Examining Associations Between Major Negative Life Events, Changes in Weekly Reports of Post-Traumatic Growth and Global Reports of Eudaimonic Well-Being

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Abstract
Research on post-traumatic growth (PTG) has been compromised by methodological limitations. Recent process-oriented accounts of personality suggest, however, that positive changes may occur through short-term (i.e., state-level) changes in PTG. In the current year-long study, 1,247 participants provided weekly reports of significant negative events as well as state manifestations of PTG (up to 44 assessments per individual; 34,205 total). Trait assessments of eudaimonic well-being (EWB) were administered at intake and Weeks 45 and 52. Experiencing negative life events predicted increases in state PTG, which in turn predicted increases in EWB. However, stability was observed when modeling prospective changes in overall state PTG before and after the initial negative life event or across all negative life events occurring during the study time frame. These findings highlight the importance of studying PTG-related processes using appropriate research designs, analytic strategies, and time frames.

Keywords
personality change, post-traumatic growth, psychological well-being, major life events, state assessments

Can adversity change us, or our lives, for the better? Researchers in psychology have become increasingly interested in studying positive changes in individuals’ personality and well-being after the occurrence of highly significant life events (Jayawickreme et al., 2021; Linley & Joseph, 2004; Tedeschi et al., 1998). Social scientists studying post-traumatic growth (PTG) have suggested that people frequently identify positive changes in their relationships, identities, and worldviews after overcoming stressful events, and critically, that this process may lead to greater adjustment over time (Infurna & Jayawickreme, 2021; Jayawickreme & Blackie, 2014).

However, little is known about how people may experience positive changes in the aftermath of major life events (Mangelsdorf et al., 2019) and the extent to which PTG is indeed linked to better adjustment (Tennen & Affleck, 2009). This is due in part to methodological limitations in current research on PTG, which is dominated by retrospective assessments of subjective perceptions (i.e., measures of people’s own perceptions of change), rather than documented pre–post changes over time (Frazier et al., 2009). Do major negative events impact our well-being by changing how we see and feel about ourselves, our relationships, and the world on a day-to-day basis (i.e., state-level manifestations of PTG and well-being)? In addition, given the methodological limitations of past examinations of PTG, What is the most appropriate way to model postadversity change (Infurna & Jayawickreme, 2019)? and What are the implications of the choices we make for the conclusions we draw and how we proceed with future work (Chopik, 2021)? In the present study, we aimed to add to current research on PTG by investigating changes in well-being resulting from the experience of major negative life...
events as well as clarifying the underlying processes of such changes.

PTG

As explained above, PTG has been defined as positive psychological change experienced as a result of the struggle with highly challenging life circumstances (Tedeschi & Calhoun, 2004). PTG focuses on how negative events may serve as a springboard for growth. The five common forms of PTG (improved relations with others, identification of new possibilities for one’s life, increased personal strength, spiritual change, and enhanced appreciation of life) may be understood as aspects of eudaimonic well-being (EWB), which emphasizes meaning, purpose, personal growth, and improved personal relationships (Joseph & Hefferon, 2013; Joseph et al., 2012; Linley & Joseph, 2004).

A growing literature has reported that some individuals grow and develop in the aftermath of personal adversity (Jayawickreme & Blackie, 2014; Tedeschi et al., 1998), including experiences of bereavement, military combat, cancer diagnosis, heart attacks, and HIV (Tedeschi & Calhoun, 2004). The veracity of such retrospective self-perceived growth, however, has been much debated (Blackie et al., 2015; Jayawickreme & Blackie, 2014). Despite broad interest in the phenomenon of PTG (Jayawickreme et al., 2021), it remains unclear what self-reports of PTG in fact reflect (Frazier et al., 2009; Jayawickreme & Infurna, 2021; Jayawickreme et al., 2018). Although it is possible that perceptions of PTG in the wake of adversity may reflect meaningful transformation (Tedeschi & Calhoun, 2004), these self-reports may also constitute a coping strategy to manage negative emotions resulting from the adverse event (Frazier et al., 2016; McFarland & Alvaro, 2000). Thus, to truly understand the occurrence and the process of PTG, it is necessary to supplement retrospective self-reports with other methods for detecting change over time.

