Living well by letting go: Reliability and validity of a brief measure of nonattachment

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Abstract

There is a growing literature on nonattachment, defined as a flexible, balanced way of relating to experiences without clinging to or suppressing them. We developed a 7-item Nonattachment Scale (NAS-7) by shortening a previously validated 30-item measure (NAS; Sahdra, Shaver & Brown, 2010). NAS-7 was found to display strong psychometric properties in American and Australian samples (total $N = 504$), including a unidimensional factor structure and measurement invariance across different samples. The correlations of NAS-7 with other theoretically relevant constructs were virtually identical to the long-form NAS. Across different samples, NAS-7 assessed nonattachment was associated with greater autonomous regulation, self-actualization, psychological and subjective well-being, and reduced materialism and depressive symptoms. NAS-7 is a suitable alternative to the long-form NAS as it takes about half the time to complete than the long form without a substantial loss of information.

Nonattachment is defined as a flexible, balanced way of relating to one's experiences without clinging to or suppressing them (Sahdra, Shaver, & Brown, 2010). Since the first empirical study on nonattachment using the 30-item Nonattachment Scale (NAS; Sahdra et al., 2010), there has been a growing literature on nonattachment supporting its personal and interpersonal benefits (Codato, Testoni, Guglielmin, & Armenti, 2012; Desbordes et al., 2014; Ju & Lee, 2015; Lamis & Dvorak, 2014; Sahdra, Ciarrochi, Parker, Marshall, & Heaven, 2015; Sahdra et al., 2010; Shonin, Gordon, & Griffiths, 2013; Shonin, Van Gordon, Slade, & Griffiths, 2013; Tang, Hölzel, & Posner, 2015). The aim of the current study was to shorten the 30-item NAS (Sahdra et al., 2010) by more than half to aid in the use and application of the measure. From a practical point of view, this can have significant impact in advancing the field. Lengthy questionnaires tend to burden participants, thus compromising data quality (Cook, Health, & Thompson, 2000).

The construct of nonattachment is relatively new to modern Western psychology, but has a history of over two millennia in Eastern scholarship (e.g., Asanga, 4th-5th century, BCE/1950). It is often described as the absence of "attachment" to an object, person, idea or sensory experience. This may be confusing for some Western thinkers because attachment, in Western psychological literature, is seen as a desirable quality, especially if it is secure attachment to loved ones. Sahdra et al. (2010) and Sahdra and Shaver (2013) have shown that nonattachment, in the Eastern sense, is empirically distinguishable from insecure attachment in the Western sense. Nonattachment is not the same as dissociation from one's feelings and relationships. It is a broader construct encompassing how one perceives and relates to everything in life, not just one's loved ones. For example, nonattachment comprises personal autonomy and deep concern for others (Chödrön, 2008; Rosenberg, 2004). Similarly, secure attachment in childhood involving a healthy reliance on others often results in secure,

autonomous adults (Mikulincer & Shaver, 2007) who are more compassionate than insecurely attached adults (Gillath, Shaver, & Mikulincer, 2005). Thus, one can be securely attached to others and also nonattached by not desiring to cling to people, ideas, or experiences.

Clinging to one's ideas reflects a mistaken belief that one's ideas are accurate representations of a static, unchanging reality. Contrary to such reification, reality is constantly changing. People age, get sick and die. Physical objects decay or change over time. Nothing is absolutely permanent. Reification can result in suffering due to frustration or dissatisfaction emerging from unexpected or undesirable changes that deviate from one's concrete conceptualisation of reality. Sahdra et al. (2010) suggested that "attachment" can result in mental fixation or pressure to acquire, change, or possess ideas, images, objects, or other people, in addition to contingent well-being, defensiveness, jealousy, and anxiety about maintaining or changing aspects of life. In contrast, by reducing reification, nonattachment can remedy mistaken beliefs, resulting in a balanced, flexible attitude and way of relating to aspects of life (e.g., objects, people, ideas, or experiences) without clinging to or suppressing them. This is theorised to reduce fixation on concepts, enabling faster recovery from negative events, an even-minded analysis of life, supporting the free choice of others, and living with a sense of ease (Sahdra et al., 2010).

