Once you have Acrobat Reader open on your computer, click on the Comment tab at the right of the toolbar:

This will open up a panel down the right side of the document. The majority of tools you will use for annotating your proof will be in the Annotations section, pictured opposite. We’ve picked out some of these tools below:

1. **Replace (Ins) Tool** – for replacing text.
   - Strikes a line through text and opens up a text box where replacement text can be entered.
   - **How to use it**
     - Highlight a word or sentence.
     - Click on the Replace (Ins) icon in the Annotations section.
     - Type the replacement text into the blue box that appears.

2. **Strikethrough (Del) Tool** – for deleting text.
   - Strikes a red line through text that is to be deleted.
   - **How to use it**
     - Highlight a word or sentence.
     - Click on the Strikethrough (Del) icon in the Annotations section.

3. **Add note to text Tool** – for highlighting a section to be changed to bold or italic.
   - Highlights text in yellow and opens up a text box where comments can be entered.
   - **How to use it**
     - Highlight the relevant section of text.
     - Click on the Add note to text icon in the Annotations section.
     - Type instruction on what should be changed regarding the text into the yellow box that appears.

4. **Add sticky note Tool** – for making notes at specific points in the text.
   - Marks a point in the proof where a comment needs to be highlighted.
   - **How to use it**
     - Click on the Add sticky note icon in the Annotations section.
     - Click at the point in the proof where the comment should be inserted.
     - Type the comment into the yellow box that appears.
5. **Attach File Tool** - for inserting large amounts of text or replacement figures.

Inserts an icon linking to the attached file in the appropriate place in the text.

**How to use it**

- Click on the Attach File icon in the Annotations section.
- Click on the proof to where you'd like the attached file to be linked.
- Select the file to be attached from your computer or network.
- Select the colour and type of icon that will appear in the proof. Click OK.

6. **Drawing Markups Tools** - for drawing shapes, lines and freeform annotations on proofs and commenting on these marks.

Allows shapes, lines and freeform annotations to be drawn on proofs and for comment to be made on these marks.

**How to use it**

- Click on one of the shapes in the Drawing Markups section.
- Click on the proof at the relevant point and draw the selected shape with the cursor.
- To add a comment to the drawn shape, move the cursor over the shape until an arrowhead appears.
- Double click on the shape and type any text in the red box that appears.
Personality Strengths as Resilience: 
A One-Year Multiwave Study

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Abstract

We examined how personality strengths prospectively predict reactions to negative life events. Participants were 797 community adults from 42 countries. At five points over the course of 1 year, participants completed a series of questionnaires measuring seven personality strengths (hope, grit, meaning in life, curiosity, gratitude, control beliefs, and use of strengths), subjective well-being, and frequency and severity of negative life events. Using hierarchical linear modeling with assessment periods nested within participants, results from lagged analyses found that only hope emerged as a resilience factor. To illustrate the importance of using appropriate lagged analyses in resilience research, we ran nonlagged analyses; these results suggest that all seven personality strengths moderated the effect of negative life events on subjective well-being, with greater strengths associated with healthier outcomes. To provide evidence that personality strengths confer resilience, a prospective examination is needed with the inclusion of events and responses to them. The use of concurrent methodologies and analyses, which is the norm in psychology, often leads to erroneous conclusions. Hope, the ability to generate routes to reach goals and the motivation to use those routes, was shown to be particularly important in promoting resilience.

Resilience

Early research characterized resilience as a trait (e.g., “ego resilience”) that reflects the ability to adaptively respond to and bounce back from adversity (Block & Block, 1980; Block & Kremen, 1996; Lazarus, 1993). Individuals higher in trait resilience tend to habitually use effective coping strategies that function as a protective reserve to draw upon when adversity arises (Fredrickson, Tugade, Waugh, & Larkin, 2003). There has even been the proposition of a “resilient personality,” representing a cluster of traits and coping strategies that contribute to healthy adjustment when confronted with setbacks (Skodol, 2010).

Several measures of trait resilience emerged from these conceptualizations (e.g., Block & Kremen, 1996; Connor & Davidson, 2003; Friborg, Hjemdal, Rosenvinge, & Martinussen, 2003; Smith et al., 2008; Wagnild & Young, 1993). While these measures are a tempting way to assess how resilient a person tends to be, they are limited by biases and broad item content. Memory does not possess a one-to-one correspondence with a person’s past and, instead, projects a bias that only increases over time (Walker, Skowronska, & Thompson, 2003). On average, people tend to view the past through rose-colored glasses, such that they are more likely to remember themselves as more resilient than reality. In addition, a person’s transient moods, emotions, and cognitions on the day of completing a self-report assessment can further distort their memory of prior resilience. For example, a happy mood will lead a person to view her responses to hardships as more successful than they actually are.
were (Schwarz & Clore, 2003). Similarly, self-enhancement and social desirability biases may lead a person to overestimate how resilient he was during a prior hardship or hypothetically when anticipating a hardship. In terms of item content, self-report measures typically contain vague item stems (e.g., “when something unforeseen happens” or “in difficult periods”; Friberg et al., 2003) that make it impossible to discern whether a person is responding to a traumatic event (e.g., sexual assault), an everyday stressor (e.g., traffic jam), or the large number of possibilities in between. Of these limitations, perhaps most important is the assumption that resilience is constant across time and context, an assumption that is largely ungrounded. A person may be resilient in response to the death of a close friend but devastated after losing a family member. Thus, caution is warranted when considering resilience as a stable trait (Bonanno & Diminich, 2013).