Examining PTG as Positive Personality Change

Manifestations of phenomena like personality, well-being, and PTG can be measured in different timescales: the trait level, which reflects more stable characteristics, and the state level, which reflects shorter term manifestations (e.g., fluctuating day-to-day experiences). EWB and PTG have been assessed at both the trait and state levels (Blackie et al., 2017; Jayawickreme et al., 2020). Although EWB has been shown to be quite stable (Costa et al., 1987), its development across the life span has been characterized by changes based on age and developmental stage (Ryff & Singer, 1998). Recent research and theorizing on personality development further suggest that life events may impact people’s levels of well-being by changing their state-level patterns of thoughts, feelings, and behavior (Blackie & Jayawickreme, 2015; Blackie et al., 2014; Jayawickreme & Mendonça, 2021; Jayawickreme et al., 2019; Wrzus & Roberts, 2017).

According to whole trait theory (Jayawickreme et al., 2019), for example, individuals display more or less of a certain personality trait depending on the characteristics of the situation they find themselves in as well as their motivation to pursue various goals (McCabe & Fleeson, 2012). Although individuals’ trait EWB tends to be stable when they report how they generally feel, their day-to-day EWB (at the state-level) fluctuates depending on situations and events in their lives. Following an adverse event, individuals may be motivated by both their goals and their altered situation to change their current state (i.e., their immediate behaviors, thoughts, and/or feelings). This short-term change may have consequences: For instance, it may lead to successful coping with the event, which in turn reinforces those state-level changes and leads to longer lasting trait change (Jayawickreme et al., 2018; Wrzus & Roberts, 2017). Through these linked processes, factors at a macro level (e.g., negative life events) change well-being through microprocesses (e.g., state changes in PTG following those events; Jayawickreme & Mendonça, 2021). There is initial empirical support for the idea that negative life events may lead to personality changes through state changes, such as the relationship between EWB-promoting behaviors and subsequent well-being (Steger et al., 2008).

Method

In the present study, we used an intensive microlongitudinal design to test whether the experience of major negative life events over the course of 1 year was associated with changes in state PTG and subsequent changes in trait EWB, as well as the prospective impact of major negative life events on state PTG.

Participants and Procedure

Participants were recruited online through the survey company Qualtrics Panels. Inclusion criteria specified that participants must be aged 18 years or older and have had at least 2 years of active participation in the market research panels from which Qualtrics Panels is permitted to recruit. Participants who met these criteria were emailed by Qualtrics Panels with information about the study and a link to our survey and the informed consent document, which they signed before starting the survey.

Participants were first asked to complete an intake survey consisting of questions on mental health, well-being, personality, demographic information, and lifetime trauma history. They then completed a total of forty-four 5-min surveys over the course of 1 year (with no survey on the week of each major U.S. holiday). These weekly 5-min surveys (Weeks 1–52) asked questions concerning whether the participant had experienced any major negative events during that week, daily positive and negative interactions they experienced that day, and their current standing on PTG-relevant domains. In Weeks 45 and 52, we repeated the personality, mental health, and well-being measures administered at intake. As recommended by Qualtrics, participants were paid in line with current reward
incentives at the time of data collection (January 2016–February 2017) offered in these market research panels. Participants were compensated US$0.25 for every survey completed, with a reward incentive of an additional US$0.50 per survey if they completed a minimum of 40 surveys.

The initial sample consisted of 1,247 adults, with a mean age of 36.50 years (standard deviation [SD] = 11.17). Approximately half (51%) of the participants were women; 84% identified their race as White, 9% as African American/Black, 4% as Asian, and 3% as Other. At Week 52, the final survey was completed by 658 participants, 49% of whom were women (see Table 1 for detailed participant characteristics).