Accordingly, higher scores on the NAS representing greater nonattachment have been associated with greater satisfaction with life, eudemonic well-being, pleasant affect, perspective taking, empathic concern for others, and generosity; and reduced unpleasant affect, depression, anxiety, stress, and difficulty in emotional regulation (Sahdra et al., 2010). Further research has shown that nonattachment is associated with reduced closed-mindedness (Sahdra & Shaver, 2013), reduced depressive symptoms and suicide rumination in student

samples (Lamis & Dvorak, 2013), lower depression among adults (Tran et al., 2014), prosocial behaviour among adolescents (Sahdra et al., 2015), and effective pursuit of valued goals and life satisfaction (Sahdra, Ciarrochi, & Parker, 2015). Nonattachment can be developed by gaining greater awareness of the impermanent and interdependent nature of reality, often via formal meditation, by confronting difficult life experiences (e.g., death of loved ones, losing one's job), or having views and beliefs challenged and altered (Sahdra et al., 2010).

The present study

Despite the excellent reliability and validity of the NAS (see Sahdra et al., 2010), a short form of the measure is expected to be less burdensome for respondents and to provide greater opportunity for researchers to include a brief measure in otherwise lengthy batteries. As the NAS measures one factor, removing items should not compromise the breadth of the measure. Thus, the current study aims to reduce the length of the NAS to create the most parsimonious model possible whilst providing good model fit, maintaining adequate content, face and convergent validity, and reliability.

A shortened scale was expected to perform similarly to the original NAS by displaying similar correlations with convergent measures used by Sahdra et al. (2010). Thus, the original and short measures were expected to be similarly associated with higher levels of autonomous regulation and life satisfaction (see also Sahdra et al., 2015), and lower scores on psychological inflexibility, materialism, and depression (see also Lamis & Dvorak, 2013; Tran et al., 2014). In accordance with the findings from Sahdra et al. (2010), it was hypothesised that the original and shortened NAS scales would be unrelated to gender, but would correlate positively with age. Further, as nonattachment is associated with lower levels of materialism (Sahdra et al., 2010), which has also been defined as including a focus on

extrinsic rather than intrinsic aspirations (Dittmar, Bond, Kasser, & Hurst, 2014), it was expected that higher scores on the original and shortened NAS scales would be associated with higher levels of intrinsic aspirations (e.g., self-acceptance, affiliation, community feeling) and lower levels of extrinsic aspirations (e.g., conformity, appealing image, financial success; see Grouzet et al., 2005; Kasser & Ryan, 1993). Higher scores on nonattachment were also expected to be associated with increased self-actualization. Similar to the description of a nonattached person provided by Sahdra et al. (2010), self-actualized individuals are also proposed to live on their own terms with a balanced, mature understanding of life without adhering to pre-conceived notions of good or bad (Maslow, 1968).

Finally, nonattachment was expected to be positively associated to vitality, an aspect of organismic well-being associated with feelings of energy or vigour that emerges from living in accordance with basic psychological needs such as autonomy (Ryan & Frederick, 1997; see also Nix, Ryan, Manly, & Deci, 1999). Autonomy includes the ability to act volitionally and to internalise external demands into one's sense of self on the basis of their perceived importance or meaningfulness rather than to meet the expectations of others, obtain rewards, or avoid punishment (Deci & Ryan, 2000). Since nonattached individuals, compared to their attached counterparts, are expected to pursue autonomous sources of wellbeing (Sahdra et al., 2010) and effectively pursue life goals (Sahdra, Ciarrochi & Parker, 2015), they would score higher on vitality as well. To our knowledge, there is no prior research linking nonattachment and vitality, so this study would provide a first test of this hypothesis in addition to testing the validity of the short form NAS in comparison to the long form.

Method

Participants and procedure

Sample 1. Sample 1 consisted of 157 American participants from the general population (77 males, 79 females, 1 unspecified) aged from 18 to 69 ($M = 36.57$, $SD = 14.07$), who participated in a survey administered by a professional survey company. Their ethnicities were Caucasian/European American (78%), Asian American (7%), African American (6%), Hispanic (5%), and Native American (4%). Their education level varied: they were undergraduate (28%) or postgraduate (2%) students, or had completed undergraduate (31%), postgraduate (20%), or high school (18%) education or had not completed high school (1%).