Rather than being a stable trait of a person, resilience has more recently been conceptualized as an interaction between an individual’s unique resources and the events he or she experiences (Norris, Stevens, Pfeiferbaum, Wyche, & Pfeiferbaum, 2008). Resilience is dynamic and depends on the context of life events and responses to them (Shiner & Masten, 2012). In this way, resilience is a series of mechanisms leading a person to be minimally impacted by adversity and, in turn, experience minimal functional impairment (Bonanno, 2005; Fletcher & Sarkar, 2013). A person is resilient when despite the presence of NLE, there is no sustainable decline in his or her well-being. Resilience factors, therefore, are best captured prior to NLE, with both predicting subsequent changes in SWB.

**Resilience and Personality**

The proposition that personality characteristics can be a source of resilience has roots in developmental research. A primary goal of developmental research is to identify what risk factors (e.g., traumatic experiences, chronic adversities) predict future psychopathology and related maladaptive outcomes. Accordingly, some researchers have turned their attention to strength-based models to examine the individual characteristics that, over time, increase the degree to which people will be resilient. Previously identified resilience factors include positive emotions (Fredrickson et al., 2003), flexible coping strategies (Bonanno, Pat-Horenczyk, & Noll, 2011), and self-enhancement biases (Bonanno, Field, Kovacevic, & Kaltman, 2002). Nonetheless, most conceptualizations suggest that at least some variance in resilient outcomes is attributable to personality (Bonanno & Diminich, 2013; Fletcher & Sarkar, 2013; Mancini & Bonanno, 2009).

As support for this proposition, in three studies, the Big Five personality traits Extraversion and Neuroticism strongly correlated with a measure of trait resilience (Campbell-Sills, Cohn, & Stein, 2006; Friberg, Barlau, Martinussen, Rosenvinge, & Hjemdal, 2005; Peng et al., 2012). However, each of these studies contains important limitations. First, resilience was measured with a single self-report questionnaire, which fails to capture individuals’ responses to ongoing NLE. Second, in studies of adults, there has been minimal use of longitudinal designs (for exceptions, see Gupta & Bonanno, 2010; Weems et al., 2007). Instead, personality characteristics and resilience are typically measured simultaneously at a single time point. A positive relationship is thought to imply a causal link between a given personality characteristic and the resilient response, based on the assumption that personality is defined by temporal stability. Challenging this assumption, although personality tends to stabilize in early adulthood, changes occur across the life span in response to intentional activity and environmental stimuli (e.g., Roberts, Walton, & Viechtbauer, 2006).

Researchers have also been interested in the influence of personality on reactions to life events. At least one longitudinal study failed to find support for personality traits as a moderator of individuals’ responses to life events (Yap, Anusie, & Lucas, 2012). In general, existing longitudinal studies tend to assess individuals once per year (or longer; e.g., Löckenhoff, Terracciano, Patriciu, Eaton, & Costa, 2009; Ludkte, Roberts, Trautwein, & Nagy, 2011; Specht, Egloff, & Schmukle, 2011). The problem with this strategy is that the data are unable to provide insight on the proximal effects of negative life events and the potential resiliency influence of personality. Studies that have examined the proximal effects of personality and life events on adjustment, such as the daily diary work of Longua, DeHart, Tennen, and Amel (2009), suggest that certain personality traits buffer against the adverse effects of NLE. While promising, the studies reviewed above focused only on the higher-order Big Five dimensions (not the lower-order facets) and have yet to explore other personality characteristics that might influence people’s responses to life events.

One subset of personality characteristics that appear promising as resilience factors is personality strengths. Several prominent models of personality strengths have emerged in the past decade (Buckingham & Clifton, 2001; King & Trent, 2013; Peterson & Seligman, 2004). Although terminology differs between models, scholars agree on core features of a “personality strength”—they are positive trait-like features of personality, embodied in thought, feeling, and behavior, that promote adjustment and adaptation. When used, personality strengths increase the likelihood of desirable outcomes, but these strengths are valued in their own right, irrespective of outcomes associated with their usage. That is, the possession of a personality strength is a valued asset. In considering where personality strengths fit into a larger taxonomy of personality, we offer insights from a three-level model (McAdams, 1995). At Level 1 are the personality traits or general behavioral tendencies that individuals possess ("having"; e.g., Big Five). At Level 2 are the life projects or personal strivings that guide an individual’s daily behavior and effort ("doing"). At Level 3 are the overarching life narratives with the attributions and mental interpretations about one’s past, present, and future that are an individual’s life story ("being"). Personality strengths are best conceptualized as a Level 1 construct in that they tend to be...
stable over time and represent the central, healthy trait-like characteristics of a person. A case could be made for placing personality strengths at Level 2, in that these strengths are motivational factors that lead to positive outcomes when used, but insufficient research is available to establish the link between the possession of strengths and their use and development (Biswas-Diener, Kashdan, & Minhas, 2011).

