



## Using personal and psychological strengths leads to increases in well-being over time: A longitudinal study and the development of the strengths use questionnaire

Alex M. Wood<sup>a,\*</sup>, P. Alex Linley<sup>b</sup>, John Maltby<sup>c</sup>, Todd B. Kashdan<sup>d</sup>, Robert Hurling<sup>e</sup>

<sup>a</sup> University of Manchester, School of Psychological Sciences, Room 1, Coupland Building 1, Oxford Road, Manchester M13 9PL, United Kingdom

<sup>b</sup> Center of Applied Positive Psychology, The Venture Centre Sir William Lyons Road, Coventry CV4 7EZ, United Kingdom

<sup>c</sup> University of Leicester, School of Psychology, Room 0/22, Henry Wellcome Building, Lancaster Road, Leicester LE1 9HN, United Kingdom

<sup>d</sup> George Mason University, Department of Psychology, Mail Stop 3F5, Fairfax, VA 22030, United Kingdom

<sup>e</sup> Unilever Research, Colworth, United Kingdom

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### ABSTRACT

Positive psychology focuses on the benefits of both possessing and using personal strengths, however existing research has focused exclusively on having rather than using strengths. This study validates the Strengths Use Scale and presents the first test of whether strength use leads to improved well-being. A community sample ( $N = 207$ ) completed measures at baseline and three and six month follow-up. The scale had a clear one-factor structure, high internal consistency ( $\alpha = .94-.97$ ), and impressive three- and six-month stability ( $r = .84$ ). Strengths use led to less stress, and greater self-esteem, vitality and positive affect over both longitudinal assessment periods. Strengths use is an important longitudinal predictor of well-being, and the new scale is a reliable and valid measurement tool.

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### 1. Introduction

The recent positive psychology movement (see Wood & Tarrier, 2010) has drawn renewed attention to the study of strengths (Peterson & Seligman, 2004). Whilst psychology originally had an equal focus on curing dysfunction and promoting optimum functioning, research arguably became disproportionately focused towards the negative in life following the aftermath of World War II (Wood & Tarrier, 2010). Positive psychology aimed to redress this balance, with an increase in scientific attention and resources to understanding human striving, achievements, and potentialities (Linley, Joseph, Harrington, & Wood, 2006; Seligman & Csikszentmihalyi, 2000). A key aspect of this research agenda has been a focus on personal and psychological strengths, the use of which has been suggested to lead to energizing experiences and elevated, sustainable well-being (Peterson & Seligman, 2004). Theoretical perspectives in positive psychology have focused equally on the importance of both *possessing* and *using* strengths. However, whilst considerable empirical investigation has tested the consequences for well-being of having strengths, almost no previous research

has tested whether *using* strengths leads to beneficial outcomes. Research into this second question is further hampered by the lack of a psychometric scale to measure strength use. The current paper has two aims; (a) to provide a psychometric validation of a new scale of strengths use, and (b) to present the first empirical test of whether strength use leads to increased well-being over time.

Personal strengths are the characteristics of a person that allow them to perform well or at their personal best. This definition broadly covers how strengths are conceptualized in positive psychology, with different psychologists elaborating on this theme and sometimes adding additional criteria. For example, Linley and Harrington (2006, p. 86) define strengths as “a natural capacity for behaving, thinking or feeling in a way that allows optimal functioning and performance in the pursuit of valued outcomes”. Peterson and Seligman (2004) specify that strengths are (amongst other criteria); (a) intrinsically considered a moral quality, irrespective of benefits, (b) a stable trait, (c) enhances of other people when expressed (rather than harming them), and (d) the focus of institutional development (e.g., in religious or educational settings). As these two definitions highlight, there is a degree of disagreement about what constitutes a strength (with the first quote specifying that strengths must allow goal pursuit and the second specifying that strengths are intrinsically valued irrespective of goal directed

\* Corresponding author. Tel.: +44 7790816407.

E-mail address: [alex.wood@manchester.ac.uk](mailto:alex.wood@manchester.ac.uk) (A.M. Wood).

usefulness). Our definition of strengths as “characteristics that allow a person to perform well or at their personal best” is preferred here as it marks the point of agreement between various descriptions of strengths, avoids moralistic or evolutionary overtones, and (in the case of scale development) allows participants to interpret for themselves the meaning of strengths, rather than imposing a restrictive definition. Notably, this definition includes personal, physical, and psychological strengths. Whilst several perspectives have focused exclusively on psychological (or character) strengths (e.g., Peterson & Seligman, 2004), the broader positive psychological prediction that using one’s strongest characteristics leads to increased well-being and superior performance should, for example, be as applicable to making use of physical and sporting talents as creativity or intelligence (cf., Mutrie & Faulkner, 2004).