A comparison of participants with PTG data at each time point versus participants with missing PTG data suggested that complete cases were older (49.38 vs. 45.41 years old), had higher levels of PTG Item 3 (reporting close interpersonal experiences; 3.74 vs. 3.58 points) at T1, and had a different distribution of education compared to participants missing PTG data (see Online Supplementary Table 1).

### Measures

**Trait well-being.** EWB at the trait level was measured using the Brief Inventory of Thriving (Su et al., 2014). This 10-item questionnaire assesses multiple domains of EWB by asking participants to rate statements (e.g., “I am achieving most of my goals”) on a scale from 1 = *strongly disagree* to 5 = *strongly agree*. Higher scores indicate a higher level of positive functioning. We consider this measure a trait-level measure of EWB because the measure was explicitly developed to capture a comprehensive set of domains relevant to EWB at the dispositional level (see Su et al., 2014, table 1, p. 253). The observed reliability was $\omega_{\text{between}} = .96$ at the between-person level, and $\omega_{\text{within}} = .81$ at the within-person level.

**Negative life events.** Negative life events were assessed using an adapted version of the Major Life Events Checklist (Lüdtke et al., 2011). Sixteen items assessed the number of major negative life events that may have happened to the participant during the study are reported in Table 2. For each event that the participant answered “yes” to, they then indicated how positive and how negative they felt about the event on a scale of 0–100.

| Negative Life Event                                      | n  | %  | Mean Negativity Rating (SD) |
|----------------------------------------------------------|----|----|------------------------------|
| Separated from spouse or long-term partner               | 69 | 6  | 44.05 (23.29)               |
| Serious personal injury or illness to self               | 178| 14 | 64.73 (36.27)               |
| Serious personal injury or illness to close relative/family member | 258 | 21 | 69.42 (35.58)               |
| Death of spouse or child                                 | 30 | 2  | 41.98 (38.10)               |
| Death of other close relative/family member              | 212| 17 | 64.06 (38.76)               |
| Death of a close friend                                  | 192| 15 | 63.45 (38.40)               |
| Victim of physical violence (e.g., assault)              | 44 | 4  | 47.83 (39.38)               |
| Victim of property crime (e.g., theft, housebreaking)    | 69 | 6  | 54.97 (39.16)               |
| Detained in jail/correctional facility                   | 27 | 2  | 40.27 (36.10)               |
| Close family member detained in jail/correctional facility | 70 | 6  | 48.60 (37.89)               |
| Fired or made redundant by an employer                   | 54 | 4  | 49.74 (37.84)               |
| Major worsening in financial situation (e.g., went bankrupt) | 137| 11 | 68.35 (37.82)               |
| A weather-related disaster (e.g., flood, bushfire, cyclone) damaged or destroyed your home | 50 | 4  | 42.81 (35.67)               |
| A fire/explosion damaged or destroyed your home/property  | 20 | 2  | 34.39 (33.83)               |
| Victim of sexual assault/violence                        | 28 | 2  | 40.60 (36.02)               |
| Serious transportation accident (car accident, boat accident, shipwreck, and airplane crash) | 56 | 4  | 49.04 (38.28)               |
| At least one negative life event                         | 600| 48 |                              |
| Total N                                                  | 1,247|100 |                              |

Note. Negativity ratings are on a 0–100 scale.
appreciation of life. The items for personal strength (“Today, I felt very capable in what I did”) and personal relationships (“Today, I felt close and connected with other people who are important to me”) were based on Heppner et al.’s (2008) adaptation of a “Need Satisfaction” Scale (Sheldon et al., 2001). The items for spirituality (“Today the spiritual part of my life was very important to me”) and awareness of new possibilities (“Everywhere I went, I was out looking for new things or experiences”) were adapted from a measure created to investigate the relationship between curiosity and well-being in daily life (Kashdan & Steger, 2007). The item for appreciation of life (“Today, I felt appreciative”) was adapted from a measure created to assess the relationship between gratitude and well-being in daily life (Emmons, McCullough, & Tsang, 2003). Participants were asked to rate each statement on a scale from 1 = strongly disagree to 5 = strongly agree. The observed reliability was $\omega_{\text{between}} = .89$ at the between-person level and $\omega_{\text{within}} = .69$ at the within-person level.