Sample 2. Sample 2 comprised of Australian participants recruited through various means. Part of the sample consisted of respondents who had previously completed a nationwide Australian telephone survey and consented to participate in future research ($n = 32$, $M_{age} = 49.88$, $SD = 15.79$). Additional participants were recruited from a community sample of convenience via social networking websites ($n = 75$, $M_{age} = 37.56$, $SD = 15.53$), and a program in which first year undergraduate psychology students ($n = 82$, $M_{age} = 22.10$, $SD = 5.92$) have the opportunity to participate in research. The three subsamples were collected simultaneously, and together represented a wider age range and better gender distribution than any single subsample. The combined sample had 106 females and 83 males. Age ranged from 18 to 81 ($M = 32.94$, $SD = 16.12$). Respondents identified with Australian (84%), English (4%), Chinese (3%), New Zealand (2%), and a range of other Asian and European cultures. Respondents were current undergraduate (21%) or postgraduate (9%) students, had completed undergraduate (14%) or postgraduate study (11%), vocational training (18%), high school (24%), or had not completed high school (3%).

Sample 3. The third sample was collected as an independent study to test the validity of the NAS-7 much later than Sample 2. It comprised 52 males and 55 females. Age ranged from 18 to 80 years ($M = 35.85$, $SD = 16.47$). Participants were recruited from internet forums representing diverse political affiliations and ideologies. All participants were current, long-term (at least 10 years) residents of Australia (62%) or the USA (38%). Respondents identified with Australian (56%), American (31%), English (7%), and New Zealand (6%) cultures. They were current undergraduate (17%) or postgraduate (16%) students, had completed undergraduate (21%) or postgraduate (17%) studies, vocational training (9%), high school (14%), or had not completed high school (6%).

Materials

Participants in Samples 1 and 2 were administered the 30-item NAS (Sahdra et al., 2010). Sample 3 received a seven-item version of the NAS derived using Samples 1 and 2. For both the long form and the short form, each item was measured on a six-point scale (1 = Strongly Disagree, 6 = Strongly Agree). Different convergent measures were employed in different samples, as summarized in Table 1, along with the respective Cronbach's alpha coefficients.

Psychological inflexibility. The AAQ-II (Bond et al. 2011) comprises seven-items (e.g., "My painful memories prevent me from having a fulfilling life") measured on a seven-point scale (1 = Never true, 7 = Always true).

Depression. The 14-item (e.g., "I felt that I had lost interest in just about everything") depression subscale of the Depression Anxiety Stress Scale (DASS; Lovibond & Lovibond, 1995) assesses how respondents felt in general over the previous week, on a four-point (1 = Did not apply to me at all, 4 = Applied to me very much, or most of the time) scale.

Satisfaction With Life. Life satisfaction was measured with the five-item (e.g., “In most ways, my life is close to my ideal”) Satisfaction With Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985). Items are assessed on a seven-point scale (1 = Strongly disagree, 7 = Strongly agree).

General Motivation Scale. The 18-item General Motivation Scale (GMS; Pelletier et al., 2011) assesses whether general behaviour is self-determined (i.e., autonomous) or controlled by external motives. Each level of regulation, that is, amotivation, external, introjected, identified, integrated, and intrinsic (e.g., “In general I do things for the pleasant feelings I get while I am doing them”) according to Self-Determination Theory (Deci & Ryan, 2000) is assessed on a seven-point scale (1 = Not agree at all, 7 = Completely agree). An overall score is created by weighting each of the six subscales: 3(Intrinsic) + 2(Integrated) + Identified – Introjected – 2(External) – 3(Amotivation).

Materialism. The Material Values Scale (MVS; Richins, 2004) comprises 15 items (e.g., “I admire people who own expensive homes, cars and clothes”) rated on a five-point scale (1 = Strongly disagree; 5 = Strongly agree). The Aspiration Index (Grouzet et al., 2005) includes seven facets measuring the importance placed on intrinsic (i.e., self-acceptance, affiliation, community feeling) and extrinsic aspirations (i.e., financial success, appealing image, popularity, conformity) on a nine-point scale (1 = Not at all important; 9 = Extremely important). Intrinsic and extrinsic items were separately summed and averaged to create subscale scores.