It is impractical to examine all purported personality strengths simultaneously. Researchers must identify a subset of personality strengths relevant to their research questions. Personality strengths in the current study were included if they met the criteria of trait-like features that promote adjustment, embodied in thoughts, feelings, and behaviors. For example, we did not include trait measures of one’s search for meaning and rumination because they are both consistently linked with maladjustment; we did not include one’s subjective level of happiness because although linked to adjustment, it does not represent a trait-like quality. The personality strengths included were as follows: hope—the ability to generate routes to reach goals (pathways) and the motivation to use those routes (agency; Snyder et al., 1991); grit—passion and perseverance toward consistent, long-term goals (Duckworth, Peterson, Matthews, & Kelly, 2007); meaning in life—the feeling that one’s life has a purpose and is significant (Steiger, Frazier, Oishi, & Käler, 2006); curiosity—the desire to seek out new knowledge and experiences (Kashdan et al., 2009); gratitude—the tendency to feel appreciative of benefits in one’s life (McCullough, Emmons, & Tsang, 2002); and control beliefs—the extent to which a person feels in control of whether or not good things happen to him or her (Haidt & Rodin, 1999). In addition to these measures of the possession of personality strengths, we directly assessed strength use—awareness and regular use of one’s unique capacities in everyday life, which shows trait-like features (Seligman, Steen, Park, & Peterson, 2005).

A common criticism of well-being researchers is that strengths are often studied in isolation, which prevents meaningful comparisons. Such an approach may lead to isolated strands without a coherent framework of how strengths relate to well-being. An alternative approach is to compare multiple strengths at once, clarifying which personality strengths relate to SWB and to what degree. In this way, researchers can identify which personality strengths most strongly or uniquely relate to important outcomes, a simultaneous approach that has been used elsewhere (Sheldon, Elliot, Kim, & Kasser, 2001; Sheldon, Jose, Kashdan, & Jarden, 2015). Although the personality strengths included in this study differ in important ways, they can be compared based on their effectiveness as resilience factors that promote adjustment following adversity.

### The Present Study

The goal of the present study was to advance resilience research by exploring whether certain personality strengths act as protective factors when individuals experienced NLE. Using a large international sample and multiwave study, we tested the extent to which possessing a personality strength buffered the effect of NLE on a person’s SWB. In an effort to demonstrate temporal relationships between personality and resilience, we moved beyond single time point assessments to test within-time point and 3-month lagged models.

We first made broad hypotheses about the set of personality strengths. When personality strengths were measured concurrently with SWB, we hypothesized that nearly all of them would be positively associated with our operationalization of resilience. On the contrary, when appropriately measured prior to SWB and NLE, we hypothesized fewer personality strengths would prospectively promote resilience.

Prior studies have found that the personality strengths included in this study relate to greater SWB at a global level, but not all may be relevant to resilience. That is, there are many pathways through which personality strengths can promote SWB, but not all may do so by mitigating the effects of NLE. Specifically, we expected the presence of hope, grit, and meaning in life before NLE to promote resilience. Past research has found that each of these three personality strengths mitigates the influence of NLE on several indicators of positive functioning, including life satisfaction (hope; Valle, Huebner, & Suldo, 2006), suicidal ideation (grit; Blalock, Young, & Kleiman, 2015), immune functioning (meaning in life; Bower, Kemeny, Taylor, & Fahey, 2003), and psychological well-being (meaning in life; Park; Edmondson, Fenster, & Blank, 2008). We offer hypothesized theoretical mechanisms for each of these three strengths. A hopeful person believes she can achieve goals and find workable solutions around obstacles. The hopeful person might interpret NLE as another obstacle and harness her energy and problem-solving skills to prevent decreases in SWB. Grit is similar to hope, with a future orientation and a behavioral tendency to persist when obstacles occur. Gritty individuals are defined by their ability to work through hardships, and grit might be harnessed as a source of stability. We expected the Persistence of Effort subscale to have a stronger influence than the Consistency of Interests subscale due to recent research comparing their relative effects on well-being (Bowman, Hill, Denson, & Bronkema, 2015). As for meaning in life, ascribing meaning to an NLE can help people manage the negative impact and dampen the impact on their SWB (Park, 2010). Individuals who score high on trait measures of resilience report finding more meaning in daily stressors and traumatic incidents (Tugade & Fredrickson, 2004). Taken together, we hypothesized that hope, grit, and meaning in life would act as prospective resilience factors by buffering the harmful effects of NLE.

### METHOD

#### Participants and Procedures

Data were collected from 797 adults from the community who completed the International Wellbeing Study (IWBS; www.wellbeingstudy.com). Recruitment for the IWBS included...
emailed and printed advertisements that were distributed to businesses, charitable organizations, various university departments, listservs, and online forums. Participants were from 42 countries, with most being from New Zealand (n = 258), the United States (n = 127), Hungary (n = 90), and Australia (n = 69). All other nationalities had fewer than 39 participants. Participants were 661 females and 136 males, with ages ranging from 18 to 81 (M = 39 years, SD = 14.31).

Upon entering the IWBS website, participants were asked to complete a series of questionnaires five times, every 3 months over the course of 1 year. The full battery of 20 scales contained 235 questions, and average completion time was 29 minutes. Participants were compensated with an entry into a drawing for one of 15 $100 (USD) vouchers, and they were provided with a summary of their scores compared to others who completed the assessment.

