The impact of life events on person-centered personality consistency

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Author Note

All code to reproduce analyses, the data codebook, and supplementary materials are available at: https://osf.io/e2hma/. All data are freely available via application and/or data use agreements at the links specified in each dataset's "Participants" subsection in the methods. This study's design and its analyses were not pre-registered. Neither author has any conflicting interests to report.

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Abstract

Few environments reliably influence mean-level and rank-order changes in personality – perhaps because personality development needs to be examined through an individualized, personcentered lens. The current study used Bayesian multilevel linear models to examine the impact of life events on changes in ipsative consistency across four to 10 waves of data with four datasets (N = 24,491). Both between- and within-person effects were found for various life events. Selection effects were found for events such as marriage, (un)employment, retirement, and volunteering whereas between-person effects for slopes were found for events such as widowhood, beginning schooling, employment, and retirement. Within-person changes, when present, were typically brief and negative, suggesting life events serve as a short-term disruption to the personality system. However, there were many individual differences around event-related trajectories. Our results highlight that the effects of life events depend on how personality, and changes in it, are quantified – with these findings underscoring the utility of a person-centered approach as it can capture the full range of these idiosyncrasies. Overall, these findings suggest that life events have differential impacts on people and that life events can serve as a short-term, destabilizing shock to one's personality system.

Keywords: life events; personality development; environmental factors; ipsative consistency; profile correlations; person-centered

The impact of life events on person-centered personality consistency

Life events are thought to impact personality development (Specht et al., 2014, Roberts & Jackson, 2008). While the influence of life events has been thoroughly examined with respect to variable-centered approaches, such as mean-level change (e.g., Denissen et al., 2019) and rank-order stability (e.g., Specht et al., 2011), fewer studies have investigated how environments impact person-centered personality change (c.f. Jackson & Beck, 2021). This is unfortunate as the typical variable-centered approach does not permit a holistic view of event-associated changes and often assumes that people change similarly in the response to a life event, thus masking any unique responses to life events.

Person-centered approaches, in contrast, do not require comparison to other people as variable-centered approaches typically do. Person-centered approaches to personality development, such as through the use of individual profile (ipsative) correlations, compare the relative rankings of attributes within an individual over time, so change is defined only with respect to their previous scores. Of the common ways to conceptualize personality development and change (i.e., mean-level change, rank-order stability), ipsative consistency is the only perspective that allows for this holistic view of within-person personality stability. Past ipsative development work shows that people are relatively consistent in their profiles across time (Terracciano et al., 2010; Wright & Jackson, in press). However, few studies have looked at environmental influences in profile consistency, in part because past research has typically relied on single, and at maximum two, assessments of ipsative consistency. Recently, Wright and Jackson (in press) examined repeated measures of profile consistency to investigate trajectories of person-centered personality consistency. They identified considerable individual differences in person-centered trajectories. Likely sources driving these idiosyncratic patterns of ipsative

consistency are environmental factors, both broad (e.g., culture, geographical location) and narrow (e.g., individually experienced life events) in variety.

The current study examines the impact of environments for person-centered trajectories of change. In doing so, we use item-level profile correlations across four to 10 waves of personality data with four datasets (N = 24,491). Changes in consistency will be examined as a function of life events (e.g., getting married, getting divorced, having a child) and broad country-level effects. We will examine both within-person (i.e., comparing a person's own trajectory prior to and after their reported life event) as well as between-person effects (i.e., selection effects and comparing consistency for those who experience an event versus those who do not).

Stability and Consistency of Personality

Although general trends of stability in personality emerge between- and within-people, personality traits are also malleable qualities that can vary over time (Bleidorn et al., 2013; Roberts & Mroczek, 2008). Of the multiple ways to conceptualize personality change (Roberts et al., 2008), population mean-level changes are historically the most examined. A related form of change is that of individual differences in mean-level changes, which reflect unique changes that can differ from the typical population-level changes (e.g., Mrozcek & Spiro, 2003). In contrast to absolute changes, changes at the relative level are also examined. Rank-order stability, which occurs at the population level, represents the relative ranking of individuals on average levels of a single trait (e.g., Roberts et al., 2008; Vaidya et al., 2008).

