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Character strengths predict subjective well-being during adolescence

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Previous research indicates that several character strengths (e.g., gratitude, optimism, persistence, and self-regulation) correlate positively with measures of subjective well-being in adolescents. We examined whether character strengths predict future well-being. Adolescent high school students ($N = 149$) completed the Values in Action Inventory of Strengths for Youth and measures of subjective well-being (depression, happiness, life satisfaction) at several assessments from the fall of 9th grade through the spring of their 10th grade year. In analyses controlling for the effects of other strengths, other-directed strengths (e.g., kindness, teamwork) predicted fewer symptoms of depression. Transcendence strengths (e.g., meaning, love) predicted greater life satisfaction. Social support partially mediated the relationship between strengths and depression, but did not mediate the relationship between strengths and life satisfaction. These findings indicate that strengths that build connections to people and purposes larger than the self predict future well-being.

Keywords: character strengths; subjective well-being; adolescence; life satisfaction; depression

Introduction

When parents and educators discuss the qualities they most hope to cultivate in children, they often mention character strengths, such as kindness, honesty, love of learning, optimism, and teamwork (Seligman, Ernst, Gillham, Reivich, & Linkins, 2009). These moral qualities are valued in their own right, although they are also likely to benefit society and the individuals who possess them. We expect that children who develop these qualities will contribute to society and have fulfilling lives. Recent research in positive psychology indicates that many character strengths are associated with current levels of well-being (Peterson, 2006). Few studies examine whether character strengths predict or promote future well-being, however. In addition, despite the importance of childhood and adolescence to the development of character, most of the recent research on character strengths focuses on adults (Park & Peterson, 2005). Our major aim was to examine whether character strengths predict subsequent well-being during adolescence.

Character strengths are the subset of personality traits that are morally valued. Like other personality traits, character strengths are dispositions that are

manifest in people's thoughts, emotions, and behaviors (Park & Peterson, 2005, 2008; Peterson & Seligman, 2004). Temperament and personality styles may facilitate strengths. For example, personality styles such as sociability and approach (as opposed to withdrawal) may facilitate character strengths such as kindness and courage. Whereas temperament and personality styles are not morally valued, however, character strengths have a moral meaning, and most of these qualities are valued across cultures and throughout history (Dahlsgaard, Peterson, & Seligman, 2005). Character strengths are influenced by family, community, societal, and other contextual factors. At least in theory, character strengths are malleable; they can be taught and acquired through practice.

The recent Values in Action (VIA) classification provides a framework for examining character strengths. The VIA classification describes six core virtues (courage, love, justice, temperance, transcendence, and wisdom) that are ubiquitous across time and culture (Peterson & Seligman, 2004). These six virtues have been used to classify 24 more specific strengths of character, although a recent factor analysis using the VIA-Youth questionnaire revealed four

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factors, tentatively labeled temperance strengths (e.g., prudence, self-regulation), intellectual strengths (e.g., love of learning, curiosity), theological or transcendence strengths (e.g., hope, religiousness, gratitude), and other-directed strengths (modesty, kindness, teamwork) (Park & Peterson, 2006).

There are many routes through which character strengths could promote positive outcomes and prevent psychopathology. For example, other-directed strengths may build friendships and increase the social support people receive from others, which in turn could increase positive experiences that lead to happiness and protect against depression. Transcendence strengths may boost well-being by giving adolescents a deeper sense of purpose and connection to others, and by providing consolation during setbacks (Eckstein, 2000). Intellectual strengths may increase adolescents' engagement in the world around them. Temperance strengths may help adolescents to avoid experiences (injury, over-indulgence, addiction) that undercut well-being. These strengths may help adolescents persist (and ultimately reach their goals) when they confront challenges. Although few studies explore the specific pathways involved, research suggests that character strengths are linked to positive outcomes.

Most of the strengths described in the VIA classification system correlate with well-being. In three large (all N values > 500) studies with adults, life satisfaction correlated with all of the VIA strengths except humility (Park, Peterson, & Seligman, 2004). Research on adolescents finds that strengths are inversely related to psychological distress and behavioral problems. For example, in a study of middle school students, adolescents who reported higher persistence, honesty, prudence, and love scored lower on behavioral problems than adolescents who scored lower on these strengths. In addition, adolescents who reported higher levels of hope, zest, and leadership reported lower levels of anxiety and depression than adolescents who scored lower on these strengths (Dahlsgaard, 2005; Park & Peterson, 2006). Similarly, in a study with 5th and 8th graders, hope, zest, and self-regulation correlated with lower levels of negative affectivity (Park & Peterson, 2006). This correlational research shows that character strengths are related to well-being, but it cannot determine whether strengths predict subsequent well-being or are merely correlates or consequences of well-being. Perhaps people with higher levels of strengths experience greater well-being in the future; however, it seems equally plausible that happier people are more likely to endorse strengths. Indeed, self-evaluations of strengths (e.g., hope and zest) that are most strongly connected to well-being could be most influenced by mood.

There is some evidence that specific strengths predict subsequent positive outcomes and reduced risk for psychopathology and other problems.

For example, the strength of optimism predicts greater life satisfaction, achievement, and health, and fewer symptoms of depression and anxiety in adults and adolescents (Bromley, Johnson, & Cohen, 2006; Scheier & Carver, 1993; Seligman, 1991). Self-discipline is a strong predictor of academic achievement in adolescents (Duckworth & Seligman, 2005). Insight and empathy predict lower levels of behavioral problems (including arson and vandalism) among adolescents (Bromley et al., 2006). Spirituality predicts lower risk for substance abuse (Ritt-Olson et al., 2004).