**Measures**

Eleven scales (94 items) from the total assessment battery were used for the present analyses.3 Most participants completed the assessment battery in English (71%). Where scales were already available in one of the desired 15 languages, that language translation was used. Where no translation was available from the English version to the required language, scales were translated by a native speaker of that language who had a bachelor’s degree in psychology or higher (most translators were master’s or PhD students in psychology familiar with psychometrics). Scales were independently cross-checked after translation by a second translator, and areas of disagreement were identified and resolved.

**Negative Life Events (NLE).** An abbreviated measure of NLE was created for the purposes of the study. Although valid adult NLE measures exist, their length increases participant burden (e.g., Sarason, Johnson, & Siegel, 1978). With an already lengthy assessment battery, a brief measure was desired. Creators of the IWBS generated five broad NLE items that sought to capture the diversity of NLE experienced by adults. Participants indicated whether one of five NLE occurred during the past 3 months: (a) You had a serious disagreement with another person, (b) You were injured or ill, (c) You experienced a significant financial loss or lost your job, (d) Someone you care about experienced a significant problem, or (e) You didn’t achieve something or obtain something that you wanted. Each event that occurred was rated from 1 (none) to 4 (a lot; 0 = the event did not occur) on “how much of a problem” it was. A composite score was created by summing the five items at baseline (M = 7.1, SD = 4.3) and each subsequent time point.

**Subjective Well-Being (SWB).** A composite score of SWB was created by using the five-item Satisfaction With Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985), the four-item Subjective Happiness Scale (SHS; Lyubomirsky & Lepper, 1999), and the 20-item Center for Epidemiological Studies–Depression Scale (CES-D; Radloff, 1977). Validity has been established in prior studies for the SWLS (Diener, Kahneman, & Helliwell, 2010), SHS (Shimai, Otake, Utsuki, Ikemi, & Lyubomirsky, 2004), and CES-D (Simonton, Fleck, Lucas, Bushnell, & LIDO Group, 2004).

Conventional models of SWB (e.g., Diener et al., 1985) include positive affect, negative affect, and life satisfaction. As the IWBS did not contain measures of positive and negative affect, we followed prior research (e.g., Sheldon et al., 2015) and used happiness in place of positive affect, and depressive symptoms in place of negative affect. Both pairs show strong correlations with the other (Watson, Clark, & Tellegen, 1988). In nonclinical samples, the CES-D measures general psychological distress rather than symptoms of clinical depression (Wood, Taylor, & Joseph, 2010). Therefore, the CES-D is an appropriate indicator of SWB and not mental disorder in our sample.

Exploratory factor analysis using principal-axis factoring was performed at each time point to confirm the unidimensionality of our SWB composite. At each time point, the first initial eigenvalue was greater (≥2.15) than the second and third (≤0.45). The standardized factor loading magnitudes for satisfaction with life (≥.71 to .78), subjective happiness (≥.79 to .83), and depression (≥.73 to −.77) were similar across the five time points. The initial eigenvalues clearly suggest a one-factor solution, and the standardized factor loading magnitudes justify our unit-weighted composite scores. A single SWB score at baseline and each subsequent time point was taken from the average of each scale after reversing the CES-D scores and standardizing all three variables (z-scores = .82, .84, .80, .81, .81).

**Hope.** The 12-item Adult Hope Scale (AHS; Snyder et al., 1991) measures a positive motivational state oriented toward achieving goals. The AHS assesses two facets of hope: Agency, or goal-directed energy (e.g., “I energetically pursue my goals”), and Pathways, or planning to meet goals (e.g., “I can think of many ways to get the things in life that are important to me”). Positive associations with optimism and self-esteem, and negative associations with depression and anxiety provide evidence for construct validity (Hollander & Snyder, 1990). Items were rated from 1 (definitely false) to 8 (definitely true) and summed to create a total scale score at baseline (M = 49.49, SD = 8.49) and each subsequent time point (z-scores = .87, .88, .88, .89, .89).

**Grit.** The 12-item Grit Scale (GS; Duckworth et al., 2007) measures a person’s perseverance in the face of challenges, and his ambition and passion in the pursuit of long-term goals, with two subscales: Perseverance of Effort (e.g., “Setbacks don’t discourage me”) and Consistency of Interests (e.g., “I often set a goal but later choose to pursue a different one”; reverse coded). The negligible association between grit and IQ demonstrates its discriminant validity as a measure of effort, not ability. Grit’s predictive validity is supported by relationships with achievement in academic and military settings (Duckworth et al., 2007).