Less examined is ipsative or profile consistency. This type of change occurs at the individual level and represents the relative consistency of the configuration of traits within a single person across time (Asendorpf, 1992; De Fruyt et al., 2006; Klimstra et al., 2009; Donnellan et al., 2007; Jackson & Beck, 2021; Ozer & Gjerde, 1989; Roberts et al., 2014;

Robins & Tracy, 2003). Of the perspectives outlined thus far, ipsative consistency is the only one that takes into account multiple aspects of personality – as opposed to examining a single trait at a time – and thus is referred to as person-centered as opposed to variable-centered. In general, people show moderate to high levels of profile consistency (Wright & Jackson, in press).

Despite these high average profile consistency estimates, there are considerable individual differences around them (Asendorpf & van Aken, 1991; Ozer & Gjerde, 1989; Terracciano et al., 2010; Wright & Jackson, in press). These individual differences could occur because of dispositional qualities whereby some people are more or less mutable, in general. Alternatively, it could be outside forces that result in changes to one's environment that could lead to decreases in ipsative consistency. Wright and Jackson (in press) find that people tend to maintain their person-typical levels of consistency across multiple assessments across multiple years, such that regardless of if someone has a profile correlation value of .30 or .80, they are stable in this level of consistency across time. Despite these mostly stable levels of consistency, though, some people changed in their consistency — similar to individual differences in mean-level personality change. While consistency was mostly stable, some people increased, while others decreased in their consistency. The finding of individual differences in changes in profile consistency opens up the possibility that outside forces shape one's personality consistency.

Environmental Impacts on Personality Development

Theoretical perspectives on personality development typically propose that biological factors, environmental factors, or a combination of both are the proponents for driving personality change (Specht et al., 2014). The impact of environments can range from affecting gene expression (Roberts & Jackson, 2008), to influencing the environments an individual selects into based on their genetically-predispositioned qualities (Scarr & McCartney, 1983), and

to transactional processes whereby the behaviors and roles an individual maintains in a certain environment proceed to reinforce certain attributes (Roberts & Wood, 2006). Theories such as genotype → environment effects (Scarr & McCartney, 1983), the dynamic equilibrium model (Heady & Wearing, 1989; Ormel et al., 2012), and the neo-socioanalytic theory (Roberts & Wood, 2006) all vary with regard to the amount of indirect versus direct influence environments have, but all acknowledge the role that an individual's environment has on shaping personality.

Among possible environmental factors, life events are a common candidate for examining the environmental impacts on personality development. Life events can be defined as "time-discrete transitions that mark the beginning or the end of a specific status" (Luhmann et al., 2012). Life events are valuable environmental factors to study as they can occur both through selection on behalf of the individual (e.g., applying and getting a new job) or unexpectedly (e.g., suddenly experiencing widowhood) and can serve as a stabilizing environmental force (such as through a decades-long marriage) or a destabilizing force (such as job loss).

Past work has examined the impact of life events on some aspects of personality development (Bleidorn et al., 2018). For example, Specht et al. (2011) examined the effects of a variety of life events on personality mean-levels and rank-order stability. Life events were associated with decreased rank-order stability (Specht et al., 2011), suggesting that their experience may be driving individual differences. In addition, Denissen et al. (2019) examined the effect of different life events on personality trait change across multiple waves. This study did find some average effects of life events impacting personality trait development, as well as individual differences around event-related trajectories.

In addition to identifying trait-level effects, a key component of the effects of life events is their timing and duration. In line with work in the well-being literature, it is possible that

7

following an event, any changes an individual experienced would "bounce back" and their levels would return to their set-point after enough time passes (Lykken & Tellegen, 1996). Some life event research has indeed found that, depending on the event, some bouncing back does appear to occur (Denissen et al., 2019; Schwaba & Bleidorn, 2019). This possibility highlights that it is necessary to evaluate if any observed changes endure over longer periods of time. Furthermore, separating anticipatory changes from changes following the onset of an event is needed (van Scheppingen et al., 2016). For example, when examining between-group differences in personality for individuals who began using substances, the most pronounced group differences for users versus non-users appeared to be attributable to anticipatory changes at the within-person level, suggesting it is not always the event itself (i.e., initiating substance use) directly leading to these changes (Wright & Jackson, 2022).