Intervention research suggests that building character strengths can increase well-being. For example, interventions that promote social intelligence and self-regulation can reduce substance abuse, aggression, and other behavioral problems in children, and increase the likelihood that youth will graduate from school (Greenberg et al., 2003; Weissberg & O'Brien, 2004). Interventions that promote optimism can reduce and prevent depressive symptoms (Gillham, Reivich, Jaycox, & Seligman, 1995; Seligman, Schulman, & Tryon, 2007). Interventions that help people to identify and use their signature (or top) character strengths can reduce depression and increase happiness and life satisfaction (Seligman, Rashid, & Parks, 2006; Seligman, Steen, Park, & Peterson, 2005). Interventions that promote transcendence strengths such as gratitude increase adolescents' satisfaction with life and with school (Froh, Sefick, & Emmons, 2008).

Most studies that examine the relationship between strengths and future well-being focus on but one or two strengths at a time. Psychologists who study youth development have expressed concerns about this approach (Dahlsgaard, 2005; Eccles & Gootman, 2002; Park, 2004). Strengths are often correlated with other strengths. Thus, when a specific strength predicts well-being, this could reflect the effects of other strengths that were not assessed. Research that examines multiple strengths can help to identify the strengths that are most important to well-being.

Cross-sectional research on the VIA strengths indicates that strengths of the heart, which connect people to each other, are more closely connected to well-being than are strengths of the head, which are more individual in focus (Park & Peterson, 2006, 2008). So, for example, gratitude, hope, love, and zest are more strongly associated with well-being than are appreciation of beauty, creativity, and judgment. These findings are consistent with the observation that close relationships with others are more strongly connected to life satisfaction and happiness than are scholastic achievement, occupational success, and wealth (Myers, 2000).

Only a few studies have examined the relationship between multiple VIA strengths and well-being over time. In a study of middle school students, Park and Peterson (2006, 2008) found that love, hope, and zest

at the beginning of the school year predicted higher life satisfaction at the end of the school year. The strengths of perseverance, fairness, gratitude, honesty, hope, and perspective predicted higher grades at the end of the year. In contrast, (using a different strengths measure) Dahlsgaard (2005) found that middle school students with high levels of strengths did not show greater improvements in life satisfaction, depression and anxiety symptoms, or behavioral problems over a 1-year period. In fact, low scores on some strengths predicted greater increases in well-being over time. Students with low levels of transcendence and gregarious strengths (similar to other-directed strengths) reported lower life satisfaction than their peers at the start of this study, but reported significantly greater increases in life satisfaction over the 1-year follow-up period. Similarly, low levels of transcendence, intellectual, and gregarious strengths predicted steeper reductions in anxiety and depression. Dahlsgaard (2005) noted that this pattern of findings could reflect regression to the mean. Students with low levels of strengths scored lower on many well-being measures at baseline and thus may have had more room to improve.

Our major aim in this research was to examine whether character strengths longitudinally predict subjective well-being during adolescence. Subjective well-being refers to people's cognitive and emotional evaluations of their lives. It includes judgments (such as life satisfaction), pleasurable emotions, and fewer unpleasant emotional experiences like depression (Diener, Suh, & Oishi, 1997). Many studies have examined correlates and predictors of subjective well-being in adults, but there is less research on subjective well-being, particularly positive indices of well-being, in adolescents (Huebner & Diener, 2008; Park & Peterson, 2005). We explored whether adolescents' character strengths at the beginning of high school would predict their depression, happiness, and life satisfaction through the end of 10th grade. We expected that other-directed and transcendence strengths (which include many strengths of the heart) would be especially strong predictors of well-being. We also expected that social support would, at least in part, mediate these relationships.

Method

Participants

This study examined data from adolescents who are participating in a longitudinal study of a positive psychology curriculum for high school students enrolled in a suburban high school in the Northeastern United States. We used data from the 149 adolescents (72 boys, 77 girls) who were randomly assigned to the control condition and did not receive

the intervention. At baseline, these participants were in 9th grade and between the ages of 13 and 15. Of the 146 adolescents who completed information about race/ethnicity, 134 (89.9%) identified themselves as European American, 4 (2.7%) Asian, 2 (1.3%) African American, 1 (0.7%) Latino, and 5 (3.4%) identified as other. Parents of 116 adolescents provided information about their marital status. Of these, 88 (75.6%) were married, 21 (18.1%) were divorced, 4 (3.4%) were separated, 2 (1.7%) were widowed, and 1 (0.9%) was never married. Parents of 87 participants provided information about household income. The median yearly household income for these parents was \$125,000.

Recruitment

This study was approved by the school board of the participating school district and by the Institutional Review Boards at Swarthmore College and the University of Pennsylvania. Adolescents were recruited to participate in a study examining the effectiveness of a positive psychology curriculum (a curriculum designed to promote positive character development, positive emotion, and citizenship). During the 2003–2004, 2004–2005, and 2005–2006 academic years, letters describing the project, parental consent forms, and student assent forms were sent to the families of all incoming 9th graders in the participating school district. Consent and assent forms were returned for 379 students (between 30% and 55% of the 9th grade class each year). Of these, 347 (170 boys, 177 girls) completed the baseline assessment and were randomized to a study condition. Adolescents who were assigned to the intervention group received the positive psychology curriculum in their 9th grade Language Arts class (a description of this curriculum is available upon request from the authors). Due to class scheduling problems that emerged after randomization, 16 of the 165 adolescents assigned to the comparison group switched into Language Arts classes that included positive psychology lessons. Longitudinal analyses use data from the 149 adolescents assigned to the comparison group who did not receive any positive psychology lessons.

