised feedback relating to a number of psychological constructs (e.g., nonattachment, academic motivation, adaptability). The sample comprised 516 students (190 men and 326 women) ranging from 17 to 69 years of age ($M = 28.58$, $SD = 10.30$). Students varied in years of completed study ranging from '6 months or less'—'more than 5 years' (*median* = 1 year). Students also varied in socioeconomic status, with household income (in $AUD) ranging from "$0–$25,000" to "$200,000+" (median = "$50,001–$75,000").

#### 2.1.2 Measures

*Nonattachment* Nonattachment was assessed using a 7-item version of the nonattachment scale (NAS-7; Elphinstone et al. 2015; Sahdra et al. 2016) taken from the larger 30-item nonattachment scale (NAS; Sahdra et al. 2010). The NAS-7 was used as it has shown good reliability and validity when compared with the original 30-item scale (Feliu-Soler et al. 2016; Sahdra et al. 2016). Participants rated their agreement with 7 items (e.g., "I can let go of regrets and feelings of dissatisfaction about the past") using a Likert scale from 1 (Strongly Disagree) to 6 (Strongly Agree). Previous studies using the NAS-7 have shown it to be a valid and reliable measure (e.g., Feliu-Soler et al. 2016; Sahdra et al. 2016).

*Mindfulness* The Freiburg Mindfulness Inventory (FMI; Walach et al. 2006) was specifically chosen as it is a single factor measure deeply rooted in the Buddhist origins of the mindfulness construct (Bergomi et al. 2013; Buchheld et al. 2001; Walach et al. 2006). The scale consists of 14 items (e.g., "When I notice an absence of mind, I gently return to the experience of the here and now") rated on a 4-point Likert scale from 1 (Rarely) to 4 (Almost Always). Previous research has shown the FMI measures to be a valid and reliable, single factor measure of mindfulness (e.g., Kohls et al. 2009; Walach et al. 2006).

*Life Satisfaction* Life satisfaction was measured with the Satisfaction with Life Scale (SWLS; Diener et al. 1985). The SWLS consists of five items (e.g., "In most ways my life is close to ideal") rated on a 7-point scale from 1 (Strongly Disagree) to 7 (Strongly Agree) for scale totals ranging from 5 to 35. The SWLS is a widely used and well-validated measure of life satisfaction (e.g., Bauer et al. 2005; McMahan and Estes 2010; Sahdra et al. 2010).

*Positive and Negative Affect* The Positive and Negative Affect Schedule (PANAS; Watson et al. 1988) consists of 10 items measuring positive affect (PA; e.g., 'Strong', 'Interested') and 10 assessing negative affect (NA; e.g., 'Nervous', 'Ashamed'). Items are rated

on a 5-point Likert scale ranging from 1 (Very Slightly or Not at All) to 5 (Extremely) evaluating the extent to which the item has been experienced over the past 3 months. Total scores range from 10 to 50 on each subscale of positive and negative affect. Factor analysis has consistently confirmed the two-factor structure of the PANAS (e.g., Merz and Roesch 2011; Tuccitto et al. 2010) and research has found positive and negative affect to be two distinct constructs (Busseri et al. 2007; Huelsman et al. 1998). Therefore, the individual components of positive and negative affect were measured separately. The PANAS has been shown to be a valid and reliable measure (Wang et al. 2015; Watson et al. 1988; Whitehead and Bates 2016).

*Psychological Well-Being* Psychological well-being was measured by a 30-item version of the Psychological Well-being (PWB) Scale (Ryff 1989; Ryff and Keyes 1995). The PWB scale yields a total score by summing the 30 items as well as individual scores for the six dimensions of *Autonomy, Purpose in Life, Environmental Mastery, Positive Relationships with Others, Personal Growth*, and *Self-Acceptance,* consisting of 5 items each. All items (e.g., "I like most aspects of my personality") are rated on a 6-point scale from 1 (Strongly Disagree) to 6 (Strongly Agree). Fifteen negatively worded items are reverse scored to provide a total PWB score from 30 to 180, and a score from 5 to 30 for the individual dimensions. The PWB scale has demonstrated good validity and reliability (e.g., Bauer et al. 2005; Grossbaum and Bates 2002; Whitehead and Bates 2016).