As seen in the previous paragraphs, the effects of life events on personality development – particularly changes in mean-levels of single traits – have been frequently examined. Although, despite the amount of research, mixed effects still tend to emerge for given life events across different studies (e.g., marriage; Neyer & Asendorpf, 2001; Specht et al., 2011); changes vary in detection, magnitude, and duration depending on the timeframes they are examined within (Denissen et al., 2019; van Scheppingen et al., 2016); and the direction of changes appear to contradict what some prominent theories of personality development would predict (i.e., Social Investment Theory; van Scheppingen et al., 2016). It could be that life events are complicated to study and have many nuanced effects; alternatively, it could also be the case that this variable-centered approach has its limitations. That is, the focus on a single trait at a time does not permit one to obtain a holistic view of personality development at the individual level.

Effects of Life Events on Person-Centered Personality Development

Person-centered approaches allow a potentially better lens by which one can examine the effects of life events on personality development, as it tests whether someone's entire personality system is affected, highlighting people rather than specific variables. If the lack of replicable mean-level changes due to life events is due to life events having unique effects for each person, such that life events are impactful, but impactful in different ways, then life events will not be associated with mean-level changes. Moreover, environmental factors such as life events are often found to have widespread effects in more than one domain of life, requiring an individual to adapt to (possibly multiple) new behaviors, routines, or perceptions (i.e., through new social roles/titles). Together, a holistic point of view offered by person-centered approaches may be a better lens to examine environmentally induced changes in personality.

Compared to the preponderance of research focusing on variable-centered approaches to the effects of life events, relatively little has been done from the perspective of person-centered approaches. When examining the influence of life events on ipsative change, Jackson and Beck (2021) found primarily null or small effects for all life events except for mental health events using two waves of data and comparing groups that did and did not experience a life event. Additionally, a study examining idiographic structural change found that although some people showed multivariate change over the course of the study, these individualized points of change had little concordance with their reported life events (Beck & Jackson, 2021).

However, it is worth noting that the past work on ipsative change was limited to two waves, making it difficult to ascertain whether life events impacted one's profile consistency to the point if it was or was not distinguishable from the typical patterns of change from a person across time. Additionally, the past person-centered work was all conducted exclusively with one sample per study, rendering the generalizability of its findings to different contexts, groups of

people, or even countries difficult.

Current Study

In contrast to standard mean-level and rank-order perspectives of personality change and development, ipsative consistency allows for a holistic examination of each individual's personality configuration across time. As such, it may offer new insights into how beneficial or disruptive life events may be in the scope of their entire personality.

We investigate the within- and between-person effects of 21 life events on personality development through the lens of individual test-retest, item-level profile correlations for the Big Five traits. We do this across four to 10 waves of personality data in four longitudinal panel studies, each of which are from a different region of the world. This not only gives some insight into the replicability of these trends, but also an indication of possible broader environmental or cultural influences that might account for between-study discrepancies.

We aim to answer three primary questions. First, are life events associated with betweenperson differences in person-centered personality consistency? Second, are life events associated with changes to within-person trajectories of personality consistency? Third, are the results consistent across datasets, suggesting the impact of life events is generalizable?

Methods

Participants

In this paper, we use data from N = 24,491 total participants from four longitudinal panel datasets (see Table 1). Participants were included in the present study if they had at least four waves of data for the Big Five trait items. The number of participants with four waves was 14,233; five waves was 6,600; six waves was 598; seven waves was 646; eight waves was 785; nine waves was 1617; and 10 waves was 12. Results from attrition analyses are in File S1. The

Institutional Review Board (IRB) at Washington University in St. Louis deemed this project exempt from IRB approval because it involves accessing publicly available datasets and thus does not meet federal definitions under the jurisdiction of an IRB (IRB ID#: 202205175).

Table 1Descriptive Information by Study

	GSOEP	HILDA	HRS	LISS	Total
Sample Size (<i>N</i>)	8,023	6,518	3,591	6,359	24,491
Age(M)	53.93	50.50	69.89	52.15	53.92
Age(SD)	15.50	16.01	9.18	17.06	16.41
% Female	53	55	61	54	55
# of Personality Waves (M)	4.67	4.00	4.00	6.46	4.87
# of Personality Waves (SD)	0.47	0.00	0.05	1.95	1.44
Years Between Personality Waves (M)	3.58	4.00	3.99	1.68	3.01
Years Between Personality Waves (SD)	0.89	0.00	0.12	0.81	1.25

Note. M = mean. SD = standard deviation. Age = age across all available waves.