Procedure

This article reports on findings for the first 2 years of this study (through adolescents' 10th grade year). Each fall and spring, research assistants administered questionnaires to groups of adolescents at their school during the school day. Unless noted, adolescents completed each measure at each of the four assessment points.

Measures

Character strengths

During the fall and spring of 9th grade and the fall of 10th grade, adolescents completed the Revised Values in Action Inventory of Strengths for Youth (VIA-Youth; Park & Peterson, 2006), designed for young people (ages 10–17). The questionnaire consists of 198 items that adolescents rate on a Likert scale ranging from 1 ('Not like me at all') to 5 ('Very much like me'). Sample items on the VIA-Youth include 'I often tell my friends and family members that I love them' (love), 'I am very careful at whatever I do' (prudence), 'I am interested in all kinds of things' (curiosity), 'I am very concerned about others when they have problems' (kindness), 'I have the courage to do the right thing even when its not popular' (valor), and 'I like to tell jokes or funny stories' (humor). At the request of school administrators, we removed six of the eight items on the spirituality subscale that asked about religious beliefs and practices. The remaining items assessed thoughts and feelings related to meaning and purpose ('I feel that my life has a purpose'), so we use 'meaning' to refer to this subscale below. Items related to each particular strength were averaged to create strength scale scores, with higher scores reflecting greater endorsement of a given strength. The VIA-Youth strength scales have demonstrated good internal consistency (with alpha's ranging from 0.72 to 0.91) and have been validated against self- and other-nomination of character strengths (Park & Peterson, 2006).

To reduce the number of variables in analyses, we conducted a principal component analysis (PCA) to identify the factor structure of the VIA-Youth in the total intervention study sample ($N=347$) at baseline. (Confirmatory factor analyses indicated the VIA virtues and the factor structure identified by Park and Peterson (2006) did not fit our data.) We conducted the PCA using SPSS 15.0 and a direct oblimin (oblique) rotation (which allows strengths scores to correlate with each other). The PCA yielded an overall Kaiser–Meyer–Olkin measure of sampling adequacy statistic of 0.93 and a Bartlett's test of sphericity of $\chi^2(276)=5492$, $p < 0.001$, indicating sufficient correlations among the strength scales to proceed with factor analysis. The PCA revealed five factors with eigenvalues greater than 1.0. Table 1 lists these factors and the strengths loadings. Based on examination of the loadings component and pattern matrices, we labeled the factors as follows. *Transcendence* strengths involve connecting with others, the future, causes and ideals outside ourselves. *Temperance* strengths involve the self-regulation of behavior and working toward goals. *Intellectual* strengths are related to interest and passion for learning. *Other-directed* strengths are particularly

relevant to positive day-to-day interactions and cooperation with other people. *Leadership* strengths include behaviors that are particularly relevant for leading, guiding, and advising others. We calculated composite scores reflecting these factors by summing scores for each strength scale that loaded on the factor. Detailed information about the factor analyses is available from the authors upon request. Internal consistency was high for the transcendence, temperance, intellectual, and other-directed strength factors (alpha's >0.84 at each assessment) and good for the leadership strength factor (alpha's >0.70 at each assessment).

Depressive symptoms

Adolescents completed the Reynolds Adolescent Depression Scale-2nd Edition (RADS-2; Reynolds, 2002), a widely used standardized measure of depressive symptoms in adolescents. On the RADS-2, adolescents rate 30 statements on a 4-point scale ranging from 'Almost Never' to 'Most of the time'. Sample items include 'I feel like crying', 'I have trouble sleeping', and 'I feel like nothing I do helps anymore'. Items are summed to create a total score, with a higher score indicating higher levels of depressive symptoms. In this study, the item assessing suicidality was left out at the request of school administrators. The RADS-2 has demonstrated moderate to high internal consistency and correlates highly with other measures of depression (Reynolds, 2002). Internal consistency was high in this study (alpha's >0.92) at each assessment.

Happiness

We assessed feelings of happiness with the Fordyce Emotions Questionnaire (FEQ; Fordyce, 1988). The questionnaire consists of two parts: Part 1 asks how happy participants feel in general, on a scale from 0 to 10 (ranging from 'extremely unhappy' to 'extremely happy'), and Part 2 asks participants to fill in the average percent of time they felt happy, unhappy, and neutral. Part 1 and Part 2 scores were highly correlated ($r > 0.60$) at each assessment point. Therefore to reduce the number of analyses, we created a composite happiness score by converting the Part 1 and Part 2 scores to Z-scores and summing them. The FEQ has shown strong test–retest reliability and correlates highly with measures of positive emotion (Fordyce, 1987).

Life satisfaction

Adolescents completed the Students' Life Satisfaction Scale (SLSS; Huebner, 1991). The scale consists of seven statements that adolescents rate on a 6-point

Table 1. PCA of VIA-Youth.