## 2.2 Results

### 2.2.1 Nonattachment, Mindfulness and Well-Being

The means, standard deviations, and internal consistency reliabilities for all measures are presented in Table 1. Macdonald's Omega was used as a test of internal reliability due to Cronbach's alpha being sensitive to bias in self-report data (Trizano-Hermosilla and Alvarado 2016). Most internal consistency reliabilities were acceptable, however, the internal reliability was lower than acceptable for the measure *autonomy.* As an overall measure of PWB was used in the analysis, and item analysis revealed the scale would

**Table 1** Means, standard deviations and internal reliabilities for all measures in study 1

| | Mean | SD | ω |
|---|---|---|---|
| Nonattachment | 34.64 | 7.64 | .84 |
| FMI | 38.01 | 6.73 | .84 |
| SWB | | | |
| Positive affect | 35.74 | 7.44 | .90 |
| Negative affect | 24.67 | 8.52 | .89 |
| Life satisfaction | 22.06 | 7.12 | .89 |
| PWB | 124.81 | 16.05 | .86 |
| Purpose in life | 19.42 | 3.53 | .75 |
| Environmental mastery | 19.25 | 3.28 | .82 |
| Personal growth | 24.98 | 3.71 | .74 |
| Self-acceptance | 21.42 | 5.16 | .85 |
| Autonomy | 22.00 | 4.14 | .68 |
| Positive relationships | 19.42 | 4.04 | .83 |

$N = 516$, SWB = subjective well-being, PWB = psychological well-being, FMI = Freiburg mindfulness inventory

not have greater internal consistency if any of its items was deleted, the decision was made to proceed with the analysis.

The relationships among the variables were examined with Pearson's correlation coefficients and are presented in Table 2. All correlations were in line with expectations. As hypothesised, higher scores on mindfulness and nonattachment were associated with greater life satisfaction and PA and less NA. They were also associated with higher levels PWB and the individual facets of purpose in life, environmental mastery, personal growth, self-acceptance, autonomy and positive relationships with others.

Mediation analyses was conducted for each dependent wellbeing variable using a nonparametric bootstrapping method (see Preacher and Hayes 2004) with 5000 samples (Shrout and Bolger 2002) to derive a 95% confidence interval ($p < .05$) for the mediating effect of nonattachment. All variables in the analyses were converted to z values to obtain standardised effect sizes in which relative contributions can be compared. In accordance with the procedure of Sahdra et al. (2016), age was entered as a covariate. This method employed the PROCESS Macro provided by Hayes (2013).

In each mediation analysis greater mindfulness, as assessed by the FMI, was associated with increased nonattachment (*a* path). The results for the direct relationships between nonattachment and each wellbeing variable (i.e., *b* path), the initial relationship between mindfulness and each wellbeing variable (i.e., *c* path), and after the inclusion of nonattachment (*c*′ path) are shown in Fig. 1. Bootstrapping revealed that the confidence intervals for the indirect effect of nonattachment on each of PWB, PA, NA and life satisfaction (see Table 3) did not contain zero, thus the results indicate that nonattachment significantly mediated the relationship between mindfulness and higher levels of PWB, PA, and life satisfaction, and lower levels of NA.

### 2.3 Study 1 Discussion

Study 1 investigated the extent to which nonattachment mediates the relationship between mindfulness and overall well-being. The key findings of Study 1 were that, as hypothesised, individuals higher on nonattachment and mindfulness had higher levels of PWB, PA

**Table 2** Intercorrelations among nonattachment, mindfulness and subjective wellbeing, psychological wellbeing and depression, anxiety and stress

| | Nonattachment | Mindfulness |
|---|---|---|
| SWB | | |
| Positive affect | .44** | .45** |
| Negative affect | − .44** | − .39** |
| Life satisfaction | .47** | .40** |
| PWB | .62** | .54** |
| Purpose in life | .27** | .24** |
| Environmental mastery | .50** | .46** |
| Personal growth | .37** | .29** |
| Self-acceptance | .58** | .54** |
| Autonomy | .38** | .30** |
| Positive relationships | .33** | .32** |

$N = 516$, SWB = subjective well-being, PWB = psychological well-being, $^{**}p < .001$