German Socioeconomic Panel (GSOEP) Study

The GSOEP study (Socio-Economic Panel, 2018) is an ongoing longitudinal study conducted by the German Institute of Economic Research (DIW Berlin) collecting data on individuals in more than 11,000 German households. Data are freely available by application at https://www.diw.de/soep. Data collection began in 1984 and continues annually, with the latest release in 2021. The sample from this dataset consisted of N = 8,023 individuals (see Table 1).

Household Income and Labour Dynamics in Australia (HILDA) Study

The HILDA study (Watson & Wooden, 2012) is an ongoing longitudinal study collecting data on more than 17,000 individuals in Australian households. Data are freely available by application at https://melbourneinstitute.unimelb.edu.au/hilda/for-data-users. Data collection began in 2001 and has continued annually, with the latest release in 2020. The sample from this dataset consisted of N = 6.518 individuals (see Table 1).

Health and Retirement Study (HRS)

HRS (Juster & Suzman, 1995) is an ongoing longitudinal study of more than 35,000

individuals from in households in the United States. Data are freely available at https://hrs.isr.umich.edu. Data collection began in 1992 and continues biennially, with the latest release in 2020. The sample from this dataset consisted of N = 3,591 individuals (see Table 1). Longitudinal Studies for the Social Sciences (LISS)

LISS (Scherpenzeel & Das, 2010) is an ongoing longitudinal study of approximately 8,000 Dutch-speaking individuals from 5,000 households in the Netherlands. Data are freely available through application at https://statements.centerdata.nl/liss-panel-data-statement. Data collection began in 2007 and has continued annually, with the latest release in 2021. The sample from this dataset consisted of N = 6.359 individuals (see Table 1).

Measures

Big Five

All items were scored such that higher scores indicated greater levels of the trait and lower scores indicated lower levels. Neuroticism was coded as emotional *instability*. The number of items and specific content of items varied across studies (see Table S1 for items and internal consistency estimates per study), but full content for all items per study can be found in File S2. For GSOEP, all items were scored on a 1 to 7 Likert scale (1 = "does not apply" to 7 = "applies fully"). For HILDA, all items were scored on a 1 to 7 Likert scale (1 = "does not describe me at all" to 7 = "describes me very well"). For HRS, all items asked how well an adjective applied to the participants and were scored on a 1 to 4 Likert scale (1 = "a lot" to 4 = "not at all"). For LISS, all items asked participants to rate how well the description applied to themselves and were scored on a 1 to 5 Likert scale (1 = "very inaccurate" to 5 = "very accurate").

Life Events

We examined the effect of 21 life events. Not all specific life events were available in

each dataset, but there was generally a high level of agreement of events across datasets (see Table S2 and Tables 2-5 for concordance across datasets). For the between-person, life event variable, if a person reported experiencing the life event at any point during their available waves of data for this study, then they were coded 1 for this variable and 0 if not. Additionally, the timing of a life event was split into three regions: pre-event, onset of event, and post-event. If a person was someone who reported having the life event but had not yet experienced it, they would be in the "pre-event" stage. To be in the "onset of event" stage, the event must have occurred between the two waves used to calculate a profile correlation. Typically, there were more waves of life event data than there were waves of personality data. For example, personality traits could be assessed every four years in a dataset whereas life events are assessed annually. Thus, for someone to be coded as experiencing a life event for a particular wave of a profile correlation (i.e., the onset of the event), the experience of the life event must have occurred between the two waves used to calculate the profile correlation. Lastly, all waves of profile correlations following the onset of the life event were categorized as being "post-event."

Covariates

We examined the effect of two covariates: gender and age. For all datasets, gender was a dummy variable coded such that 0 = male and 1 = female. Age was calculated from a participant's date of birth and considered in one-year increments. For each dataset, the average of a participant's ages across their waves of data was centered around the average age within each dataset. Thus, the age variable represented how far a participant's average age deviated from their own sample's average age.