A clear distinction can be made between possessing and using strengths. For example, consider a person who was highly creative but never makes use of this strength, versus a creative person who has the opportunity and intention to be creative, and who uses this talent in lots of different situations to achieve their goals. Possessing more of a strength than other people may be related to well-being (for example through self-efficacy or positive social comparisons), but it is the unblocked use of the strength that would lead to the most benefits.

Despite the potential importance of using strengths over simply possessing them, almost all previous research has focused on the consequences of having high or low levels of a strength. The Value in Action Scale (Peterson & Seligman, 2004) was developed to assess the possession of 24 different strengths (for a list, see Linley et al., 2007), most of which are quite strongly correlated with greater well-being (Brdar & Kashdan, 2010; Park, Peterson, & Seligman, 2004), and which were related to better adjustment after 9/11 (Peterson & Seligman, 2003), and effective military leadership (Matthews, Eid, Kelly, Bailey, & Peterson, 2006). Experimental interventions to increase such strengths as gratitude appear to increase well-being as effectively as automatic thought changing techniques from cognitive behavioral therapy (Geraghty, Wood, & Hyland, 2010a, 2010b). However, such research has exclusively focused on possessing rather than using strengths.

One previous cross-sectional study showed that reports of strengths use are positively correlated with reports of well-being (e.g., Govindji & Linley, 2007). An intervention which encouraged people to find one new platform to use their strengths each day for a week led to greater well-being that remained over a six month assessment period, relative to the transient benefits of a control condition (i.e., recall and write about earliest memories every night for a week) and other positive psychology interventions (e.g., directly express gratitude to a person you never properly thanked) (Seligman, Steen, Park, & Peterson, 2005). However, concerns exist about the use of control conditions in positive psychology interventions, and whether the apparent effects of the interventions are through theoretically expected mechanisms (in this case strengths use) or common factors associated with all interventions (such as expectancy of change or the simple act of participating in a plausible therapeutic intervention) (such as expectancy of change or the simple act of participating in a plausible therapeutic intervention, Geraghty, Wood, & Hyland, 2010a, p. 36; Wood, Froh, & Geraghty, 2010; Wood & Tarrier, 2010). This limited amount of previous research also fails to answer the basic question of whether using strengths naturally leads to improved well-being. This is surprising because the benefits of intentionally wielding strengths in a variety of everyday situations is an underlying assumption of theories on how strengths operate to improve human welfare (Peterson & Seligman, 2004) and applied work devoted to increasing strengths use in personal (Seligman, Rashid, & Parks, 2006) and organizational (Harter, Schmidt, & Hayes, 2002; Matthews et al., 2006) settings.

This study had two aims. First, to assess the psychometric properties of a new Strengths Use Scale (Govindji & Linley, 2007), which is the first scale to assess strengths use. Second, using a three-wave longitudinal design, the current study provides the first test of whether strengths use naturally leads to various indicators of well-being over time. Outcomes variables for clinical and community psychology studies should include variables that arise from various different theoretical conceptions of the nature of well-being (Joseph & Wood, 2010). The current study uses measures of the emotional component of well-being, represented with positive and negative affect (Watson, Clark, & Tellegen, 1988), a measure of perceived stress capturing the evaluation of difficulties and obstacles impinging on well-being (Cohen & Williamson, 1988), a measure of self-esteem capturing the self and identity aspect of well-being (Rosenberg, 1965), and a measure of vitality capturing the availability of sufficient self-regulatory resources to successfully navigate the challenges of daily life (Ryan & Frederick, 1997). Additionally, as the time frame needed to assess any positive impact of strengths use was not known, two follow-up assessments were taken, at three and six months.

## 2. Method

### 2.1. Participants and procedure

Participants were recruited from the local community in central and northern England. All participants consented to being re-contacted at two subsequent time points. Participants were asked to complete all measures at baseline (T1), and additionally completed the well-being measures at three (T2), and six (T3) month follow-up assessments. Measures were presented in the same order at all time points. At each follow-up time point participants were e-mailed reminders to complete follow-up questionnaires. Participants received up to three further reminder e-mails if they did not respond (after which they were deemed to have dropped out of the study). Two hundred and twenty-seven participants (53.7% female) completed measures at baseline (period T1). The mean age was 31.96 (SD = 13.49), and education was to compulsory leaving age (GCSE, 28.6%), two years post compulsory (A-level, 29.1%), undergraduate degree (15.4%), postgraduate degree (8.8%), or vocational qualification (18.1%). At T2, 218 participants completed measures (95% retention), and 207 completed measures at T3, giving an overall retention rate of 91%. Participants who dropped out of the study did not differ on any of the baseline measures.