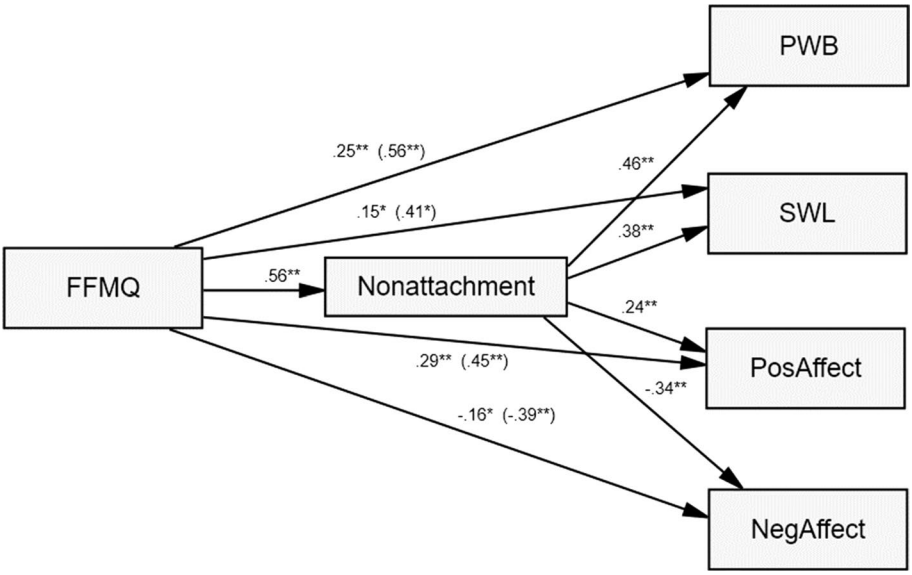


**Fig. 1** Path model for mediation with nonattachment entered as the mediator of the relationship of mindfulness to psychological well-being, life satisfaction, positive affect and negative affect. Coefficients in parenthesis are direct relationship without the inclusion of the mediator. *Note* $^{**}p < .001$; $^{*}p < .05$

**Table 3** Indirect effects of nonattachment on the relationship of mindfulness to psychological well-being, positive affect, negative affect, and life satisfaction

| Measure | Indirect effect | SE | LLCI | ULCI |
|---|---|---|---|---|
| PWB | .29 | .35 | .23 | .37 |
| Positive affect | .15 | .04 | .08 | .23 |
| Negative affect | −.21 | −.04 | −.30 | −.14 |
| Life satisfaction | .25 | .04 | .17 | .34 |

$N = 516$, SE = standard error, LLCI = lower level confidence interval, ULCI = upper level confidence interval

and life satisfaction, and lower levels of NA. Also as hypothesised, nonattachment mediated the relationship of mindfulness to PWB, PA, NA and life satisfaction.

The findings align with previous research showing nonattachment mediates the relationship between mindfulness and life satisfaction (Sahdra et al. 2016) and PWB (Ju and Lee 2015). As an extension of those findings, the mediating role of nonattachment was shown to be evident for a single factor measure of mindfulness, aligned with its Buddhist origins, that has not previously been examined. A unique finding was the mediating effect of nonattachment on the relationship of mindfulness to levels of PA and NA. The relationship of mindfulness to an individual's positive and negative feelings is partially explained by their levels of nonattachment. Being mindful of one's experiences may indeed be associated with increased positive and decreased negative affective experiences (e.g., Brown and Ryan 2003) but the ability to do so without suppressing or clinging to experiences may be of greatest benefit.

Interestingly, the results suggest that when individuals mindfully let go of trying to control positive and negative affective experiences, it relates to increased positive

and decreased negative affective experiences. It may be that negative affective experiences, such as being 'distressed' or 'scared', are compounded when attempts are made to avoid them (Hayes et al. 1996). Similarly, trying to hold on to and control positive experiences does not seem to create more positive experiences. Rather, it may be that the more an individual can let go of attempts to control or hold on to positive experiences, the more they can experience freedom (Sumedho 1989) and greater frequency of positive affective states. Being aware of these attachments through mindfulness permits a certain distance from the experience that can enable nonattachment, thus limiting the impact of negative thought patterns on affective states.

Another important finding in Study 1 was the identification of the mediating role of nonattachment in relation to PWB among Australian adults. The results extend the findings of Ju and Lee (2015) in relation to Korean adults and provide evidence for the mediating role of nonattachment on PWB using the original versions of the NAS and PWB scales and a more robust mediation analysis. PWB is often a long-term of goal of meditation and mindfulness practices and is aligned with self-realisation (Waterman 2007; Whitehead and Bates 2016) and what people equate as representing the true ideal of happiness in life (McMahan and Estes 2010). A person's ability to let go of the need to hold on to or avoid any particular experience is important for an open, mindful awareness of experience to lead to the promotion of longer-term, multi-faceted pervasive well-being.