Analytic Plan

The analytic plan consisted of first calculating intraindividual profile correlations and

then conducting analyses to examine between- and within-person trends in these values as a function of the experience of the life events. All analyses were conducted with R statistical software (R core team, 2021). To begin, all data were downloaded directly from the data repositories for each study and cleaned/reverse-scored as necessary.

Intraindividual Profile Correlations

After compiling the data and reverse-coding the necessary items for the scales, individual test-retest profile correlations for all Big Five trait items were calculated within each study. The multicon package (Sherman & Serfass, 2015) in R statistical software was used for calculating profile correlations. Overall profile correlations were computed; these are "overall" in the sense that the grand-mean for each item is not subtracted out from each person's scores prior to calculating the profile correlations. The formula for calculating this profile correlation (Q_i) is,

$$Q_{ij} = \frac{\sum (x_{ij1} - \overline{x_{j1}})(x_{ij2} - \overline{x_{j2}})}{\sqrt{\sum (x_{ij1} - \overline{x_{j1}})^2 \sum (x_{ij2} - \overline{x_{j2}})^2}}$$

where x_{ij1} represents an individual's score for a personality item at one wave; $\overline{x_{j1}}$ represents the average of their scores at that wave; x_{ij2} represents an individual's score for a personality item at a second measurement wave; and $\overline{x_{j2}}$ represents the average of their scores at that second measurement wave.

Interindividual Differences in Profile Correlations

Next, we used a Bayesian multilevel modeling framework to examine the interindividual trends in profile correlations within each dataset. All analyses were conducted using the brms package (Bürkner, 2017) in R. All models were fit as linear multilevel models with measurements nested within individuals. Age and gender were included as Level 2 variables. The generic form of our model specification can be seen with the following:

Level 1:

 $Q_{ij} = b_0 + b_1 time_c_{ij} + b_2 pre_{ij} * time_c_{ij} + b_3 onset_{ij} * time_c_{ij} + b_4 post_{ij} * time_c_{ij} + e_{ij}$ Level 2:

$$b_{0} = \gamma_{00} + \gamma_{01}LE_{j} + \gamma_{02}age_{-}c_{j} + \gamma_{01}gender_{j} + U_{0j}$$

$$b_{1} = \gamma_{10} + U_{1j}$$

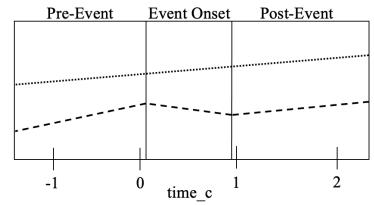
$$b_{2} = \gamma_{20} + U_{2j}$$

$$b_{3} = \gamma_{30} + U_{3j}$$

$$b_{4} = \gamma_{40} + U_{4j}$$

The outcome variable Q_{ij} was the test-retest profile correlation for each individual across waves. The LE_i variable represented the between-group difference in consistency for individuals who experienced an event versus those who did not. People who experienced an event were coded as 1 for this variable and 0 if they did not report having the life event. The scaling of the $time_c_{ij}$ variable depended on if an individual experienced the life event in the model. For those individuals that did experience the event, it was coded such that $time_{cij} = 0$ at the wave of profile correlation immediately prior to the wave containing the onset of the event (see Figure 1). For those individuals that did not experience the event, $time_{-}c_{ij}$ was centered around the average wave that was immediately prior to the onset of event for individuals that did experience the event. For example, if the average wave of profile correlation that individuals experienced an event in a dataset was time = 2, then time would be centered around time = 1 for individuals who did not experience the event in that dataset. Thus, the intercept represented the average profile correlation for individuals who did not experience the event, at the time that was the average wave immediately prior to the onset of the event for people who did experience it. This meant that this exact time changed per life event per dataset. The $time_c_{ij}$ variable itself represented the slope for individuals who did not experience the life event.