**Analytic Approach**

We conducted analyses using MPlus Version 7 (Muthén & Muthén, 2012). We first conducted a multilevel confirmatory factor analysis (ML-CFA) on the state PTG items to test whether a one-factor model fit the data, using fit criteria including comparative fit index (CFI) $\geq .90$ and root mean square error of approximation (RMSEA) and standardized root mean squared residual (SRMR) $\leq .08$ (Hu & Bentler, 1999); we did not expect the $\chi^2$ test to be nonsignificant given its sensitivity to sample size (Kline, 2015). The analyses used robust maximum likelihood estimation and full-information maximum likelihood to deal with missing data. Standardized path coefficients are reported.²

We examined four sets of structural equation models to test our main hypotheses:

1. **Negative Life Events, PTG, and EWB Mediation Model**: The primary models used linear latent growth curve submodels to estimate latent slopes representing changes in PTG over time (T1–T51) and changes in psychological well-being over time (T0–T52). The number of negative life events was included as a predictor of both the change in PTG and EWB and change in PTG predicted change in EWB (see Figure 1). We estimated the same models described above using the individual PTG items in separate models.

2. **Subjective Ratings of Negative Life Events, PTG, and EWB Mediation Model**: As a sensitivity analysis, we estimated a similar model (as in Model 1 above) in which we replaced the number of negative life events with participants’ own subjective ratings of how negative these events were; the purpose of this was to determine whether results hold when using more subjective versus more objective indicators of the level of adversity participants

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**Figure 1.** Changes in state post-traumatic growth mediate the relationship between negative life events and trait eudaimonic well-being. Note. Gender and age are included as covariates but not shown in this figure for parsimony/ clarity.
experienced. We also estimated the same models described above using the individual PTG items in separate models.

3. First Negative Life Event-Related Change in PTG Trajectory: The next set of models focused on assessing the shape of the potential negative life event-related change in PTG. More specifically, we examined whether the first negative life event reported in the study predicted changes in PTG trajectory. In order to test the potential effect of negative life events on PTG, we estimated PTG growth curves with “first negative life event elevation change” (Model 1), “first negative life event slope change” (Model 2), and both potential elevation and slope change (Model 3) predictor variables at Level 1 (see Online Supplementary Table 2). We also estimated the same models described above using the individual PTG items in separate models.

4. Cumulative Negative Life Event-Related Change in PTG Trajectory: Finally, we estimated the same models described above (in bullet point 3) but assessed the potential cumulative effects of negative life events instead of just the first life event reported in the study (see Online Supplementary Table 2). In other words, in order to test the potential effect of negative life events on PTG, we estimated PTG growth curves with “Cumulative Negative Life Event Elevation Change” (Model 1), “Cumulative Negative Life Event Slope Change” (Model 2), and both potential elevation and slope change (Model 3) predictor variables at Level 1 (see Online Supplementary Table 2). We also estimated the same models described above using the individual PTG items in separate models.

### Confirmatory Factor Analysis

The one-factor ML-CFA model fit the weekly PTG data well: \(\chi^2(10) = 140.26, p < .001; \ CFI = .99; \ RMSEA = .019; \ SRMR_{\text{Within}} = .016; \ SRMR_{\text{Between}} = .035.\) All factor loadings were \(\geq .41\) with \(p\) values less than \(.001,\) and 95\% confidence interval (CI) limits ranging from \(.39\) to \(.96.\)