Items were rated from 1 (not at all like me) to 5 (very much like...
Personality Strengths and Resilience

Table 1  Time 1 Zero-Order Correlations, Means, and Standard Deviations

<table>
<thead>
<tr>
<th>Variable</th>
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<th>12</th>
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<td>SWB</td>
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<td>1. NLE</td>
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<td>2. SWLS</td>
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<td>3. SHS</td>
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<td>4. CES-D</td>
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<td>5. AHS</td>
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<td>0.58</td>
<td>0.47</td>
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<td>6. Grit-POE</td>
<td>-0.05</td>
<td>0.30</td>
<td>0.35</td>
<td>0.32</td>
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<td>7. Grit-COI</td>
<td>-0.12</td>
<td>0.07</td>
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<td>8. MLQ-Pres.</td>
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<td>0.50</td>
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<td>9. CEI</td>
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<td>0.37</td>
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<td>0.48</td>
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<td>12. SUK</td>
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<td>0.46</td>
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<td>0.46</td>
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<td>7.37</td>
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<td>10.45</td>
<td>8.49</td>
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<td>0.80</td>
<td>0.81</td>
<td>0.77</td>
<td>0.74</td>
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</table>

Note. SWB = subjective well-being; NLE = negative life events; SWLS = Satisfaction With Life Scale; SHS = Subjective Happiness Scale; CES-D = Center for Epidemiological Study of Depression; AHS = Adult Hope Scale; POE = perseverance of effort; COI = consistency of interests; MLQ-Pres. = Meaning in Life Questionnaire–Presence subscale; CEI = Curiosity and Exploration Inventory; GQ-6 = six-item Gratitude Questionnaire; CBS = Control Beliefs Scale; SUK = Strengths Use and Knowledge. All correlations ≥0.07 are statistically significant (p < .05).

Measuring life. The 10-item Meaning in Life Questionnaire (MLQ; Steger et al., 2006) contains two five-item subscales. The Presence subscale measures hope-related beliefs about a person’s personal abilities in life, and the Search subscale measures hope-related beliefs about a person’s personal experiences in life. The four items from the Presence subscale were rated from 1 (absolutely untrue) to 7 (absolutely true). Items from the Presence subscale were rated from 1 (absolutely untrue) to 7 (absolutely true) and summed to create a total scale score at baseline (M = 49.49, SD = 3.56) and each subsequent time point (zs = .73, .76, .75, .79, .77, and z = .82, .85, .85, .86, .88, respectively). 389

Gratitude. The six-item Gratitude Questionnaire (GQ-6; McCullough et al., 2002) was used to assess the tendency to feel grateful and appreciate benefits in life. An example item is “I have so much in life to be thankful for.” Construct validity is supported by predictive validity of well-being above and beyond the Big Five personality traits (Wood, Joseph, & Maltby, 2009) and positive associations with positive affect and meaning in life. Items were rated from 1 (strongly disagree) to 7 (strongly agree) and summed to create a total scale score at baseline (M = 31.81, SD = 7.64) and each subsequent time point (zs = .88, .88, .89, .89, .89).

Control Beliefs. The four-item Control Beliefs Scale (CB; Bryant & Veroff, 2007) measures the degree to which a person believes that he or she can generate positive future outcomes. An example item is “In general, how much control do you feel that you personally have over whether or not good things happen to you?” Items were answered on varying 4-, 5-, and 7-point Likert scales. The four items were summed to create a total scale score at baseline (M = 25.21, SD = 6.74) and each subsequent time point (zs = .90, .92, .92, .93, .92).

Curiosity. The 10-item Curiosity and Exploration Inventory-II (CEI-II; Kashdan et al., 2009) measures tendencies to seek out new knowledge and experience. Two 5-item subscales measure Stretching (seeking out new knowledge and experiences; e.g., “I actively seek as much information as I can in new situations”) and Embracing (willingness to embrace novelty and uncertainty; e.g., “I am the type of person who really enjoys the uncertainty of everyday life”). Construct validity is supported by positive associations with psychological flexibility and openness to experience (e.g., Kashdan et al., 2013). Items were rated from 1 (very slightly or not at all) to 5 (extremely) and summed to create a total scale score at baseline (M = 31.81, SD = 7.64) and each subsequent time point (zs = .88, .88, .89, .89, .89).
RESULTS

Table 2 Landed and Nonlagged Personality Strengths Moderating the Effect of NLE on Subjective Well-being