## 3 Study 2: The Relationship of Mindfulness and Nonattachment to Depression, Anxiety and Stress

### 3.1 Method

#### 3.1.1 Participants and Procedure

Participants for study 2 were first-year psychology students from a mid-sized Australian university that received course credit for participation. Participants completed an online survey and responses were collected over a 6-month period. Additional demographic data not available in Study 1 was collected in Study 2. The sample comprised 416 participants consisting of (79 men and 337 women) aged from 18 to 77 ($M = 35.38$, $SD = 10.70$). Eighty-one percent of participants were born in Australia or New Zealand, 5% in the UK, 2% from India and the subcontinent, 1% from South Africa, 1% from Iran, 1% from Malaysia, 1% from China and 8% Other. Most participants were employed (full-time = 41%; part-time = 16%; casual = 8%), with 21% identifying as full-time students. The majority of participants obtained an educational degree equivalent or higher than diploma (38% diploma, 15% bachelor's degree, 5% postgraduate diploma, 4% master's degree, 8% other).

### 3.2 Materials

*Nonattachment* The NAS-7 (Elphinstone et al. 2015; Sahdra et al. 2016) was again used to assess nonattachment, in addition to measures of mindfulness, depression, stress, and anxiety.

*Mindfulness* The Five Factor Mindfulness Questionnaire (FFMQ; Baer et al. 2006) was chosen as a measure of mindfulness as using multiple measures across studies can increase the external validity of the findings (Norris et al. 2012). Using the FFMQ in the second study also sought to replicate Sahdra et al.'s (2016) successful model using the FFMQ in a mediation model with nonattachment. The FFMQ was developed from items present in other mindfulness scales and consists of 39 items (e.g., "When I do things, my mind wanders off and I'm easily distracted") capturing the five factors of *Observe, Awareness, Describe, Nonreactivity,* and *Nonjudgment*. Each factor has eight items except for *Nonreactivity* which has seven items. All items were rated on a Likert scale from 1 (Never or Very Rarely True) to 5 (Very Often or Always True). The FFMQ is a widely used measure of mindfulness that has shown consistent validity and reliability (Baer et al. 2006; Sahdra et al. 2016).

*Depression, Anxiety and Stress* The 21-item Depression, Anxiety, and Stress Scale (DASS-21; Lovibond and Lovibond 1995) was used to measure depression, anxiety and stress. The DASS–21 comprises three subscales of 7 items each capturing symptoms of depression (e.g., "I felt that life was meaningless"), anxiety (e.g., "I felt scared without any good reason") and stress (e.g., "I felt I found it difficult to relax"). Respondents rate the extent to which they have experienced symptoms over the previous week on a scale ranging from 0 ("Did not apply to me at all") to 3 ("Applied to me very much, or most of the time"). The DASS-21 is a widely-used measure with good validity and reliability (e.g., Feliu-Soler et al. 2016; Sahdra et al. 2010).

### 3.3 Results

The means, standard deviations, and internal consistencies for all measures are presented in Table 4. All measures had good internal consistency and all means fell within expected parameters. All correlations (see Table 5) were in line with expectations; higher levels of mindfulness and nonattachment were significantly related to lower levels of depression, anxiety and stress. Additionally, due the non-normal distribution of depression, anxiety and stress in the sample, Spearman's rho was used to test the correlations (Bishara and Hittner 2012).

Mediation analyses were conducted in accordance with the approach used in Study 1. To obtain standardised Beta coefficients all variables were converted to *Z* values, and age was entered as a covariate. Higher levels of mindfulness as assessed by the FFMQ were associated with greater nonattachment and all direct and indirect pathways were significant (see Fig. 2). Bootstrapping revealed the confidence intervals for the indirect effect of nonattachment on each of depression, anxiety and stress (see Table 6) did not

**Table 4** Means, standard deviations and internal reliabilities for study 2

| Measures | Mean | SD | ω |
|---|---|---|---|
| Nonattachment | 30.78 | 6.39 | .88 |
| FFMQ | 68.08 | 9.83 | .90 |
| Depression | 3.41 | 4.31 | .92 |
| Anxiety | 3.42 | 4.42 | .95 |
| Stress | 5.27 | 4.58 | .94 |

$N = 416$, FFMQ = Five Factor Mindfulness Questionnaire

**Table 5** Correlations among nonattachment and mindfulness, and depression, anxiety and stress using Spearman's Rho

| Measures | Nonattachment | Mindfulness |
|---|---|---|
| Depression | − .46** | − .48** |
| Anxiety | − .48** | − .42** |
| Stress | − .50** | − .42** |

$N = 416$, $^{**}p < .001$

contain zero. Thus, the results indicate that nonattachment significantly mediated the relationship between mindfulness and lower levels of depression, anxiety, and stress.