### 2.2. Measures

#### 2.2.1. Strengths use

Strengths Use was assessed with the Strengths Use Scale (Govindji & Linley, 2007). Fourteen items ask about the extent to which people use their strengths, which are rated on a 1 (“Strongly Disagree”) to 7 (“Strongly Agree”) scale (full items and instructions are in the Appendix A). Items were developed from a review of the positive psychology literature, and initial psychometrics supported a one-factor structure, showed good internal consistency, and expected correlations with well-being and positive psychology constructs. The scale is the only available to assess strength use rather than strength prevalence.

#### 2.2.2. Positive and negative affect

Positive and negative affect was measured with the Positive and Negative Affect Schedule (Watson et al., 1988). This 20-item measure assesses the frequency of positive and negative emotional experiences, respectively. Ten items form a positive affect subscale

(e.g. interested, excited, and enthusiastic) and ten items form a negative affect subscale (e.g. guilty, scared, and hostile).

### 2.2.3. Perceived stress

Perceived stress was measured with the Perceived Stress Scale (PSS; Cohen & Williamson, 1988). This 10-item scale assesses the extent to which during the last month participants have found their lives unpredictable, uncontrollable, overwhelming, and stressful (e.g., “how often have you felt nervous and stressed?”). Items are rated on a 0 (“never”) to 4 (“very often”) scale. Psychometric validation has involved predictive validity with depression, life events, use of health services, and engagement in healthy behavior (Cohen & Williamson, 1988).

### 2.2.4. Self-esteem

Self-esteem was assessed with Rosenberg (1965) 10-item Self-Esteem Scale. Five positive items (e.g. “I feel that I am a person of worth, at least on an equal plane with others”), and five negative items (e.g. “At times I think I am no good at all”) assess global self-esteem. Items are rated on a 1 (“strongly disagree”) to 4 (“strongly agree”) scale.

### 2.2.5. Vitality

Vitality was measured with the Subjective Vitality Scale (Ryan & Frederick, 1997). Six questions measure aliveness and alertness (e.g., “I feel alive and vital”, “I have energy and spirit”), and are rated on a 1 (“not at all true”) to 7 (“very true”) scale. The scale has good criterion validity with measures of depression and general psychopathology ( $r = -.44$  to  $-.60$ ). The measure also has non-significant correlations with social desirability, and has known group validity in discriminating between people with severe pain and control participants.

## 3. Results

### 3.1. Psychometric Properties of the Strengths Use Scale

To explore the structure of the Strengths Use Scale, all 14 items completed at T1 were subjected to a maximum likelihood factor analysis. Maximum likelihood was selected to increase generalizability to new populations of participants (Tinsley & Tinsley, 1987). The number of factors to extract was based on a parallel analysis of 1000 datasets, using the 95% cut-off (O'Connor, 2000). Of all the decisional rules (e.g., eigenvalue over 1, the scree plot), parallel analysis has been shown to provide the most accurate and replicable results (Zwick & Velicer, 1986). The eigenvalues (and % of variance accounted for) were 9.834 (70.25%), 0.639 (4.56%), 0.549 (3.92%), 0.476 (3.40%), 0.401 (2.87%), 0.340 (2.42%), 0.316 (2.26%), 0.295 (2.11%), 0.281 (2.01%), 0.225 (1.60%), 0.196 (1.04%), 0.178 (1.27%), 0.157 (1.12%), 0.114 (0.81%). Parallel analysis showed a clear one-factor solution (respectively, 95% of random datasets had eigenvalues for the first factor lower 1.54 and 1.40; only the first eigenvalue in the real dataset exceeded a size expected through chance). The structure was also visually very clear from the scree plot. Notably, only the first eigenvalue exceeded 1, suggesting that were a second factor extracted, it would have less explanatory power than any individual item. On this basis, a single factor was extracted, and all items loaded above .66 on this factor (and all but one loaded above .77, see Appendix A). It was concluded to be appropriate to retain all items and to form a single total score.