	Transcendence strengths	Temperance strengths	Intellectual strengths	Other-directed strengths	Leadership strengths
Meaning	0.79	0.12	-0.03	-0.11	-0.03
Love	0.73	-0.10	-0.01	0.28	0.07
Zest	0.71	-0.03	0.19	-0.06	0.12
Hope	0.71	0.17	0.17	-0.06	0.10
Gratitude	0.65	0.10	0.16	0.25	-0.02
Prudence	0.14	0.70	0.03	0.10	0.11
Self-regulation	0.04	0.65	0.00	0.24	0.07
Honesty	0.19	0.58	0.04	0.18	0.09
Perseverance	0.31	0.58	0.12	-0.05	0.23
Judgment	-0.03	0.53	0.34	0.17	0.14
Curiosity	0.00	-0.04	0.91	-0.03	0.01
Love of learning	0.15	0.20	0.79	-0.01	-0.10
Originality	-0.04	0.05	0.78	-0.19	0.22
Appreciation of beauty and excellence	0.03	-0.14	0.75	0.24	-0.09
Forgiveness	0.20	0.04	0.05	0.74	-0.15
Humility	-0.27	0.22	0.03	0.65	0.02
Kindness	0.01	-0.08	0.14	0.62	0.38
Fairness	0.01	0.30	0.16	0.57	0.06
Teamwork	0.26	0.15	0.01	0.55	0.19
Social intelligence	0.28	0.15	0.02	0.38	0.35
Valor	-0.16	0.12	0.13	-0.01	0.75
Leadership	0.21	0.16	-0.02	-0.08	0.70
Perspective	0.16	0.14	0.08	0.23	0.58
Humor	0.28	-0.52	0.07	0.08	0.56
Eigenvalue	10.70	2.23	1.54	1.15	1.04
Variance (%)	44.60	9.30	6.41	4.79	4.34

Likert scale ranging from 'strongly disagree' to 'strongly agree'. Sample items include 'My life is going well' and 'I wish I had a different kind of life' (reverse scored). Items are summed to create a total score, with a higher score indicating higher life satisfaction. The SLSS has good internal consistency and test-retest reliability and correlates highly with other subjective well-being measures (Huebner, 1991). In this study, internal consistency was high (α 's > 0.85) at each assessment.

Social support

Adolescents completed the Perceived Social Support Scale (PSS: Procidano & Heller, 1983). The PSS is a widely used measure of social support for adolescents and adults. It contains separate scales to measure social support from family members and friends. Sample items include 'My friends enjoy hearing what I think', and 'Most other people are closer to their family than I am' (reverse scored). Participants rate whether they agree with, disagree with, or 'don't know' about each statement. Higher scores reflect higher perceived social support. In this study, the PSS scales had high internal consistency (α 's > 0.84) at each assessment.

Statistical analyses

Checking statistical assumptions

The predictive analyses we used assume that data are normally distributed. SLSS scores and FEQ Part 1 scores were negatively skewed at most assessments. Therefore, we transformed these scores by reversing them, applying a square root transformation, and reversing the square root transformed scores again to preserve the original direction of scoring. We transformed the FEQ Part 1 scores before converting them to Z-scores and adding them to the Z-transformed FEQ Part 2 scores (see description under section 'Happiness'). For ease of interpretation, tables and figures display raw rather than transformed scores.

Examining strengths as predictors of well-being

We used a 3-step procedure to examine whether character strengths predicted future well-being. First, we identified strengths that predicted each well-being outcome. Second, we identified strengths that uniquely predicted well-being, after controlling for the effects of other strengths. Third, we examined whether strengths that predicted well-being in both step 1 and step 2 also predicted meaningful changes in well-being. This 3-step procedure was designed to identify the most important

strengths and well-being relationships, while limiting the number of statistical analyses.

In steps 1 and 2, we used mixed models (MM) ANCOVAs to identify strengths that predicted well-being outcomes. MM ANCOVAs examine continuous dependent variables measured at multiple assessment points, retain cases with incomplete follow-up data, allow for continuous independent variables (or predictors), and thus retain a high level of statistical power. MM ANCOVAs are similar to hierarchical linear models (HLM) except that in MM ANCOVA, time is considered a categorical variable as opposed to a continuous covariate. Specifically, MM estimates a separate mean for each assessment, while HLM estimates assessment means using linear or polynomial regression equations. MM ANCOVA seemed most appropriate for our data because we did not expect linear changes (i.e., steady decreases in depression) over time.

In step 1, each MM ANCOVA predicted scores on a given well-being measure across the follow-up period from a given strength score at baseline (with baseline well-being score covaried). Thus, these analyses asked whether adolescents' strengths at the start of high school (9th grade fall) predicted their average levels of well-being from the spring of 9th grade through the spring of 10th grade.

In step 2, we identified strengths that uniquely predicted well-being, when controlling for the effects of other strengths. MM ANCOVAs predicted well-being scores from strength scores (with baseline well-being score covaried) using a backward stepwise procedure (setting p for exclusion to ≥ 0.10).

When a strength predicted a given well-being outcome in both the separate and stepwise analyses, we proceeded to step 3 and conducted analyses to determine whether strengths predicted meaningful changes in well-being over time. We used logistic regression to examine whether strengths predicted the onset of high levels of depressive symptoms ($RADS-2 \geq 76$) among adolescents who scored below this cut-point at baseline. Baseline RADS-2 scores were covaried in analyses. A RADS-2 score of 76 is one standard deviation (SD) above the standardization sample mean and is the recommended cut-point for depression screening (Reynolds, 2002). We conducted similar analyses to determine whether strengths predicted the onset of high life satisfaction ($SLSS \geq 35$) during the follow-up period. SLSS scores ≥ 35 reflect an average of at least 5 (out of 6 possible points) on each item. To illustrate significant relationships, we divided participants into quartiles based on their strength scores at baseline, selected participants who scored below the given cut-point at baseline, and plotted the proportion of participants (in each quartile) that scored above the threshold on the outcome measure (i.e., who reported high levels of depression

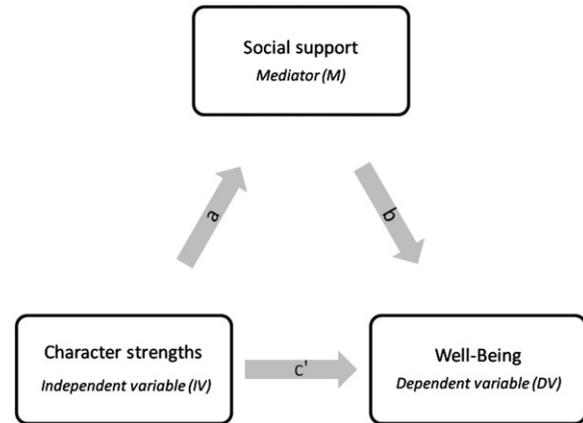


Figure 1. Proposed mediation pathway. The total effect (c') is composed of the direct (c') and indirect ($a \times b$) effects.

or life satisfaction) at one or more follow up assessments.