Figure 1
Example Trajectories Across the Three Event-Related Regions



...... hypothetical trajectory for individuals who did *not* experience the life event
--- hypothetical trajectory for individuals who did experience the life event

Next, there were three dummy-coded variables $(pre_{ij}, onset_{ij}, post_{ij})$ that captured the effect of experiencing the life event on the slope (i.e., $time_c_{ii}$). These variables were always coded 0 for individuals who did not experience a life event. The pre_{ij} variable indicated if it was pre-event for an individual (coded 0 =onset of event or after, 1 =pre-event). The onset_{ii} variable indicated if an event had its onset between the two waves used to calculate an individual's profile correlation (coded 0 = pre- or post-event, 1 = event had its onset between the waves). Lastly, the $post_{ij}$ variable indicated if an event had already passed its onset (coded 0 =pre-event or onset of event, 1 = beyond the onset of event). Since each of these parameters were included as an interaction of the $time_{c_{ij}}$ variable, they represented the change in slope in each region, relative to the slope of individuals who did not experience the event. That is, the interaction terms indicated if there were between-person differences in each of the three region's slopes, comparing those who experienced an event and those who did not. However, we were primarily interested in the difference in slopes for those who did experience the event; thus, three linear contrasts per model were conducted to compare the slopes in these three regions to determine if they meaningfully differed amongst individuals who did experience the event.

The prior for the intercept was a normal distribution centered around .60 with a standard deviation of .10, as .60 is an approximate value of the initial ipsative test-retest correlations for these datasets (Wright & Jackson, in press); the prior for the standard deviation parameters was a Cauchy distribution centered around 0 with a spread of .10; the prior for the regression coefficients was a normal distribution centered around 0 with a standard deviation of .10; the prior for the Level 1 residual was an exponential distribution with a parameter value of 1; and the prior for the correlation among the random effects was an LKJ distribution with a value of 1.

Results

Average Trends of Personality Consistency

First, we examined average linear trends of person-centered personality consistency (Table 2). Descriptive information for the within-person profile correlations across all waves for each dataset are available in Table S3. The intercept values, which reflect the average initial profile correlations in each dataset, ranged from .59 (GSOEP) to .70 (HRS). These values indicate that, although there was a general finding of moderate to large consistency in personality profiles, people, on average, did change in their personality between the first two waves. The random effects for the intercepts ranged from .16 (HRS/LISS) to .18 (GSOEP/HILDA), suggesting there was great variability in the degree to which people are consistent, even across two waves. Next, the slopes ranged from -.00 (HRS) to .02 (GSOEP). Although these values are small, the random effects around the slope values ranged from .02 (LISS) to .06 (GSOEP/HILDA/HRS) — which are double to more than six times the magnitude of the fixed effect values. Overall, the average lack of a perfectly consistent personality profile combined with the variability captured by the random effects suggests there are factors that can explain the personality change occurring and the variability around this change (see Wright and Jackson (in

press) for more information).

Table 2Average Trends for Individual Differences in Personality Consistency

	(GSOEP]	HILDA		HRS		LISS
	Est	CI	Est	CI	Est	CI	Est	CI
Person-Level								_
Intercept SD	.18	[.18, .19]	.18	[.18, .19]	.16	[.15, .16]	.16	[.15, .16]
Slope SD	.06	[.06, .07]	.06	[.06, .07]	.06	[.06, .07]	.02	[.02, .02]
Correlation	53	[56,49]	39	[42,35]	30	[36,24]	34	[38,30]
Sample-Level								
Intercept	.59	[.58, .59]	.67	[.66, .67]	.70	[.69, .71]	.64	[.64, .65]
Slope	.02	[.02, .02]	.01	[.01, .02]	00	[01, .00]	.01	[.01, .01]

Note. Est = the maximum a posteriori (MAP) estimate. CI = 95% credible intervals. Bolded values indicate parameter estimates that do not include 0 in the credible intervals.

Next, we sought to examine if experiencing a life event was associated with changes in person-centered consistency and variability around these changes. To do so, we present the findings organized by the different parameters in the model. There were never effects of age on personality consistency and the effect of gender was inconsistent across datasets (see Tables S4-S10). Thus, we restrict the presentation of our findings to those involving the life events only.