### 3.4 Study 2 Discussion

As expected, greater mindfulness and nonattachment were related to reduced depression, anxiety and stress. Furthermore, the relationship of mindfulness to depression, anxiety and stress was mediated by nonattachment. Being more mindful appears, therefore, to relate to higher levels of nonattachment which contributes to reduced symptoms of depression, anxiety and stress.

The findings build on earlier research showing nonattachment mediates the relationship of mindfulness to depression (Tran et al. 2014). A novel finding is that the mediating role of nonattachment extends beyond depression to the relationship of mindfulness to stress and anxiety. Higher levels of mindfulness can promote greater nonattachment which can then assist in 'letting go' of unhelpful psychological strategies (Lamis and Dvorak 2013) that contribute to a range of negative psychological symptoms (Tran et al. 2014) that includes depression, anxiety and stress.

The positive relationship of mindfulness to reduced stress was partially determined by the ability to let go of the need to control experience through clinging or avoidance. This finding is especially important as mindfulness-based interventions often aim to alter individuals' responses to stress (Cicchetti 2016). The present data provide insight into the mechanisms of this process. Attachments indicate a tension or conflict with what is occurring. Being mindfully aware of this tension with experience, and the need for it to be different, creates an opportunity to consciously let go of the tension, resulting in an acceptance of experience, greater presence and lower levels of stress.

That the mediating role of nonattachment also extends to the relationship of mindfulness to anxiety suggests being mindfully aware of one's experience assists the reduction of anxiety but that mindfully removing attachment towards experience may be most beneficial. This supports previous work indicating that certain aspects of mindfulness, such as mindful observing, may not be helpful in reducing anxiety (Baer et al. 2006; Coffey et al. 2010; Desrosiers et al. 2014; Lindsay and Cresswell 2017) unless it is done without reactivity (Desrosiers et al. 2014). Being more mindful provides the conditions for nonattachment which can assist the individual in reducing unhelpful psychological strategies, such as rumination and worry that increase anxiety (Desrosiers et al. 2014; Gu et al. 2015; Lamis and Dvorak 2013).

These combined results support the contention of Lindsay and Cresswell (2017) that to reduce negative affective responses, the most important aspect of mindfulness and mindfulness practice is a non-reactive, nonjudgmental acceptance of experience. However, as the FFMQ contains factors measuring non-reactivity and non-judgment, the present findings indicate that nonattachment also mediates the role of non-reactive acceptance on negative

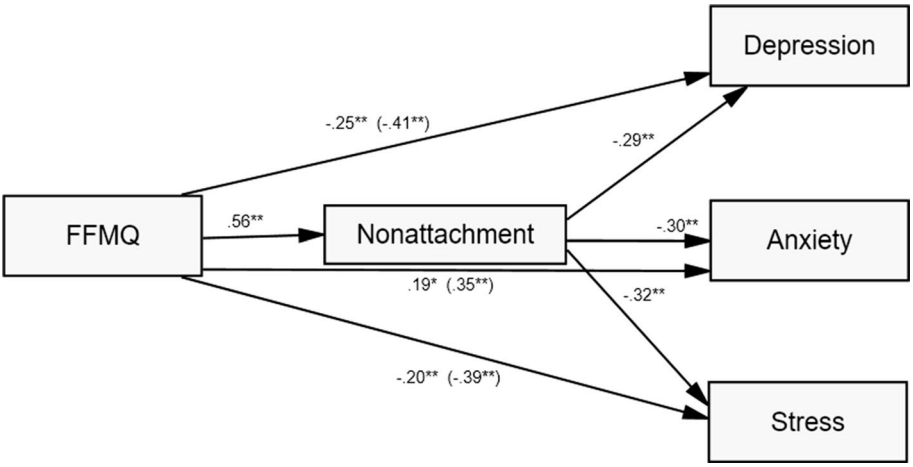


**Fig. 2** Path model for mediation with nonattachment entered as the mediator of the relationship of mindfulness to depression, anxiety and stress. Coefficients in parenthesis are direct relationship without the inclusion of the mediator. *Note* $^{**}p < .001$

**Table 6** Indirect effects of nonattachment on the relationship of mindfulness to depression, anxiety and stress

| Measure | Indirect effect | SE | LLCI | ULCI |
|---|---|---|---|---|
| Depression | −.14 | −.03 | −.21 | −.07 |
| Anxiety | −.14 | −.04 | −.22 | −.07 |
| Stress | −.16 | −.03 | −.23 | −.10 |

$N = 416$, SE = standard error, LLCI = lower level confidence interval, ULCI = upper level confidence interval

psychological symptoms. Theoretically, the results indicate that the most efficacious pathway to reducing negative psychological symptoms is to mindfully engage with experience without attempts to try and control it.