This is one of the first studies to explore the prospective relationship between the VIA strengths and well-being. Therefore, we erred on the side of detecting (rather than overlooking) possible relationships between strengths and well-being. In the spirit of exploration, we report the conventional and uncorrected level of significance ($p < 0.05$, two-tailed). To limit the number of analyses, we restricted analyses examining meaningful change and mediation to those strengths identified in step 1 that also uniquely predicted well-being in step 2.

Mediation analyses

We expected social support to mediate the relationship between other-directed and transcendence strengths and well-being (Figure 1). Mediation analyses focused on the first and third assessments (the first and last assessments at which all measures were available). We created residualized scores to reflect change in strengths and change in social support from baseline to the third assessment. We predicted well-being score at the last assessment, covarying baseline well-being. Depression was reverse scored in these analyses to simplify interpretation.

We tested for mediation using the bootstrapping approach recommended by Preacher and Hayes (2004, 2008; see also MacKinnon, 2008). Bootstrapping is a nonparametric procedure that uses resampling to generate an empirical approximation of the sampling distribution of a statistic. Bootstrapping is particularly useful with small samples because it does not assume effects are symmetrical or normally distributed. We used the SPSS macro developed by Preacher and Hayes (2008) with 5000 bootstrap resamples. We report estimates for the direct (c'), indirect ($a \times b$),

Table 2. Means (and SDs) at each assessment for the follow-up sample.

	9th grade fall	9th grade spring	10th grade fall	10th grade spring
<i>Strength factors</i>				
Transcendence	3.87 (0.66) N = 149	3.96 (0.63) N = 141	3.93 (0.64) N = 127	–
Temperance	3.58 (0.56) N = 149	3.67 (0.57) N = 141	3.66 (0.60) N = 129	–
Intellectual	3.79 (0.63) N = 149	3.90 (0.64) N = 142	3.89 (0.65) N = 129	–
Other-directed	3.83 (0.49) N = 149	3.90 (0.49) N = 141	3.84 (0.52) N = 129	–
Leadership	3.77 (0.49) N = 149	3.88 (0.50) N = 142	3.86 (0.53) N = 129	–
<i>Well-being</i>				
Depression (RADS-2)	58.2 (13.2) N = 149	54.87 (13.5) N = 142	55.8 (13.0) N = 133	52.5 (11.6) N = 117
General happiness (FEQ)	7.23 (1.98) N = 148	7.50 (1.70) N = 142	7.52 (1.66) N = 132	7.72 (1.29) N = 116
Time happy (%) (FEQ)	57.9 (21.8) N = 149	61.3 (24.5) N = 142	62.0 (22.3) N = 132	63.9 (21.0) N = 117
Life satisfaction (SLSS)	31.7 (7.2) N = 148	33.3 (6.6) N = 142	33.7 (6.1) N = 133	34.4 (5.4) N = 118
<i>Social support</i>				
Perceived social support	25.7 (8.4) N = 149	27.2 (9.0) N = 141	26.2 (9.8) N = 132	28.6 (8.0) N = 115

and total effects (c) shown in Figure 1, as well as the 95% bias corrected and accelerated confidence interval for the indirect (a × b) pathway (confidence intervals that do not include 0 denote significant effects). The results of bootstrapping analyses were virtually identical to results of analyses (not reported here) using Baron and Kenny's (1986) 4-step approach to mediation and the Sobel (1982) test.

Examining well-being as predictors of strengths

We examined the possibility that the relationship between strengths and well-being went in the opposite temporal direction from predicted (that well-being predicted future strengths) with MM ANCOVAs predicting strength composite scores during the spring of 9th grade and fall of 10th grade from well-being score at baseline, with baseline strength score covaried.

Results

Overview

Several character strengths predicted fewer symptoms of depression and higher life satisfaction. Other-directed strengths robustly predicted few depressive symptoms and transcendence strengths robustly predicted high life satisfaction. Social support partially mediated the relationship between other-directed strengths and low symptoms of depression. We found

little evidence for the opposite temporal relationship between strengths and well-being (i.e., that subjective well-being predicted subsequent strengths). We now describe these findings in detail.

Sample characteristics and attrition

Table 2 presents mean scores (and SDs) on the measures at each assessment point. On average, adolescents reported feeling happy more than 50% of the time. Mean happiness scores were between 7 ('Slightly happy, just a bit above neutral') and 8 ('Mildly happy, feeling fairly good and somewhat cheerful') at each assessment. Mean depression scores were in the range typically found for adolescents (Reynolds, 2002). At baseline, 17 (11%) of adolescents reported high levels of depressive symptoms (RADS-2 ≥ 76) and 64 (43%) reported high levels of life satisfaction (SLSS ≥ 35). At each follow-up assessment, between 5% and 10% of adolescents reported high levels of depression and 54–55% reported high levels of life satisfaction.