Self-actualization. The self-actualization index (Jones & Crandall, 1986) includes 15 items (e.g., “It is better to be yourself than to be popular”) rated on a four-point scale (1 = Disagree; 4 = Agree).

Vitality. The Subjective Vitality Scale (SVS, Ryan & Frederick, 1997) comprises seven items (e.g., “I feel alive and vital”) measured on a seven-point scale (1 = Not true, 7 = Very true).

Table 1

Convergent measures used in each sample and Cronbach's reliability coefficients.

Scale	Sample	α
Experiential avoidance/Psychological inflexibility	1	.94
Depression	2	.96
Satisfaction With Life	2	.86
General Motivation Scale	2	.87
Aspiration Index	2	Intrinsic = .89, extrinsic = .92
Material Values Scale	2, 3	.88, .81
Self-actualization	2, 3	.78, .72
Vitality	3	.90

Note: Sample 1: $N = 157$; Sample 2: $N = 189$; Sample 3: $N = 107$.

Results

Assessment of the original long form

Samples 1 and 2 were combined ($N = 346$) to assess a one-factor model comprising the 30-item NAS using confirmatory factor analysis (CFA) with MPlus version 6 (Muthén & Muthén, 2010). The benefit of combining samples is that MPlus provides model fit statistics for the combined sample, but item fit and modification indices for each independent sample. This can be informative when reducing the length of a measure, as items which perform

poorly in both samples can be identified. This reduces the chance of removing items which performed poorly in one sample as a result of random error. Thus, items which are genuinely problematic (e.g., due to unclear wording), should be identified as performing poorly across multiple samples. Good model fit was determined by CFI and TLI $\geq .95$, RMSEA $\leq .06$, and SRMR $\leq .08$ (Hu & Bentler, 1999; Kline, 2005).

Prior to running the analyses, 28 multivariate outliers were identified in the combined sample and removed. The 30-item model was not a good fit with the data, $\chi^2(839) = 1974.28$, $p < .001$, CFI = .78, TLI = .77, RMSEA = .09, SRMR = .09. We note that in Sahdra et al. (2010), the 30-item NAS displayed good CFA model fit on 10 random parcels of the 30 items. Parcelling is a contentious topic (see Little, Cunningham, Shahar, & Widaman, 2002 for a review). It can be useful when assessing the factor structure of unidimensional measures that contain many items capturing various nuances of the construct. Parcelling may also increase model fit by aggregating random or systematic error across items, thus masking poor items (Bagozzi & Edwards, 1998; Bagozzi & Heatherton, 1994). Therefore, assessing each item separately without parcelling was deemed appropriate for developing a short version of the NAS.

Development of the short form

To shorten the 30-item NAS, as a first step, the face validity of each item was carefully evaluated. Thirteen items (see Appendix A) were initially identified as problematic because these items either assessed multiple concepts (potentially double-barrelled) or had semantic overlap with other constructs such as acceptance and open-mindedness. For example, the item, “I find I can be calm and/or happy even if things are not going my way” may yield different answers depending whether the respondent focuses on ‘calm’ or ‘happy’ concepts in the item. As another example, the item “I can admit my shortcomings without

shame or embarrassment” is problematic because it requires respondents to consider two very different emotions, potentially leading to inconsistent interpretations across participants. The item, “I can accept the flow of events in my life without hanging onto them or pushing them away” overlaps with the commonly measured constructs of acceptance (e.g., Bond et al. 2011) and non-reactivity (Baer, Smith, Hopkins, Krietmeyer, & Toney, 2006). The item, “I can remain open to what life offers me regardless of whether it seems desirable or undesirable at a particular time” overlaps with the construct of open-mindedness, which is considered to be an outcome of nonattachment (Sahdra & Shaver, 2013). We used a very strict face validity criterion by preserving only those items that lacked content complexity and semantic overlap with other constructs.