Selection Effects: Experiencing an Event Versus Not

For the between-person effects of going onto experiencing a life event versus not experiencing it (i.e., the differences in intercepts), results did not always emerge across all datasets, but when they did, they were always in the same direction (Table 5). Seeing a mental health professional (-.04 to -.06), unemployment (-.03 to -.05), and being a recipient of government financial assistance (i.e., welfare; -.04 to -.09) were all consistently associated with lower values of person-centered personality consistency. In comparison, marriage (.03 to .06), employment (.03 to .05), and volunteering (.03 to .06) were always associated with larger values of personality consistency. Interestingly, when present, the effects of finishing education (.06) were opposite of those for starting to attend some form of school (-.09).

Table 3Selection Effects for Life Events Across Datasets

	•	Dataset				
Domain	Event	GSOEP	HILDA	HRS	LISS	
	Hospital	02		00	01	
	Health Event			04	02	
Health	Operation			.04	01	
	Psych(ologist/iatrist) Visit		04		06	
	Cigarette	04		00	01	
	Partner	01	.03	.02	.02	
	Married	.02	.06	.03	.03	
Relationships	Separated	.01	02	06	03	
	Divorced	01	.01	.02	01	
	Widowed	.01	.00	01	01	
Family	Child	02	.00		.02	
Family	Close Other Died	.01	.00	01	.01	
Education	Finished Education	01	.06			
Education	Attending School		02		09	
	Employed	.02	.05	.05	.03	
	Unemployed	03	05	05	04	
Career	Retired	01	01	.03	02	
	New Job	03	00		00	
	Military	07				
Financial	Welfare		09	06	04	
Social	Volunteer	.03	.06	.07	.03	

Note. Maximum a posterior probability (MAP) estimates are presented. Bolded values indicate effects for which the 95% credible intervals did not include .00. Shaded boxes indicate that the life event was not tested in a dataset.

Between-Person Effects: Slopes Across Pre-Event, Event Onset, and Post-Event

Next, we examined if an event was associated with differences in profile consistency slopes for those who experienced an event relative to those who did not. In this section, we describe effects that emerged across at least two datasets for an event (see Tables S4-S10 for full results). Those who became widows had larger decreases in their post-event slopes in HILDA (-.02) and LISS (-.01) relative to those who did not experience the event. Those who started attending some form of schooling in HILDA (.01) and LISS (.02) increased in consistency compared to those who did not. For employment, those who reported this event had larger post-event slopes in GSOEP (.01) and HILDA (.02). Many effects emerged for retirement. First,

across all datasets, those who retired had declined in consistency at event onset compared to those who did not retire (ranging from -.02 to -.04). Second, in all datasets except GSOEP, these decreases in consistency continued such that retirees' slopes were still smaller than those who did not report retiring, even after the event occurred (ranging from -.01 to -.03). Lastly, for those who reported receiving some form of government financial assistance, their slopes were smaller than those who did not report this event in both HILDA and HRS (both -.03).

Within-Person Effects: Pre-Event vs Event Onset

For the within-person effects capturing the differences in slopes of individuals who experienced an event for their pre-event slope versus their slope at the onset of a life event, results were mostly consistent in that there were not many meaningful estimates (Table 4). When present, the within-person effects of the onset of a life event were *always* negative (i.e., the consistency slope at onset of event decreased relative to their pre-event consistency) – suggesting a new life event, regardless of the specific event, often serves as a disruption to the system of an individual's collection of personality traits (i.e., it decreases consistency; see Figure 2 for an example of this finding). Compared to the slope at onset, the slopes for individuals prior to experiencing a health event (.06), seeing a mental health professional (.05), and retiring (.01 to .05) were meaningfully larger in at least half the datasets containing the event.

Table 4The Within-Person Contrast Effects for Pre-Event vs Onset of Life Event Slopes Across Datasets

		Dataset				
Domain	Event	GSOEP	HILDA	HRS	LISS	
	Hospital	00		03	.01	
	Health Event			06	00	
Health	Operation			02	.01	
	Psych(ologist/iatrist) Visit		05		00	
	Cigarette	02		09	02	
	Partner	01	05	03	00	
Relationships	Married	03	07	04	00	
	Separated	04	.02	00	.01	

	Divorced	00	01	07	.01
	Widowed	01	04	00	03
Eamily	Child	01	03		01
Family	Close Other Died	00	03	00	00
Education	Finished Education	03	03		
Education	Attending School		.03		.02
	Employed	02	03	04	00
	Unemployed	.02	00	04	.01
Career	Retired	01	01	05	01
	New Job	.02	00		00
	Military	01			
Financial	Welfare		.01	03	00
Social	Volunteer	04	01	02	00

Note. Maximum a posterior probability (MAP) estimates are presented. Contrasts were set up such that if the estimate is positive, it indicates the onset of event slope is larger in magnitude than the pre-event slope. If the estimate is negative, it indicates the onset of event slope is smaller in magnitude than the pre-event slope. Bolded values indicate effects for which the 95% credible intervals did not include .00. Shaded boxes indicate that the life event was not tested in a dataset.