### Changes in PTG and EWB

Means, SDs, and sample size at each time point for PTG as well as the intercept and slope from a linear growth curve model for
PTG are displayed in Online Supplementary Table 3. These data suggest that average PTG was relatively stable over time (as indicated by a zero slope). The SDs were also relatively stable over time. Means, SDs, and sample size for EWB at Time 0, 45, and 52 as well as the intercept and slope from a linear growth curve model for EWB are displayed in Online Supplementary Table 4. As with PTG, the data suggest that average EWB was relatively stable over time (as indicated by a zero slope). The SDs were also relatively stable over time. We note that even though the slope variance point estimates for both PTG and EWB were close to zero, they were highly statistically significant (z values of 9.50 and 4.52, respectively, both ps < .001; 95% CI [.00006, .0010] and 95% CI [.00003, .00009], respectively). These small but highly significant estimates may be because latent growth curve models with three or more waves of data produce true score change parameter estimates that are adjusted for measurement error. In studies with only two waves, large individual differences in change scores might be due to measurement error that cannot be separated from true change (Singer & Willett, 2003).

Models 1 and 2: Is the experience of major negative life events over the course of 1 year associated with changes in state PTG and subsequent changes in trait EWB?

### Negative life events

#### Overall PTG

The model with negative life events as the main predictor fit the data well: $\chi^2(1,288) = 2,517.28, p < .001$; CFI = .95; RMSEA = .028, 90% CI [.026, .029]; SRMR = .056. Negative life events predicted increases in PTG ($\beta = .20, p = .016, 95\% \text{CI} [.04, .37]$), and in turn, increases in PTG predicted increases in EWB ($\beta = .49, p < .001, 95\% \text{CI} [.34, .63]$). These results indicate that changes in PTG mediated the effect of life events on changes in EWB ($\beta = .10, p = .027, 95\% \text{CI} [.01, .19]$; see Figure 1). The direct effect of negative life events on changes in EWB was not significant ($\beta = -.05, p = .23, 95\% \text{CI} [-.12, .03]$). In a follow-up model with just negative life events predicting changes in EWB (i.e., without PTG in the model), the direct effect was not significant ($\beta = .03, p = .26, 95\% \text{CI} [-.02, .09]$). In other words, negative life events had no direct effect on changes in well-being;
however, experiencing negative life events predicted greater positive changes in state PTG, which in turn predicted greater positive changes in EWB (Figure 1).

**PTG domains.** The separate models with the individual PTG items fit the data well (see Online Supplementary Table 5). In general, the pattern of results observed using the composite PTG scale (i.e., all five items) was replicated with the individual items except for Item 4 (“Today, I felt very capable in what I did”; see Table 3).

### Subjective ratings of negative life events

**Overall PTG.** The model for the sensitivity analysis with subjective ratings of negative events as the main predictor fit the data well: $\chi^2(1,288) = 2,522.62, p < .001; \text{CFI} = .95; \text{RMSEA} = .028, 90\% \text{CI} [.026, .029]; \text{SRMR} = .057$. Subjective ratings of negative life events did not predict changes in either PTG ($\beta = -.06, p = .30, 95\% \text{CI} [-.17, .05]$) or EWB ($\beta = .01, p = .84, 95\% \text{CI} [-.11, .13]$). However, changes in PTG did predict changes in EWB ($\beta = .47, p < .001, 95\% \text{CI} [.33, .62]$).

### Models 3 and 4: Does the Experience of Major Negative Life Events Lead to Changes in the Manifestation of State PTG?

#### First negative life event

**Overall PTG.** In the models with the composite PTG scale as the outcome, the elevation and slope change predictor variables were not significant (see Table 5). In other words, there was no significant immediate increase in state-level PTG after the first negative event a participant experienced in the study time frame.