<table>
<thead>
<tr>
<th>Personality Strength</th>
<th>Lagged Analyses</th>
<th>Nonlagged Analyses</th>
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</thead>
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<tr>
<td></td>
<td>Std. Coef.</td>
<td>95% CI Var. Comp.</td>
</tr>
<tr>
<td>NLE</td>
<td>-2.18***</td>
<td>[-2.43, -1.93]</td>
</tr>
<tr>
<td>Hope</td>
<td>0.234***</td>
<td>[0.199, 0.270]</td>
</tr>
<tr>
<td>Hope × NLE</td>
<td>0.028</td>
<td>[0.007, 0.050]</td>
</tr>
<tr>
<td>NLE</td>
<td>-0.212†</td>
<td>[-0.237, -0.187]</td>
</tr>
<tr>
<td>Strengths use</td>
<td>0.133†</td>
<td>[0.099, 0.167]</td>
</tr>
<tr>
<td>Strengths Use × NLE</td>
<td>0.022</td>
<td>[-0.000, 0.044]</td>
</tr>
<tr>
<td>MIL-Presence</td>
<td>0.147†</td>
<td>[0.113, 0.182]</td>
</tr>
<tr>
<td>MIL-Presence × NLE</td>
<td>0.021</td>
<td>[-0.001, 0.044]</td>
</tr>
<tr>
<td>Gratitude</td>
<td>0.155†</td>
<td>[0.122, 0.188]</td>
</tr>
<tr>
<td>Gratitude × NLE</td>
<td>0.020</td>
<td>[-0.002, 0.042]</td>
</tr>
<tr>
<td>NLE</td>
<td>-0.215†</td>
<td>[-0.240, -0.190]</td>
</tr>
<tr>
<td>Control beliefs</td>
<td>0.142†</td>
<td>[0.110, 0.173]</td>
</tr>
<tr>
<td>Control Beliefs × NLE</td>
<td>0.014</td>
<td>[-0.007, 0.017]</td>
</tr>
<tr>
<td>NLE</td>
<td>-0.209†</td>
<td>[-0.234, -0.184]</td>
</tr>
<tr>
<td>Curiosity</td>
<td>0.067†</td>
<td>[0.032, 0.103]</td>
</tr>
<tr>
<td>Curiosity × NLE</td>
<td>0.013</td>
<td>[-0.010, 0.035]</td>
</tr>
<tr>
<td>NLE</td>
<td>-0.212†</td>
<td>[-0.236, -0.187]</td>
</tr>
<tr>
<td>Grit-POE</td>
<td>0.093†</td>
<td>[0.057, 0.128]</td>
</tr>
<tr>
<td>Grit-POE × NLE</td>
<td>0.011</td>
<td>[-0.012, 0.034]</td>
</tr>
<tr>
<td>NLE</td>
<td>-0.209†</td>
<td>[-0.234, -0.184]</td>
</tr>
<tr>
<td>Grit-COI</td>
<td>0.045*</td>
<td>[0.010, 0.080]</td>
</tr>
<tr>
<td>Grit-COI × NLE</td>
<td>0.004</td>
<td>[-0.019, 0.027]</td>
</tr>
</tbody>
</table>

Note. NLE = negative life events; POE = perseverance of effort; COI = consistency of interests; MIL-Presence = Meaning in Life Questionnaire–Presence subscale; Var. Comp. = variance components, with the first row the autoregressive Level 1 variance, second row nonautoregressive Level 1 (i.e., residual) variance, and third row Level 2 (i.e., intercept) variance.

*p < .05. ***p < .01. ****p < .001.

Example items include “I know my strengths well” and “I always try to use my strengths.” Strengths use has been shown to predict vitality, positive affect, and self-esteem over time. In a comparison of positive psychology interventions, participants who used their “signature strengths” every day showed the largest and most stable increases in happiness over a 6-month period (Seligman et al., 2005). Items were rated from 1 (strongly disagree) to 7 (strongly agree) and summed to create a total scale score at baseline (M = 54.48, SD = 8.68) and each subsequent time point (as = .89, .89, .86, .91, .91).

RESULTS

Analytic Overview

To take full advantage of our multiple repeated measures over time, data were analyzed using multilevel modeling in SPSS 19.0. This procedure nests the five measurement time points within individuals to account for the dependencies inherent with repeated measures. We standardized all variables to z-scores to allow regression coefficients to be interpreted as standardized coefficients. This resulted in grand-mean centering and a combination of both between- and within-person associations between variables. We used an autocorrelated error structure to allow measurements at closer time points to be more highly correlated (Bolger & Laurenceau, 2013). We estimated only a random effect for intercepts, as none of our hypotheses concerned random effects for slopes.

The primary predictor (NLE) and personality strength moderators were grand mean centered to enhance interpretation of the main effects after the product term is included (Preacher, Curran, & Bauer, 2006). In multilevel modeling, random effects from less complex models can be used to calculate variance explained in the outcome variable (La Huis, Hartman, Hakoyama, & Clark, 2014). To calculate total variance explained, we used the equation from Snijders and Bosker (1994) that combines the Level 1 and Level 2 variance explained. As suggested, any negative variance explained was reported as zero.

We first tested a simple multilevel model where the frequency and intensity of past NLE predicted SWB. We expected to find a significant negative relationship. Next, we computed grand-mean–centered product terms between the NLE variable and each personality strength. Because there are benefits (e.g., statistical control) and costs (e.g., multicollinearity) to analyzing each strength separately, or in tandem, we performed both analyses. In the first stage of analyses, separate multilevel models were tested with three predictors: the main effect for NLE, the main effect for the personality
Descriptive Statistics

Means, standard deviations, and correlations at Time 1 are presented in Table 1. These descriptive statistics were similar across the five time points. In addition, the intra-class correlations are presented in Table T1. These descriptive statistics were similar across all five time points.

Nonlagged Analyses

In the nonlagged analyses, personality strengths were measured after the NLE had occurred and at the same time as the outcome SWB (i.e., misleading analysis). Results showed that each strength significantly moderated the effects of NLE on SWB, such that NLE were less harmful. The moderating effect remained statistically significant after controlling for the moderating influences of other strengths (Std. Coef. = -.045, t = 2.34, p < .05). No other personality strength product terms were significant, indicating no suppression effects (Tzelgov & Henik, 1991).

Main Effect of Negative Life Events

At baseline, 93.6% of participants endorsed at least one of the NLE; on average, 52.3% of participants endorsed any given NLE. These relative frequencies were similar across all five time points. As expected, greater frequency and intensity of negative life events over the past 3 months prospectively predicted worse SWB (Std. Coef. = -.190, t = -17.38, p < .001; variance explained = .032). We proceeded to test which personality strengths weakened this relationship.