The internal consistency of the measure (as assessed by Cronbach's alpha) was very high at all three time points;  $\alpha = .97$  at T1,  $\alpha = .97$  at T2, and  $\alpha = .94$  at T3. Test-retest stability was tested through the intra-class co-efficient of absolute agreement (com-

puted through two-way mixed effects ANOVA, with people as a random factor). Across the three time points, test-retest agreement was significant ( $F [206, 412] = 6.56, p < .001$ ), and very high ( $r_{icc} = .85$ ). The measure had good criterion validity with well-being, positively correlating at Time 1 with self-esteem at  $r = .50$ , vitality at  $r = .54$ , positive affect at  $r = .52$ , and negatively correlating with negative affect at  $r = -.25$ , and stress at  $r = -.31$  (all  $p < .001$ ). It appears the measure has very good psychometric properties, with a clear one-factor structure, highly loading items, very high internal consistency and test-retest reliability, and good criterion validity. Predictive validity is indicated below, through testing the primary hypothesis, that strength use will predict changes in well-being over time.

### 3.2. Strengths use and changes in well-being over time

Ten multiple regressions were conducted to test whether baseline levels of strengths use predicted changes in well-being between (a) baseline (T1) and three months (T2), and (b) baseline (T1) and six months (T3). First, in five separate multiple regressions, the T2 levels of the five well-being variables were jointly regressed on their baseline levels, and on the baseline level of strengths use. These regressions thus represent the variance in T2 well-being that is not shared with baseline well-being, and thus the residualized change between the two time periods. As can be seen from the top half of Table 1, strengths use led to decreases in stress and increases in self-esteem, vitality, and positive affect (but not negative affect).

A second set of five multiple regressions tested whether use of strengths predicted changes in well-being between baseline and six months. These regressions mirrored the above analyses, except here T3 levels of well-being (rather than T2) were regressed on the corresponding T1 levels of the well-being variable, and on the T1 level of strengths use. The results, shown in the bottom half of Table 1, had an identical pattern of results as observed at the 3-month follow-up; strengths use led to decreases in stress and increases in self-esteem, vitality, and positive affect (but not negative affect). It appears that the use of strengths leads to positive changes in well-being over both three and six month time periods.

## 4. Discussion

The results showed that people who reported greater use of their strengths developed greater levels of well-being over time. Specifically, at both three and six month follow-up, greater strengths use was related to greater self-esteem, vitality, and positive affect, and lower perceived stress. This provides important validation of theoretical perspectives (e.g., Peterson & Seligman, 2004) which claim that strengths use will be associated with greater well-being. Further, the results suggest that the Strength Use Scale (Govindji & Linley, 2007) may be a useful tool for future research, due to good psychometric properties including a clear one-factor structure, test-retest reliability of  $r = .84$ , and criterion and predictive validity with various indices of well-being. This research supports growing calls for interventions to increase strengths use (Duckworth, Steen, & Seligman, 2005; Wood & Tarrier, 2010); if strengths use naturally leads to well-being over time, such interventions may be a way to build long term individual resilience and optimal functioning.

This study uses a longitudinal design. Cook and Cambell (1979) and Zapf, Dormann, and Frese (1996) consider longitudinal designs as showing A causes B when (a) there is covariation between A and B, (b) A temporally precedes B, and (c) plausible other explanations can be ruled out. In such cases “causality cannot be proven... but can be made plausible” (Zapf et al., 1996). The analysis regressed

**Table 1**  
Summary of multiple regression models to predict change in well-being variables (at 6 and 12-month follow-up) from baseline use of strengths.

Well-being variable	Baseline (T1) level of well-being					Baseline strength use (T1)				
	<i>b</i>	<i>SE</i>	<i>B</i>	<i>t</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>B</i>	<i>t</i>	<i>p</i>
<i>3 month follow-up</i>										
Stress	.36	.08	<b>.30</b>	<b>4.56</b>	.000	-.11	.03	<b>-.23</b>	<b>-3.48</b>	.001
Self-esteem	.50	.07	<b>.48</b>	<b>7.57</b>	.000	.06	.02	<b>.15</b>	<b>2.31</b>	.022
Vitality	.29	.07	<b>.30</b>	<b>4.42</b>	.000	.15	.04	<b>.27</b>	<b>3.93</b>	.000
Positive affect	.22	.08	<b>.21</b>	<b>2.85</b>	.005	.15	.04	<b>.29</b>	<b>4.00</b>	.000
Negative affect	.48	.06	<b>.49</b>	<b>8.14</b>	.000	-.02	.03	-.05	-.77	.440
<i>6 month follow-up</i>										
Stress	.39	.08	<b>.34</b>	<b>5.08</b>	.000	-.09	.03	<b>-.18</b>	<b>-2.78</b>	.006
Self-esteem	.64	.05	<b>.66</b>	<b>12.01</b>	.000	.05	.02	<b>.13</b>	<b>2.44</b>	.015
Vitality	.37	.05	<b>.45</b>	<b>6.82</b>	.000	.12	.03	<b>.24</b>	<b>3.74</b>	.000
Positive affect	.21	.06	<b>.26</b>	<b>3.66</b>	.000	.15	.03	<b>.35</b>	<b>4.92</b>	.000
Negative affect	-.50	.05	<b>.61</b>	<b>11.04</b>	.000	.03	.02	.07	1.32	.189