**PTG domains.** In general, the pattern of results observed using the composite PTG scale (i.e., all five items) was replicated with the individual items except for Items 3 (“Today, I felt close and connected with other people who are important to me”; see Table 3).
close and connected with other people who are important to me”) and 4 (“Today, I felt very capable in what I did”; see Table 5). Specifically, for Item 3 models, the first negative life event predicted a subsequent increase in the PTG trajectory slope (Model 2, \(b = 0.002; p = 0.043\); Model 3, \(b = 0.002; p = 0.051\)). For Item 4 models, the first negative life event predicted subsequent decreases in the level of the PTG trajectory (Model 1, \(b = -0.059, p = 0.005\); Model 3, \(b = -0.061, p = 0.004\)). In other words, participants tended to experience increased feelings of connection/closeness but decreased feelings of mastery immediately after the first negative event experienced in the study time frame and no other significant changes in other PTG domains.

Cumulative negative life events

Overall PTG. In the models with the composite PTG Scale as the outcome, the elevation and slope change predictor variables were not significant (see Table 6). \(^5\) In other words, there were no significant increases in state-level PTG following the negative events a participant experienced in the study time frame.

PTG domains. In general, the pattern of results observed using the composite PTG scale (i.e., all five items) was replicated with the individual items except for Items 4 (“Today, I felt very capable in what I did”) and 5 (“Everywhere I went, I was out looking for new things or experiences”; see Table 6). More specifically, for Item 4 models, cumulative negative life events predicted a decrease in the level of the PTG trajectory (Model 1, \(b = -0.012; p = 0.038\); Model 3, \(b = -0.017; p = 0.025\)). In Item 5 Model 3 with both the elevation and slope change predictor variables, cumulative negative life events predicted an increase in the level of the PTG trajectory (Model 3, \(b = 0.016; p = 0.015\)). In other words, participants tended to experience an increased sense of new possibilities but decreased feelings of personal strength or mastery after the negative events experienced in the study time frame and no other significant changes in other PTG domains.

Discussion

We examined whether the experience of major negative life events over the course of 1 year was associated with changes in state PTG and subsequent changes in trait EWB, as well as the prospective impact of major negative life events on state PTG. As seen in the results for Models 1 and 2, mean levels of state PTG exhibited high levels of stability over the course of the year. Despite this stability, we found that the experience

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Table 6. Unstandardized Estimates From Models Testing Cumulative Negative Life Event-Related Changes in PTG Trajectory.

|                | PTG Interct | PTG Week Slope | NLE DisCon | NLE Slope |
|----------------|-------------|-----------------|------------|-----------|
| PTG Scale (all five items) |             |                 |            |           |
| 0: Week only   | 3.358***    | .000            | —          | —         |
| 1: NLE DisCon  | 3.359***    | .000            | .000       | —         |
| 2: NLE slope   | 3.358***    | .000            | —          | .000      |
| 3: NLE DisCon + slope | 3.354***    | .000            | .000       | .000      |
| PTG Item 1—Today, I felt appreciative |             |                 |            |           |
| 0: Week only   | 3.492***    | .000            | —          | —         |
| 1: NLE DisCon  | 3.497***    | .000            | -.007      | —         |
| 2: NLE slope   | 3.491***    | .000            | —          | .000      |
| 3: NLE DisCon + slope | 3.5***      | .000            | -.014      | .000      |
| PTG Item 2—Today, the spiritual part of my life was very important to me |             |                 |            |           |
| 0: Week only   | 3.164***    | .000            | —          | —         |
| 1: NLE DisCon  | 3.162***    | .000            | .001       | —         |
| 2: NLE slope   | 3.166***    | .000            | —          | .000      |
| 3: NLE DisCon + slope | 3.158***    | .000            | .014*      | .000      |
| PTG Item 3—Today, I felt close and connected with other people who are important to me |             |                 |            |           |
| 0: Week only   | 3.506***    | -.001*          | —          | —         |
| 1: NLE DisCon  | 3.506***    | -.001**         | .003       | —         |
| 2: NLE slope   | 3.514***    | -.001**         | —          | .000      |
| 3: NLE DisCon + slope | 3.508***    | -.001**         | .000       | .000      |
| PTG Item 4—Today, I felt very capable in what I did |             |                 |            |           |
| 0: Week only   | 3.752***    | -.002***        | —          | —         |
| 1: NLE DisCon  | 3.758***    | -.002**         | -.012*     | —         |
| 2: NLE slope   | 3.752***    | -.002**         | —          | 0         |
| 3: NLE DisCon + slope | 3.759***    | -.002**         | -.017*     | .000      |
| PTG Item 5—Everywhere I went, I was out looking for new things or experiences |             |                 |            |           |
| 0: Week only   | 2.862***    | .002***         | —          | —         |
| 1: NLE DisCon  | 2.856***    | .002**          | .008       | —         |
| 2: NLE slope   | 2.861***    | .002**          | —          | .000      |
| 3: NLE DisCon + slope | 2.846***    | .002**          | .016*      | .000      |