The 17 items that passed this stringent evaluation were subjected to a CFA, which showed a poor fit with the data, $\chi^2(254) = 704.85$, $p < .001$, CFI = .80, TLI = .79, RMSEA = .10, SRMR = .09. To reduce the model further, squared multiple correlations (SMCs) of ideally at least .25, and modification indices (MI) in both samples were considered (Bollen, 1989; Byrne, 2011). We focused on MIs that indicated that two items were excessively similar and covaried due to factors potentially unrelated to nonattachment. Our goal was to derive the most parsimonious model that had no redundant items, provided adequate model fit, and was likely to be invariant across samples. Through an incremental process of removing items based on MIs, and SMCs, assessing the remaining items for multivariate outliers, and re-analysing the model, we derived a 7-item model (hence NAS-7) which showed an excellent fit with the data, $\chi^2(34) = 43.49$, $p = .13$, CFI = .99, TLI = .99, RMSEA = .04, SRMR = .05, $N = 312$. Factor loadings of the NAS-7 in each sample are shown in Table 2.

Table 2

Factor loadings for the NAS-7 in Samples 1 and 2.

	Sample 1	Sample 2
I can let go of regrets and feelings of dissatisfaction about the past.	.54	.57
I can enjoy pleasant experiences without needing them to last forever.	.73	.74
I view the problems that enter my life as things to work on rather than reasons for becoming disheartened or demoralized.	.74	.74
I can enjoy my family and friends without feeling I need to hang on to them.	.71	.71
I can take joy in others' achievements without feeling envious.	.65	.67
I do not get "hung up" on wanting an "ideal" or "perfect" life.	.69	.69
When pleasant experiences end, I am fine moving on to what comes next.	.83	.84

Measurement invariance across samples

Measurement invariance indicates that participants interpreted and responded to items in a similar manner, with the same factor structure across different samples (Van de Schoot, Lugtig, & Hox, 2012). In accordance with the process outlined by Van de Schoot et al. (2012), a number of nested models, each with increasingly strict constraints were assessed. First, the model is assessed separately in each sample to determine whether model fit is similar. Next, a baseline model (configural variance) is assessed by examining a model with no constraints (i.e., all parameters vary freely between groups) in the combined dataset to

determine if the model provides good model fit. Then, weak factorial invariance (i.e., metric invariance) is assessed by holding factor loadings constant across samples. This indicates whether respondents in each sample interpreted items in the same way, thus attributing the same level of meaning to the latent construct. Strong invariance (scalar invariance) is assessed by holding factor loadings and intercepts equal and tests whether participants scored similarly on each item (Van de Schoot et al., 2012). That is, respondents in both samples who are genuinely high in nonattachment should select ‘Strongly Agree’ for the same item. Strong invariance indicates that means can be compared between samples (Muthén & Muthén, 2010). Since χ^2 is sensitive to sample size (Brannick, 1995; Cheung & Rensvold, 2002; Kelloway, 1995), we used the recommendations that invariance between nested models is observed if $\Delta\text{CFI} \leq .01$ (Chen, 2007; Cheung and Rensvold 2002), and $\Delta\text{SRMR} \leq .01$ or $\Delta\text{RMSEA} \leq .015$ (Chen, 2007).

Model fit in both samples, and fit indices for the nested models testing for measurement invariance are shown in Table 3. The CFAs of the NAS-7 showed excellent fit with the data in both samples (as shown in the first two rows of Table 3). According to the criteria (i.e., $\Delta\text{CFI} \leq .01$, $\Delta\text{RMSEA} \leq .015$) provided by Cheung and Rensvold (2002) and Chen (2007), metric and scalar invariance were obtained, suggesting that participants in different samples understood and scored on the NAS-7 items in a consistent fashion.

Table 3

Results of multiple group CFAs to determine measurement invariance.

	χ^2	<i>df</i>	CFI	TLI	SRMR	RMSEA	Δ CFI	Δ SRMR	Δ RMSEA
Sample 1	14	25.66*	.97	.95	.05	.06			
Sample 2	14	19.07	.99	.99	.03	.03			
Model 1 (Configural model)	50.64	28*	.97	.96	.04	.06			
Model 2 (Constrained factor loadings)	57.21	34**	.97	.96	.06	.06			
Metric invariance							.00	.02	.00
Model 3 (constrained factor loadings and intercepts)	72.75	40**	.96	.96	.08	.07			
Scalar invariance							.01	.02	.01

Note: * = $p < .05$, ** = $p < .01$, *** = $p < .001$.