Note: Beta coefficients and *t*-tests are in bold to reflect statistical significance at  $p < .05$ .

T2 well-being on T1 strengths use, controlling for T1 well-being. This is a useful design as through partialling out the initial relationship between well-being and strength use “occasional factors and background variables are ruled out as a source of spurious dependency” (Zapf et al., 1996, p. 149). Thus this design could be said to provide evidence of causality between strength use and well-being; we however are careful not to make this very strong conclusion, preferring to interpret our results as showing that strength use leads to higher well-being (which may be through shared variance with a third variable – which would still not change the interpretation that strength use leads to greater well-being, albeit indirectly).

The research has some limitations, particularly with the exclusive use of self-report measures. Conservatively, the results are best interpreted as *perceived* strengths use; testing whether such strengths are actually being used will require behavioral measures. However, such issues are not limited to strengths research, occurring, for example, in research into coping or social support. In fact, there is evidence to suggest that appraisals are more important than objective reality in terms of understanding what people feel, think, and do in the future (e.g., Lakey & Cassady, 1990). (And, of course, appraisals of strengths use are still distinct from appraisals of strengths possession.) We suggest the results are an important first test of the strength use hypothesis. Further, confidence in the results are increased by (a) convergence with the findings of experimental interventions to increase strengths (Seligman et al., 2006), and (b) non-significant relationships with measures of negative affect; it seems less likely that a pure statistical artifact would manifest selectively (this effect may reflect the previously noted separation of positive and negative affect which may have different neurological substrates, Watson & Naragon-Gainey, in press). Nevertheless, further research using behavioral measures of strength use is now indicated.

Further research also needs to consider whether it is the use of any strength that leads to well-being, or whether specific strengths are responsible for the observed relationship. The VIA inventory of strengths (Brdar & Kashdan, 2010; Linley et al., 2007; Peterson & Seligman, 2004) details 24 specific strengths, the use of any may be particularly strongly related to well-being. For example, grateful people develop greater well-being over time (Wood, Maltby, Gillett, Linley, & Joseph, 2008); possibly this is due to the behavioral use of grateful acts. Researchers should consider whether their research questions are aimed at the general level of strengths use (as in the present investigation) or whether they are interested in the use of a specific sub-set of strengths (analogically, this is similar to considerations of whether to assess Big Five domains, or specific composing facets, see Wood, Joseph, & Maltby, 2009, p. 444). Research into strengths use is just beginning, and this study suggests

that strengths use may be a useful longitudinal predictor of well-being and optimal human functioning.

## Appendix A

1. I am regularly able to do what I do best (.83).
2. I always play to my strengths (.84).
3. I always try to use my strengths (.84).
4. I achieve what I want by using my strengths (.86).
5. I use my strengths everyday (.81).
6. I use my strengths to get what I want out of life (.83).
7. My work gives me lots of opportunities to use my strengths (.85).
8. My life presents me with lots of different ways to use my strengths (.66).
9. Using my strengths comes naturally to me (.79).
10. I find it easy to use my strengths in the things I do (.83).
11. I am able to use my strengths in lots of different situations (.87).
12. Most of my time is spent doing the things that I am good at doing (.77).
13. Using my strengths is something I am familiar with (.87).
14. I am able to use my strengths in lots of different ways (.87).

Note: Items for the Strengths Use Scale (Govindji & Linley, 2007), with loadings from our exploratory factor analysis. The scale is administered with the instructions “The following questions ask you about your strengths, that is, the things that you are able to do well or do best”, and are responded to using a 1 (“strongly disagree”) to 7 (“strongly agree”) scale.

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