Note. NLE = negative life events; PTG = post-traumatic growth.
of negative life events across a 1-year period predicted increases in state-level manifestations of PTG over the course of the year. This relationship between changes in state PTG and trait EWB over a 1-year period was in line with accounts of dynamic personality change (e.g., Wrzus & Roberts, 2017). While this relationship was observed even after accounting for the initial status of both PTG and EWB, we note however that this may also in part reflect both similarity in content and methods effects (e.g., self-report), which might obscure the substantive relationship between the two constructs.

Additionally, increases in state-level PTG predicted increases in trait-level EWB and mediated the effect of negative life events on trait EWB. In other words, as the number of major negative life events increased, state PTG tended to increase, and these gains predicted increases in trait-level EWB over the year. At first glance, these results provide an account of the process by which trait-level EWB may change in the wake of major negative events, consistent with both contemporary accounts of dynamic personality change (Jayawickreme et al., 2018; Jayawickreme et al., 2020; Wrzus & Roberts, 2017) and theoretical accounts of PTG (Joseph et al., 2012; Tedeschi & Calhoun, 2004): that is, negative events may lead to PTG-related thoughts, feelings, and behaviors in daily life, which then lead to increased well-being.

However, the results of Models 3 and 4 cast doubts on the causal role of life events on immediate changes in PTG. Specifically, overall state PTG remained stable when examining change prospectively both following the initial negative life event and across all life events. At the item level, a modest decrease in personal strength was observed. These results suggest that at least in the short term, people on average do not shift in their daily manifestation of PTG in the immediate wake of major negative life events (and furthermore experience a negative shift in their sense of personal strength). They further align with past research showing that PTG is not a typical response in the wake of adversity and is a rarer phenomenon than is often assumed (Frazier et al., 2009) and shed light on the time course of PTG. It has been suggested that PTG may often take significant time to emerge (e.g., Tedeschi & Calhoun, 2004), although people have also reported increases in PTG in the immediate aftermath of adversity (e.g., Danhauer et al., 2013, 2015) and more time may not necessarily translate into more opportunity for growth to unfold (see Marzialiano et al., 2020, for a recent meta-analysis).

These results contribute to the debate about the developmental trajectory of PTG occurring over an extended period (Seery et al., 2010) by suggesting that levels of PTG may not immediately increase following a negative event, even though PTG may more gradually emerge over the course of the year. In other words, in the immediate aftermath of adversity, the focus for most people may be more on managing or coping with the event rather than experiencing positive changes. This is consistent with our finding that participants experienced a decreased sense of mastery in the wake of negative events, suggesting that they may have been devoting their emotional and attentional resources to restabilizing their lives (rather than transforming the event into growth at such an early stage). It may be that once this stabilization happened, individuals were better able to devote their psychological resources to growth as the year continued.

Another possibility is that while immediate growth was not observed on average among the participants, we did not assess key moderators that may influence whether a given individual experiences PTG in the immediate aftermath of an event. For example, individuals who receive greater social support following the negative life event may experience growth following adversity, while those left without such support do not grow (Mancini, 2019). More generally, the divergent findings of our models highlight the importance of using appropriate approaches to modeling and analyzing data on PTG. Specifically, the present results show how differences in methodological approaches can lead to different conclusions about whether people grow following adversity (Chopik, 2021; Infurna & Jayawickreme, 2019).