Comparison between the NAS and NAS-7

Sample 1. The 30-item NAS ($\alpha = .95$) and the NAS-7 ($\alpha = .84$) were reliable. They were also highly correlated, $r = .93$, $p < .001$, which is to be expected given the high overlap of the items across the two measures. A correlation between the NAS-7 and the remaining 23 NAS items was also strong, $r = .87$, $p < .001$. Both measures of nonattachment were correlated with AAQ-II measured acceptance to a similar degree: the correlation between the NAS and the AAQ-II: $r = -.58$, $p < .001$; and between the NAS-7 and AAQ-II: $r = -.57$, $p < .001$. This is striking especially because NAS-7 contains no items with semantic content directly suggesting acceptance of difficult experiences.

Similar to Sahdra et al.'s (2010) results, we found a positive correlation between age and the 30-item NAS ($r = .21, p < .05$) and the NAS-7 ($r = .18, p < .05$). There was no significant difference between the strength of these correlations. There was also no significant difference in mean NAS scores for males ($M = 4.63, SD = .74$) and females ($M = 4.73, SD = .64$), $t(153) = -.89, p = .37$. The difference in mean NAS-7 scores for males ($M = 4.79, SD = .81$) and females ($M = 4.96, SD = .66$) was also non-significant, $t(146.74) = -1.47, p = .14$.

Sample 2. The NAS ($\alpha = .94$) and NAS-7 ($\alpha = .84$) were reliable and highly correlated, $r = .92, p < .001$, as expected. The NAS-7 correlated strongly ($r = .86, p < .001$) with the remaining 23 NAS items. Correlations between the NAS, NAS-7 and convergent measures are shown in Table 4. The average absolute difference between the correlations of NAS and NAS-7 with all the convergent measures was 0.03, suggesting that the NAS-7 performed similarly to the long form NAS in capturing the associations of nonattachment with the convergent measures. Age was also correlated with higher scores on both the NAS and NAS-7, both $r = .43, p < .001$.

Contrary to the findings of Sahdra et al. (2010), a significant difference ($t(187) = 2.19, p < .05$) was found for mean NAS scores between males ($M = 4.46, SD = .67$) and females ($M = 4.25, SD = .68$). However, the mean NAS-7 scores for males ($M = 4.60, SD = .78$) and females ($M = 4.41, SD = .78$) were not significantly different, $t(187) = 1.58, p = .12$.

Table 4

Means and standard deviations for each convergent measure, and correlations with the NAS and NAS-7 in Sample 2.

Convergent measure	<i>M (SD)</i>	NAS	NAS-7
Material Values Scale	38.70 (8.81)	-.58***	-.53***
Extrinsic Aspirations	4.74 (1.37)	-.36***	-.32***
Intrinsic Aspirations	7.05 (1.02)	.17*	.17*
General Motivation Scale	25.70 (25.29)	.45***	.47***
Satisfaction with life	24.80 (5.87)	.53***	.56***
Self-Actualization	43.58 (6.24)	.66***	.61***
Depression	21.31 (9.43)	-.54***	-.54***

Note: * = $p < .05$, ** = $p < .01$, *** = $p < .001$.

Validation of the NAS-7 in an independent sample

A CFA of the NAS-7 in Sample 3 provided acceptable model fit, $\chi^2(14) = 30.26$, $p < .01$, CFI = .95, TLI = .92, RMSEA = .10 (90% CI = .05-.16), SRMR = .06. The NAS-7 was also highly reliable ($\alpha = .83$) in Sample 3. As shown in Table 5, similar to the findings in Sample 2, higher NAS-7 scores were associated with lower levels of materialism and higher levels of self-actualization and vitality. There was no significant difference ($t(105) = .97$, $p = .34$) in mean NAS-7 scores for males ($M = 4.79$, $SD = .82$), and females, $M = 4.64$, $SD = .90$.

Nonattachment scores also significantly increased with age, $r = .39, p < .001$, replicating the results from the previous samples.

Table 5

Means for each convergent measure, and correlations with the NAS-7 in Sample 3.

Convergent measure	<i>M (SD)</i>	NAS-7
Material Values Scale	39.79 (8.37)	-.43*
Self-Actualization	43.72 (5.73)	.63*
Vitality	31.24 (9.15)	.58*

Note: * = $p < .001$.