## 4 General Discussion

Overall, the findings from the two studies highlight that nonattachment represents a quality that is influential in relation to PWB, SWB and depression, anxiety and stress. Results suggest that the more an individual can let go of fixating on their experience, the better their quality of life in general. The results extend previous studies and provide more comprehensive evidence that nonattachment represents a mechanism that helps to explain the positive relationship of mindfulness on a range of positive and negative psychological outcomes. Mindfulness appears to be a pathway to building greater nonattachment which can limit the negative impact of attachments involved in trying to control experience. The findings

provide novel evidence that letting go of attempts to control experience, through mindfulness, appears to be important in the promotion of greater psychological well-being and positive affect, and the reduction of negative affect, stress and anxiety.

These findings have implications for the development and evaluation of the efficacy of mindfulness interventions. The findings support growing evidence for the benefits of mindfulness-based interventions for psychological health (Keng et al. 2011), and provide insight into the mechanisms underlying these benefits. Because nonattachment acts as a mediator of mindfulness, whether an intervention promotes nonattachment may be an important factor in the formulation and projected outcomes of mindfulness-based interventions. The findings also highlight a distinction between mindfulness practices directed at trying to feel good or 'at peace', and those whose goal is to be nonattached to experience. The results indicate that mindfulness practices which facilitate a letting go of the need for experience to be any particular way (even if that way is calm, happy or peaceful) may be most beneficial for overall psychological health. Furthermore, the present findings highlight the potential for interventions designed for the specific purpose of building nonattachment, whether this is via mindfulness or another method. Finding an effective method to assist individuals to let go of attempts to fixate on controlling their experience is an important area for future study (Sahdra et al. 2016), and has implications for improving individuals' overall well-being and mental health in general.

A limitation of the present research was that both samples were drawn from a university student population and there were significantly more women than men. Although Sahdra et al. (2010) found no gender difference in levels of nonattachment, research is needed to confirm the findings in more diverse and representative samples. Another important consideration is that the study design was cross-sectional and the findings are correlational and cannot determine causality. Although, theoretically, developing greater nonattachment would seem to result in developing greater well-being (Dhiravamsa 1975; Sahdra et al. 2016), it is also possible that greater well-being may assist a person to develop greater nonattachment. A longitudinal study on the effects of interventions designed to promote nonattachment on mental health would provide insight into the causal relationship if one exists. It is also important to acknowledge that different measures of mindfulness were used in study 1 and 2. Although having multiple measures of the construct can increase the external validity of the findings (Norris et al. 2012), it can also be seen as a limitation as the studies are not directly replicating each other. It may be that using the FMI in Study 2 may not have yielded significant findings or vice versa, however, the FMI and the FFMQ have shown to be highly correlated ($r = .70$; Siegling and Petrides 2014) and both discuss measuring mindfulness that includes elements of acceptance and awareness (Kohls et al. 2009; Tran et al. 2013). Thus, utilising two different measures of mindfulness that are strongly related was not seen as a major conceptual issue in this study.

Another consideration is the absence of measures of social desirability. Although social desirability is an important factor to acknowledge for self-report measures, research shows that social desirability may only have a limited impact in relation to well-being (Kozma and Stones 1987; Mancini and McKeel 1986; McCrae 1986), mindfulness (Brown and Ryan 2003) and nonattachment (Sahdra et al. 2010). However, as social desirability was not tested specifically in this study, its effects cannot be known.

In conclusion, the present findings support and extend previous research that has established nonattachment as an important factor in relation to greater PWB, SWB and reduced depression, anxiety and stress. The present research highlights that nonattachment is an important mechanism that partially explains the relationship of mindfulness to positive mental health outcomes. The findings provide insight into how mindfulness

relates to a range of positive and negative psychological outcomes and has implications for how mindfulness interventions may be developed or evaluated. Furthermore, the results indicate the need for further research on nonattachment in relation to well-being and mental health and highlight the potential benefit of interventions designed specifically for the promotion of nonattachment.

## Compliance with Ethical Standards

**Conflict of interest** The authors declare that they have no conflict of interest.

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