Moderating Effects of Lagged Personality Strengths

When each of the seven personality strengths was tested separately in different models (i.e., Stage 1), only hope emerged as a significant moderator. Hope attenuated the harmful effects of negative life events on SWB (Std. Coef. = .028, t = 2.57, p < .01). Variance explained by the product terms is displayed in the ΔR² column in Table 2. Table 2 also presents the fixed effects and their associated significance for each personality strength and product term.

To probe the significant moderating effect of hope, we calculated the slope between NLE and SWB at one standard deviation above and below the sample mean of hope (i.e., simple slopes; Preacher et al., 2006). The effect of NLE was statistically significant at all three levels of hope; however, the effect was smaller in magnitude at higher levels of hope. At one standard deviation below the mean of hope, the NLE slope was strongest (Std. Coef. = -.246, t = -17.1, p < .001). At the mean of hope, the NLE slope was weaker (Std. Coef. = -.218, t = -15.1, p < .001). At one standard deviation above the mean, the NLE slope was even weaker (Std. Coef. = -.190, t = -10.9, p < .001). Figure 1 presents the simple slopes at one standard deviation above and below the mean of hope.

As a conservative test of hope’s significance, all personality strengths and their associated product terms were entered into a single model predicting SWB (i.e., Stage 2). Hope’s moderating effect remained statistically significant after controlling for the moderating influences of other strengths (Std. Coef. = .045, t = 2.34, p < .05). No other personality strength product terms were significant, indicating no suppression effects (Tzelgov & Henik, 1991).

Nonlagged Analyses

In the nonlagged analyses, personality strengths were measured after the NLE had occurred and at the same time as the outcome SWB (i.e., misleading analysis). Results showed that each strength significantly moderated the effects of NLE on SWB, such that NLE were less harmful. The results are presented in identical fashion to the nonlagged results (Table 2).
Correction for Multiple Comparisons

The large number of null hypothesis significance tests in the present study, 14, indicates the high risk for false positive (i.e., Type I) error. When one hypothesis test is conducted with an alpha level of .05, the probability of an incorrect rejection of the null hypothesis is 5%; this probability increases as the number of hypothesis tests increases. Because controlling for the false positive rate via the Bonferroni correction reduces statistical power, we controlled for the false discovery rate instead via the Benjamini-Hochberg (B-H) correction (Benjamini & Hochberg, 1995). The false discovery rate ensures—the of the hypothesis tests that were statistically significant—the probability of an incorrect rejection of the null hypothesis is 5%. The false discovery rate preserves statistical power while preventing a large number of erroneous significant effects. However, the procedure has a greater probability of Type I error compared with Bonferroni correction. With this new analytic approach, the following effects were no longer statistically significant: nonlagged effects for consistency of interests and gratitude. Accordingly, these effects should be interpreted with caution.

DISCUSSION

There is good reason to suggest that the most common reaction to adverse life events is resilience (e.g., Bonanno, 2005; Masten, 2001). Less is known about individual differences that increase the likelihood of resilient responses. Cross-sectional designs are a good first step, but alone they are insufficient to test scientific theories. Failure to properly account for temporal precedence can lead to erroneous conclusions about how personality strengths promote resilience in response to NLE. Results from the nonlagged analyses in the present study would lead readers to conclude that increasing almost any personality strength can promote resilience.

Lagged analyses, however, yielded a different conclusion about the effects of personality strengths on the relationship between NLE and SWB. In prospective models testing seven personality strengths, only hope emerged as a statistically significant resilience factor. Hope remained the only significant predictor when we tested all personality strengths simultaneously. Results from our longitudinal study suggest that for individuals low on hope, NLE were especially detrimental to future SWB; for individuals high on hope, NLE still decreased SWB, but to a lesser degree.

The Hopeful Person Is Resilient

We hesitate to emphasize the resilience power of hope over all the other personality traits. The moderation effect sizes for other personality traits (i.e., gratitude, meaning in life, strengths use) are similar to hope, and hope’s statistical significance may be partially attributable to the large sample size. More favorable than the significant versus nonsignificant dichotomy, the confidence intervals for each product term provided demonstrate how similar the moderation effects are for each personality trait (Cumming, 2013). Nonetheless, hope had the largest moderating effect and was the only statistically significant personality strength, and thus we offer suggestions for why hope might act as a resilience factor.

Hope is not synonymous with optimism, which is limited to the expectation of positive future outcomes (Bryan & Cynegros, 2004). Hope, in contrast, captures the belief that multiple paths can be taken to flexibly manage obstacles, and there is sufficient vitality to put these plans into action to make progress toward meaningful goals (e.g., Snyder et al., 1991); in some ways, the operationalization of hope is similar to conceptual descriptions of psychological flexibility (i.e., the ability to pursue valued aims despite the presence of pain and other obstacles; Kashdan & Rottenberg, 2010). Our results extend prior cross-sectional research that suggests hope attenuates the relationship between NLE and depression symptoms (Visser, Loess, Jeglic, & Hirsch, 2013), as well as research into the treatment of post-traumatic stress disorder that suggests hope can buffer the most severe events of loss and adversity (Gilman, Schumm, & Chard, 2012).