Discussion

The current study developed and validated a short Nonattachment Scale (NAS-7), which takes less than half the time it takes to administer the 30-item scale previously validated by Sahdra et al. (2010), but with little loss of information. In Samples 1 and 2, the NAS-7 provided good fit in CFAs. A separate CFA of the NAS-7 in an independent Sample 3 also showed adequate fit, providing further evidence of the unidimensional structure of the new short measure. The measurement invariance of the NAS-7 across Samples 1 and 2 suggested that the measure had similar factor structure across American and Australian participants. As expected, the long form and the short form measures correlated virtually identically with age and other measures in Samples 1 and 2, showing positive associations with measures of autonomous regulation, life satisfaction, self-actualization, and intrinsic aspirations, and negative associations with measures of psychological inflexibility, extrinsic aspirations, materialism, and depression. This pattern of results replicates previously found

associations of the NAS with the convergent constructs but also provides new evidence that the NAS-7 preserves the pattern of correlations despite being considerably shorter than the NAS. In Sample 3, the NAS-7 was associated with lower levels of materialism, and higher levels of self-actualization and vitality. No previous research has examined the association between nonattachment and vitality, so our results make this substantive contribution to the literature in addition to the methodological contribution of providing initial validation evidence for the NAS-7.

In all samples, nonattachment, as measured by either the long form or the short form, was positively correlated with age. Consistent with Sahdra et al.'s (2010) previous findings in an American sample, no gender differences in terms of the mean scores of the NAS or NAS-7 were observed in Sample 1. In Sample 2, which predominantly comprised Australian respondents, gender differences were found for the NAS scores but not the NAS-7 scores. No significant gender differences were found in Sample 3, which employed the NAS-7.

A vast majority of our participants were Westerners (Americans or Australians) from the general population, and presumably generally healthy individuals. Further studies with clinical samples and samples from other cultures are needed to evaluate the utility of the construct of nonattachment in different populations. The NAS-7 may prove especially useful to advance the field. A shorter measure has great practical utility through reducing the burden on participants (Cook et al., 2000). Additionally, by cutting down the administration time by more than half, using the NAS-7 instead of the NAS frees up valuable space in measurement batteries, possibly expanding the original scope of the study by allowing space for other measures.

In addition to its utility in basic research, the NAS-7 may also have applications in clinical settings. A new wave of interventions has sought to utilize Buddhist concepts and

methods to improve client outcomes (Mikulas, 2007; Rubin, 1996; Wallace & Shapiro, 2006). These interventions include mindfulness-based cognitive therapy for depression, dialectic behaviour therapy, and Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 2011; Linehan, 1993; Segal, Williams, & Teasdale, 2002). These approaches assume that attachment to unhelpful self-concepts is often the source of distress and poor functioning (Beck, 1995; Ciarrochi & Bailey, 2008; Walen, DiGiuseppe, & Dryden, 1992; Young, 1990). Such self-concepts might focus on negative evaluations (e.g., being unlovable or powerless), or might focus on extreme positive concepts (e.g., being “talented” or “special”). Negative self-concepts are likely to be associated with anxiety and depression (Beck, Brown, & Steer, 1989; Beck, Weissman, Lester, & Trexler, 1974), whereas extreme positive concepts can be associated with narcissism and excessive defensiveness in response to negative feedback (Rhodewalt & Eddings, 2002; Rhodewalt, Madrian, & Cheney, 1998). One may view negative and positive self-concepts as “attachments”, in that people often use and depend on them as a way of navigating the world (Ciarrochi & Bailey, 2008). The major clinical downside to clinging is that one becomes insensitive to instances where the self-concept is not helpful, as when someone clings to “I am unlovable” and misses an opportunity to find love. Interventions using mindfulness-based methods encourage viewing self-concepts as transitory activities that one does not need to cling to. Rather, one learns to let go of a self-concept when it is not useful. These ideas suggest that the constructs of nonattachment is relevant to clinical practice, hence a valid measure of nonattachment, NAS-7, may prove useful in clinical interventions research.