One strength of this study was the weekly assessment of the number and affective ratings of negative life events, which reduced the possibilities for inaccurate self-reporting (Jayawickreme et al., 2021; Wrzus et al., 2021). We did not however measure other characteristics of the events. It is likely that other life event characteristics, over and above their affective quality, may predict changes in state PTG and trait EWB (Luhmann et al., 2020). Future research should examine whether specific characteristics of major life events (e.g., predictability, perceived controllability, acute vs. chronic nature) predict positive changes. For example, Boals (2010) found that the subjective evaluation of the event’s impact on one’s sense of self was more critical for self-reported PTG rather than whether the event met the official clinical criteria defining trauma.

Another strength of this study was that we examined weekly state-level assessments of PTG in this study. Although this allowed us to gain a snapshot of participants’ experiences across 1 year, it is possible that more intensive assessment (such as using experience sampling [ESM] multiple times per day, e.g., Blackie et al., 2017) could provide a more detailed within-person account of changes in daily behavior in the wake of adversity due to fewer issues with retrospective bias in recall (Fleeson, 2014). A multiwave ESM design would provide this type of data. However, we note that while ESM studies have advantages and some research on PTG has used this design (Blackie et al., 2017), careful consideration is needed regarding how PTG is defined in these studies. As noted by Blackie et al. (2017), some domains of PTG are less suitable for ESM because they are less likely to show sufficient variability hour by hour (e.g., searching for new possibilities in life) whereas other domains (e.g., spiritual well-being) are likely more variable across the day and thus more suited to ESM designs.

We note some limitations with the current study. First, the sample recruited for this study mostly comprised established adult U.S. residents. Although this sample was quite representative of the general population in terms of gender and other characteristics, future research should examine samples in
other cultures where beliefs about growth and redemption from adversity may differ from the U.S. context (McLean et al., 2020). Second, many of the participants experienced adverse events that fell short of the clinical diagnostic criteria for trauma, and we did not assess symptoms of post-traumatic stress disorder or other mental health disorders; thus, these data may not reveal how these processes may play out in individuals experiencing severe trauma or psychopathology. Third, these results do not reveal how coping with a new negative event may differ for people with or without prior histories of trauma from earlier periods in their lives; past research suggests that lifetime adversity may influence functional impairment with moderate levels predicting the most adaptive levels of functioning (Seery et al., 2010). Finally, we had a somewhat high attrition rate across the year that we conducted the study.

In summary, the present study both provides a novel paradigm for examining processes associated with PTG using both valid assessments and an appropriate research design and highlights the importance of utilizing appropriate analytic strategies for testing specific research questions. We hope that future research will adapt similar designs (ideally over longer time periods with an examination of additional social-contextual factors) and the methodological limitations of past work on PTG and uncover new insights into how people can recover and potentially benefit from adversity.

**Authors’ Note**

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**Supplemental Material**

The supplemental material is available in the online version of the article.

**Notes**

1. Other measures of personality and well-being not relevant to the current study were also included. Also, these analyses were not preregistered.
2. Syntax for these analyses is available at https://osf.io/rtzh4/?view_only=ae479165c70f424ba91de30c455d4cc2d
3. We thank a reviewer for suggesting that we run Models 3 and 4.
4. We thank a reviewer for suggesting that we include the item-level analyses in this article.
5. For both the entire Post-Traumatic Growth Scale as well as the five individual items, the models with just the slope change effect (Model 2)—as well as the model with both the level and slope change effects (Model 3) for Item 3—would not converge. These models produced parameter estimates, but not standard errors. Because the average effect as well as the variance of the slope change effect were close to zero, we were able to get the models to converge by constraining the average and variance of the effect to zero. However, by constraining the effect, we cannot test it.

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