How might hope act as a resilience factor? Researchers suggest that a hopeful person does four things: positively interprets failures, identifies goals, identifies resources for goal attainment, and addresses barriers to goal attainment (Snyder, 1995; Snyder et al., 1991). Each of these strategies may promote resilience. Positively interpreting failures allows a hopeful person to use external attributions to explain and persist through setbacks. For example, many NLE (including an item from our measure: “You didn’t achieve something or obtain something that you wanted”) involve thwarted goal attainment. The hopeful person might attribute this failure to poor strategy rather than lack of ability. In the face of setbacks, hopeful individuals use their goal-oriented flexibility to discover and implement new strategies to find success.

The Other Personality Strengths

Contrary to expectations, grit and meaning in life did not act as significant resilience factors against NLE. We expected gritty individuals to persist through NLE with smaller dips in SWB because of their ability to persevere through adversity, but this was not borne out in our results. Gritty people have high rates of goal attainment and success, but research is less clear on how grit promotes SWB. It may be that the relationship between SWB and grit is best explained by goal attainment (which is better captured by the pursuit within the construct of hope), or that grit is most helpful for SWB when paired within particular personality configurations. Our measure captured a broad range of NLE, with only one item related to thwarted goal attainment. It is possible that the protective effects of grit may be strongest in the context of NLE that are related to goal attainment.

The hypothesis that meaning in life would be a resilience factor was not supported. We expected individuals high in trait
LIMITATIONS

Several study limitations warrant discussion. Resilience is a broad construct that can be measured in several ways. The present study measured resilience as a person’s SWB in response to NLE, which differs from models that measure resilience as change or loss in functioning. Future research could include occupational, social, and physical functioning as outcomes in addition to SWB (McKnight & Kashdan, 2009). Our measure of adversity was limited to a pre-established list of NLE, and it is possible that other important NLE occurred throughout the course of the study. Most measures of NLE include events that are assumed to be severe (e.g., illness, job loss), but responses to daily stressors also contribute to resilience (Davis, Luecken, & Lemery-Chalfant, 2009) by inoculating individuals for future, potentially severe stressors. Additionally, the emphasis on NLE excludes the possibility that seemingly positive events influence resilience (e.g., a job promotion with increased responsibilities).

We used a global measure of well-being (Diener and colleagues’ [1985] model of SWB). Results may have differed if specific facets of well-being were analyzed separately, such as Ryff’s psychological well-being model (1989) or measures of psychological dysfunction (e.g., anxiety); notably, evidence suggests that these various dimensions tend to load strongly on a single dimension of well-being (e.g., Disabato, Goodman, Kashdan, Short, & Jarden, in press).

CONCLUSION

Among seven candidate personality strengths, this study found that only hope operates prospectively as a resilience factor. We offered multiple explanations related to goal pursuit, flexibility, and attainment to explain why hope buffers against NLE. Every human being seeks to handle adversity with aplomb such that their quality of life is only temporarily disrupted before returning to normalcy or even improving from lessons learned. This work offers new insights into personality dimensions, with the potential to increase the probability of desired outcomes.

The current study demonstrates that researchers, practitioners, and policy makers must carefully attend to measurement and analytical strategies when interpreting resilience research. Research must move beyond trait resilience questionnaires and cross-sectional designs. Misleading findings could result in resource expenditures with minimal gains in understanding and/or improving desirable outcomes.

Notes

1. Research on child and adolescent resilience is more often longitudinal in nature, likely because of the assumed changes in personality over that developmental period.
2. One common term is character strengths; however, character strengths are defined by consideration of morality and virtue (Peterson & Seligman, 2004). For instance, why would perseverance, one of the character strengths in the Peterson and Seligman taxonomy, be considered a moral virtue, whereas the dimension of conscientiousness in the Big Five is not? We believe this taxonomy of character strengths reflects a narrow framework, as there are plenty of adaptive personality traits that are central to the field that appear to be strengths (e.g., Emotional Stability, Openness to Experience, Agreeableness).
4. We conducted identical analyses using the Agency and Pathways subscales separately and found similar results. In nonlagged analyses, Hope-Agency \((b = .002, t = 4.75, p < .001)\) and Hope-Pathways \((b = .002, t = 4.39, p < .001)\) both moderated the effect of NLE on SWB. In lagged analyses, Hope-Agency \((b = .001, t = 2.62, p < .01)\) and Hope-Pathways \((b = .001, t = 2.42, p < .05)\) both moderated the effect of NLE on SWB.
5. We conducted identical analyses using a total scale score for grit and found similar results. In nonlagged analyses, grit moderated the effect of NLE on SWB \((b = .012, t = 3.84, p < .001)\). In lagged analyses, grit was not a significant moderator \((b = .003, t = .82, p = .41)\).
6. Although the main effect of each personality strength was not of substantive interest, Cohen (1978) showed it is important to control for the main effect of the moderating variable. This prevents arbitrary scale dependency from impacting the effect size and statistical significance of the product term.

7. If all 19 hypothesis tests were completely independent, the study-wide false positive rate would be \( 1 - (1 - \cdot 05)^{19} = .62 \) (Tabachnick & Fidell, 2001). When hypothesis tests are highly dependent, as in the present study, the rate is much lower. Unfortunately, an exact rate is never known due to the unknown dependency parameter.

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**DECLARATION OF CONFLICTING INTERESTS**

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