Modern mindfulness interventions have generally found support for their effectiveness in treating emotional problems (e.g., Bormann, Thorp, Wetherell, Golshan, & Lang, 2012; Britton, Shahar, Szepsenwol, & Jacobs, 2012; Forman, Herbert, Moitra,

Yeomans, & Geller, 2007) and in decreasing forms of rumination (Ramel, Goldin, Carmona, & McQuaid, 2004; Shahar, Britton, Sbarra, Figueredo, & Bootzin, 2010). However, it is still uncertain how (mediation effects) and for whom (moderation effects) mindfulness-based therapies produce beneficial effects. Nonattachment is considered as one of the possible mechanisms by which mindfulness produces positive effects (Sahdra, Ciarrochi & Parker, 2015; Tran et al., 2014). As research on mindfulness-based interventions grows, the NAS-7 provides an opportunity to test the possibility that nonattachment mediates the link between an intervention and wellbeing outcomes. The measure would also allow one to look for moderation, such as whether some kinds of mindfulness-based interventions are more effective amongst people who are high or low in nonattachment. Finally, a brief nonattachment measure would be useful in providing feedback to clinical practitioners about their client's current level of nonattachment and their change in nonattachment through therapy.

It is possible that different mindfulness-based interventions may not promote mindfulness equally. Some may improve nonattachment whereas others may promote self-acceptance. For example, ACT has been shown to improve psychological flexibility (Ciarrochi, Bilich, & Godsel, 2010), and as we found in our studies, flexibility is moderately correlated with nonattachment. However, it does not follow that nonattachment also mediates the link between ACT and clinically relevant outcomes. It needs to be tested and NAS-7 would prove useful to that end. Perhaps none of the modern therapies increase nonattachment. If so, then perhaps new interventions need to be developed that focus specifically on nonattachment and NAS-7 could prove to be a valuable tool in evaluating the efficacy of such interventions.

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Appendix A

Items comprising the NAS, and NAS-7.

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1	I can accept the flow of events in my life without hanging onto them or pushing them away.*
2	I can let go of regrets and feelings of dissatisfaction about the past. ¹
3	I find I can be calm and/or happy even if things are not going my way.*
4	I have a hard time appreciating others' successes when they outperform me.
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- 5 I can remain open to what life offers me regardless of whether it seems desirable or undesirable at a particular time.*
 - 6 I can enjoy pleasant experiences without needing them to last forever.¹
 - 7 I view the problems that enter my life as things to work on rather than reasons for becoming disheartened or demoralized.¹
 - 8 I can enjoy my possessions without being upset when they are damaged or destroyed.
 - 9 The amount of money I have is not important to my sense of who I am.
 - 10 I do not go out of my way to cover up or deny my negative qualities or mistakes.*
 - 11 I accept my flaws.
 - 12 I can enjoy my family and friends without feeling I need to hang on to them.¹
 - 13 If things aren't turning out the way I want, I get upset.
 - 14 I can enjoy the pleasures of life without feeling sad or frustrated when they end.*
 - 15 I can take joy in others' achievements without feeling envious.¹
 - 16 I find I can be happy almost regardless of what is going on in my life.
 - 17 Instead of avoiding or denying life's difficulties, I face up to them.*
 - 18 I am open to reflecting on my past mistakes and failings.*
 - 19 I do not get "hung up" on wanting an "ideal" or "perfect" life.¹
 - 20 I am comfortable being an ordinary, less than perfect human being.
 - 21 I can remain open to thoughts and feelings that come into my mind, even if they are negative or painful.*
 - 22 I can see my own problems and shortcomings without trying to blame them on someone or something outside myself.*
 - 23 When pleasant experiences end, I am fine moving on to what comes next.¹
 - 24 I am often preoccupied by threats or fears.*
 - 25 I am not possessive of the people I love.
 - 26 I do not have to hang on to the people I love at all costs; I can let them go if they wish to go.
 - 27 I do not feel I need to escape or avoid bad experiences in my life.*
 - 28 I can admit my shortcomings without shame or embarrassment.*
 - 29 I experience and acknowledge grief following significant losses, but do not become overwhelmed, devastated, or incapable of meeting life's other demands.*
 - 30 I am not possessive of the things I own.
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Note: * = identified as potentially measuring multiple domains or values; ¹ = items comprising the NAS-7.