At baseline, the strengths composite scores correlated significantly and substantially with each other (all *r* values > 0.50). Strengths scores were associated with fewer symptoms of depression (all *r* values < –0.30), higher happiness and life satisfaction (all *r* values > 0.20), and higher social support (all *r* values > 0.40) (for details, see Table 3).

Table 3. Correlations between strength and well-being measures at baseline.^a

Measure	Mean	SD	N	Transcendence (VIA-Y)	Temperance (VIA-Y)	Intellectual (VIA-Y)	Other-directed (VIA-Y)	Leadership (VIA-Y)	Depression (RADS-2)	General happiness (FEQ)	Time happy (FEQ)	Life satisfaction (SLSS)
Transcendence (VIA-Y)	3.78	0.66	346	–								
Temperance (VIA-Y)	3.48	0.54	347	0.57	–							
Intellectual (VIA-Y)	3.72	0.64	347	0.54	0.55	–						
Other-directed (VIA-Y)	3.73	0.50	347	0.55	0.74	0.54	–					
Leadership (VIA-Y)	3.71	0.52	347	0.64	0.53	0.56	0.56	–				
Depression (RADS-2)	59.51	13.78	347	–0.66	–0.42	–0.30	–0.30	–0.36	–			
General happiness (FEQ)	7.07	1.99	346	0.69	0.33	0.28	0.28	0.39	–0.69	–		
Time happy (FEQ)	56.69	22.41	346	0.62	0.29	0.23	0.23	0.42	–0.60	0.68	–	
Life satisfaction (SLSS)	30.90	7.20	346	0.63	0.44	0.28	0.34	0.34	–0.67	0.66	0.55	–
Social support (PSS)	24.30	8.82	347	0.58	0.47	0.41	0.51	0.49	–0.43	0.38	0.32	0.41

Notes: This table reports correlations for the full study sample at baseline. Correlations for the 149 adolescents in the follow-up sample were similar.

VIA-Y = Values in Action Inventory for Youth; RADS-2 = Reynolds Adolescent Depression Scale, 2nd edition; FEQ = Fordyce emotions questionnaires; SLSS = Student Life Satisfaction Scale; PSS = Perceived Social Support Scale.

^aAll correlations are significant at $p < 0.001$.

Table 4. Stability in scores across time.^a

	Correlation (<i>r</i>) between scores at 9th grade fall and		
	9th grade spring	10th grade fall	10th grade spring
Strength factors			
Transcendence	0.75 <i>N</i> = 141	0.59 <i>N</i> = 127	
Temperance	0.79 <i>N</i> = 141	0.77 <i>N</i> = 129	
Intellectual	0.84 <i>N</i> = 142	0.77 <i>N</i> = 129	–
Other-directed	0.81 <i>N</i> = 141	0.79 <i>N</i> = 129	–
Leadership	0.76 <i>N</i> = 142	0.71 <i>N</i> = 129	
Well-being			
Depression (RADS-2)	0.62 <i>N</i> = 142	0.57 <i>N</i> = 133	0.53 <i>N</i> = 117
General happiness (FEQ)	0.62 <i>N</i> = 141	0.48 <i>N</i> = 131	0.47 <i>N</i> = 116
Time happy (%) (FEQ)	0.55 <i>N</i> = 142	0.52 <i>N</i> = 132	0.44 <i>N</i> = 117
Life satisfaction (SLSS)	0.62 <i>N</i> = 141	0.49 <i>N</i> = 133	0.41 <i>N</i> = 118
Social support			
Perceived social support	0.67 <i>N</i> = 141	0.52 <i>N</i> = 132	0.50 <i>N</i> = 115

Note: ^aAll correlations are significant at $p < 0.001$.

Scores on all measures improved significantly between the first and second assessments (all t values > 2.00 , all p values < 0.05), when students were adjusting to their new school. Depressive symptoms and social support improved again between the third and fourth assessments, all t values > 3.00 , all p values < 0.01 . Despite these changes, scores on strengths, well-being, and social support measures also showed some stability over time. For strength scores, correlations (all r values) between baseline and follow-up scores ranged from 0.59 to 0.84. For well-being and social support measures, all r values ranged from 0.41 to 0.67 (for details, see Table 4).

Of the 149 adolescents who began the study, 117 (79%) completed the last assessment at the end of 10th grade. Adolescents who completed the last assessment scored higher than those who did not on baseline measures of temperance, other-directed strengths, and leadership strengths, $t(147) = 2.52$, $p < 0.05$, $t(147) = 2.23$, $p < 0.05$, and $t(147) = 2.80$, $p < 0.01$, respectively. Thus, adolescents' strengths predicted their level of participation in the study. Adolescents who completed and who did not complete the last assessment did not differ significantly on other measures at baseline.

Do strengths predict well-being?

Depression

Adolescents who scored higher on temperance and other-directed strengths at the start of 9th grade reported fewer depressive symptoms through 10th grade, $t(136) = -2.32$, $p < 0.05$ and $t(138) = -3.26$, $p < 0.01$, respectively. Transcendence, intellectual, and leadership strengths did not predict depressive symptoms. In the stepwise analysis (when controlling for the effects of other strengths), only other-directed strengths predicted low symptoms of depression, $t(138) = -3.58$, $p < 0.001$. Leadership strengths tended to predict higher depression, $t(137) = 1.78$, $p < 0.10$. Of the 107 adolescents who reported low levels of depression at baseline and completed follow-up assessments, 15 (14%) reported high levels of depression at some point during the follow-up period. The logistic regression analysis revealed that low levels of other-directed strengths predicted the onset of high levels of depression during the follow-up period, $\chi^2(1, N = 107) = 7.57$, $p < 0.01$. Adolescents with low levels of other-directed strengths at baseline were at high risk for depression while adolescents with high other-directed strengths did not report elevated depression during the follow-up period (Figure 2).

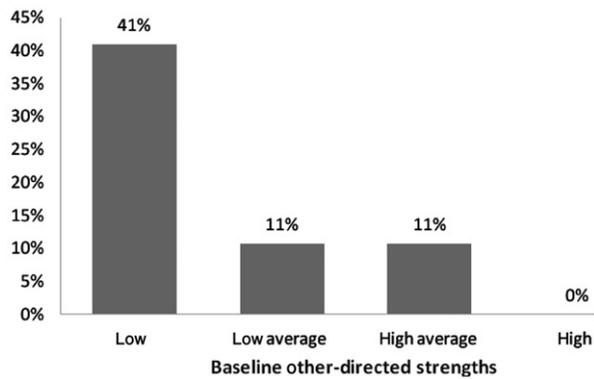


Figure 2. Onset of high depression symptoms (% with RADS-2 \geq 76) among adolescents with low baseline depression.

Happiness

When examined singly, none of the strengths significantly predicted adolescents' reports of happiness. In the stepwise analysis, transcendence strengths predicted higher happiness, $t(135)=1.99$, $p < 0.05$, and leadership strengths tended to predict lower happiness, $t(130)=-1.84$, $p < 0.10$.

Life satisfaction

Transcendence, temperance, other-directed, and intellectual strengths significantly predicted greater life satisfaction through 10th grade, $t(138)=3.42$, $p < 0.001$, $t(138)=2.49$, $p < 0.05$, $t(138)=2.85$, $p < 0.01$, and $t(137)=2.04$, $p < 0.05$. Leadership strengths did not significantly predict life satisfaction. In the stepwise analysis, transcendence strengths was the only significant predictor, $t(138)=2.43$, $p < 0.05$. Of the 72 adolescents who reported low levels of life satisfaction at baseline and completed follow up assessments, 43 (60%) reported high levels of life satisfaction at some point during the follow up. The logistic regression analysis revealed that, students who scored low on transcendence at baseline were less likely than their peers to report high life satisfaction during the follow-up period, $\chi^2(1, N=72)=9.24$, $p < 0.01$ (Figure 3).

Does social support mediate the relationship between strengths and well-being?

Mediation analyses explored the most robust strength-well-being relationships: the paths from other-directed strengths to low symptoms of depression and from transcendence to high life satisfaction. These analyses suggested that social support was a significant mediator (95% CI: 0.37–1.73), accounting for about 40% of the relationship between other-directed strengths and

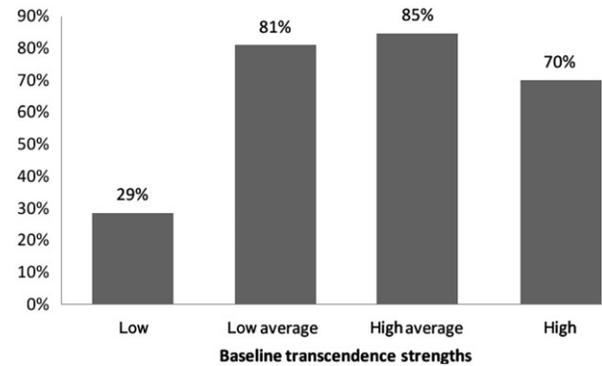


Figure 3. Onset of high life satisfaction (% with SLSS \geq 35) among adolescents with low baseline life satisfaction.

depression (Table 5). Social support did not mediate the relationship between transcendence and life satisfaction (95% CI: $-0.03-0.05$). Additional (exploratory) analyses supported a different pathway, from social support to transcendence to life satisfaction. Transcendence was a significant mediator (95% CI: 0.02–0.05), accounting for about 85% of the relationship between social support and life satisfaction.

Does well-being predict strengths?

We found little evidence that adolescents' subjective well-being predicted their subsequent strengths. Only one of the 15 analyses yielded significant results. Adolescents' reports of depressive symptoms at baseline predicted lower levels of intellectual strengths across the follow up, $t(138)=-1.99$, $p < 0.05$.

Discussion

Adolescents' character strengths predicted their subsequent well-being. Other-directed strengths (e.g., forgiveness, kindness, teamwork) and temperance (e.g., self-regulation, perseverance) at the start of high school predicted fewer symptoms of depression through the end of 10th grade. Transcendence (e.g., hope, gratitude, meaning), temperance, other-directed, and intellectual strengths (e.g., curiosity, love of learning) predicted higher levels of life satisfaction. These findings suggest that character strengths contribute to well-being during adolescence.

Strengths that promote connections to other people and to causes outside the self appear to be especially important. As expected, other-directed and transcendence strengths were strong predictors of well-being. Other-directed strengths predicted fewer symptoms of depression, even when controlling for the influence of the other types of strengths. Adolescents who scored

Table 5. Summary of mediation analyses (5000 bootstrapped samples).

Proposed pathway	Effect of IV on M	Effect of M on DV	Direct effect	Indirect effect	Total effects
	(a)	(b)	(c')	(a × b)	(c)
	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)
Other-directed strengths (IV) → perceived social support (M) → low depression (DV)	2.12** (0.34)	0.47** (0.11)	1.47* (0.48)	0.98* (0.28)	2.46** (0.44)
Transcendence strengths (IV) → perceived social support (M) → life satisfaction (DV)	2.09** (0.22)	0.00 (0.01)	0.16** (0.03)	0.01 (0.02)	0.17** (0.02)

Note: * $p < 0.01$, ** $p < 0.001$.

low on other-directed strengths at the start of 9th grade were much more likely than their peers to report high levels of depressive symptoms by the end of their 10th grade year. Transcendence strengths predicted life satisfaction, even when controlling for the influence of other types of strengths. Adolescents who scored low on transcendence at baseline were unlikely to report high life satisfaction during the first 2 years of high school. These findings illustrate the importance of developing positive relationships and of having dreams and a sense of purpose during adolescence.

Although we found evidence for a linear relationship between strengths and well-being (with higher strengths predicting greater well-being), subgroup analyses suggest that the bulk of the difference may lie between adolescents with low levels of strengths and those who report average strengths (Figures 2 and 3). Thus, interventions that target adolescents with low levels of strengths may be especially important.

Our findings raise the possibility that some character strengths have negative effects. Although transcendence, temperance, other-directed strengths, and intellectual strengths significantly predicted psychological well-being, leadership strengths did not. Moreover, in analyses that controlled for the effects of other strengths, leadership strengths tended to predict *higher* depression and *lower* happiness over time. These trends are intriguing, but should be interpreted cautiously. To our knowledge, other studies have not found negative effects of leadership strengths, and in this study, the negative effects only emerged when analyses controlled for other strengths. Nevertheless, the findings remind us that some strengths could be detrimental if employed in isolation from other strengths (Schwartz & Sharpe, 2006).

As leadership strengths can distinguish and separate a person from his/her peers, it may be particularly important to balance them with strengths that promote close connections to others. It is easy to imagine how strengths such as humor and bravery could backfire if

not accompanied by other-directed and temperance strengths such as kindness and prudence. These findings may suggest that people with high levels of leadership strengths could benefit from guidance in how to use these strengths in concert with their temperance, other-directed, and transcendence strengths. For example, an adolescent whose strength of humor is perceived as callous or hurtful to a peer can be encouraged to draw on his strength of prudence and ask himself: How might the other person interpret my joke? How can I use sarcasm less? In practice, however, strengths may rarely exist or be deployed in isolation from other strengths. Indeed, we found substantial correlations among the different strength factors at baseline, indicating that students with high leadership strengths are likely to have well-developed transcendence, temperance, and other-directed strengths as well.

It will be important for future research to explore the interplay among different strengths and to identify profiles or combinations of strengths that are most strongly linked to well-being. Some strengths may amplify or attenuate the effects of other strengths. Our study was not powered to examine complex relationships among strengths (e.g., through structural equation modeling).

Contrary to our expectations, adolescents' strengths did not reliably predict their reports of happiness. We believe this reflects a problem in measurement. Feelings of happiness are more transitory and are more vulnerable to the effects of momentary events than are depressive symptoms or cognitive judgments about overall life satisfaction (Eid & Diener, 2004). Questionnaires like the FEQ that ask participants to reflect on their average levels of happiness may be less valid indicators of positive emotion than methods that sample participants' day-to-day emotional experiences over a period of time. In addition, measures that place positive and negative emotion on a continuum (like the general happiness item on the

FEQ) are problematic because people who experience positive emotions frequently may also experience negative emotions frequently (Schimmack, Oishi, Diener, & Suh, 2000). Finally, global questions about 'happiness' may call to mind different kinds of experiences; some adolescents may have recalled positive emotions such as joy, while others reflected on their general contentment with life (their sense that life is going well or they are meeting their goals). In contrast, the depression and life satisfaction measures seem to capture narrower, less ambiguous constructs. This kind of 'noise' in the happiness measure may make it more difficult to find longitudinal effects on this outcome.

Future research will help to identify the mechanisms by which the VIA character strengths increase well-being. Such research is likely to have important implications for intervention and prevention work. For example, our mediation analyses suggest that other-directed strengths increase social support, which in turn protects against depression during adolescence. These findings are consistent with research showing that interpersonal interactions play an important role in the development of depression (Joiner, Coyne, & Blalock, 1999). Yet, most psychosocial interventions that target depression in youth teach skills to reduce pessimism and improve coping. The programs are designed to help youth to respond more adaptively to stress and adversity (Horowitz & Garber, 2006; Stice, Shaw, Bohon, Marti, & Rohde, 2009). We suggest that depression might also be relieved and prevented through interventions that focus broadly on building character strengths, especially strengths that are implemented day-to-day (not just when problems arise) to build and sustain positive relationships. Although transcendence was not a unique predictor of low depression symptoms in our study, other research suggests that building transcendence could relieve and prevent depression (Huta & Hawley, 2010).

Positive relationships are likely to be a cause and consequence of good character. Social support predicted increases in transcendence, while other-directed strengths predicted increases in social support. Thus, kindness, forgiveness, teamwork, and other social strengths may deepen our connections to others, and close connections to others may increase gratitude, hope, and meaning. The reciprocal relationship between social support and character is consistent with transactional models of development (Sameroff & Chandler, 1975). Longitudinal research with larger samples is needed to explore these complex relationships among character strengths, social interactions, and well-being over time. Such research can provide valuable information about how strengths develop, and how they can best be nurtured.

Our study focused on adolescents' subjective well-being – their feelings of happiness and depression, and their judgments about how their lives were going. These are important outcomes in adolescence and throughout life, but it will be important to extend this work to other outcomes, such as achievement, the quality of friendships and romantic relationships, community involvement, high risk behavior, and psychopathology. We expect different strengths to predict different outcomes, just as different strengths predicted depression and life satisfaction in our study. Research that examines a broad range of developmental outcomes will help to inform us about the strengths that are most important to cultivate in general, as well as the strengths that are most relevant to specific goals.

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