Within-Person Effects: Event Onset vs Post-Event

Next, we tested the within-person effects capturing the differences in slopes of individuals who experienced an event for their slope at the onset of a life event versus their slope following the event (Table 5). When present, the within-person effects for post-event slopes were *always* positive (i.e., the slope after the event increased relative to their slope at event onset). This indicates that people appear to "bounce back" following the onset of a new life event, suggesting that life events serve as a *temporary* disruption to an individual's personality system. Compared to the slope following an event, the slopes for individuals at onset of experiencing a health event and retiring were meaningfully smaller (by .02 units) in at least half the datasets containing the event. Notable exceptions to this "bouncing back" can be seen for finding a romantic partner and getting married in the HILDA dataset. There were no average differences between the onset of event slopes and the post-event slopes, suggesting the effect of experiencing these events is longer-lasting than other events, perhaps because of more enduring and continuous personality changes that occur as a result of maintaining these relationships.

Table 5The Within-Person Contrast Effects for Onset of Life Event vs Post-Event Slopes Across Datasets

		Dataset				
Domain	Event	GSOEP	HILDA	HRS	LISS	
	Hospital	00		.01	00	
	Health Event			.02	00	
Health	Operation			00	.00	
	Psych(ologist/iatrist) Visit		.01		.01	
	Cigarette	.01		.03	.01	
	Partner	00	00	.02	00	
	Married	00	00	.02	00	
Relationships	Separated	.03	.01	.02	.01	
	Divorced	00	.01	.03	00	
	Widowed	.01	.01	.01	.02	
Family	Child	.01	01		00	
railily	Close Other Died	.01	.01	.01	.01	
Education	Finished Education	.02	00			
Education	Attending School		.01		01	
	Employed	00	.01	.02	00	
	Unemployed	.01	.01	.01	00	
Career	Retired	.02	.01	.02	.01	
	New Job	.01	.01		00	
	Military	.04				
Financial	Welfare		.02	.01	00	
Social	Volunteer	.01	.01	.01	00	

Note. Maximum a posterior probability (MAP) estimates are presented. Contrasts were set up such that if the estimate is positive, it indicates the post-event slope is larger in magnitude than the onset of event slope. If the estimate is negative, it indicates the post-event slope is smaller in magnitude than the onset of event slope. Bolded values indicate effects for which the 95% credible intervals did not include .00. Shaded boxes indicate that the life event was not tested in a dataset.

Within-Person Effects: Pre-Event vs Post-Event

For the within-person effects capturing the change in the trajectory of an individual's personality consistency after an event compared to the trajectory prior to the event, there were also few effects (Table 6). For these comparisons, the direction of the effects was not always consistent. To the degree that these effects are present, it gives insight into if these life events are associated with long-term changes in consistency. Alternatively, it might indicate that the experience of the life event might reduce or exacerbate pre-existing selection effects.

For instance, for seeing a mental health professional in the HILDA dataset, the pre-event slope was larger in magnitude than the post-event slope (by .04 units). Additionally, the selection effect for being someone who experienced this event indicated that those individuals, on average, had .04 units lower profile consistencies than those who did not go on to experience the event. Thus, not only did individuals who went on to experience seeing a mental health professional start with lower average consistencies, but following the event, they continued to have slopes that were smaller in magnitude than what they had pre-event. This would be an example of the event being associated with further exacerbation of pre-existing between-person differences. In comparison, starting a new job had the opposite pattern. Individuals who went on to experience this event started with an average profile consistency that was .03 units lower than individuals not reporting this event in the GSOEP. However, the post-event slopes increased, on average, by .03 units relative to their pre-event slope.

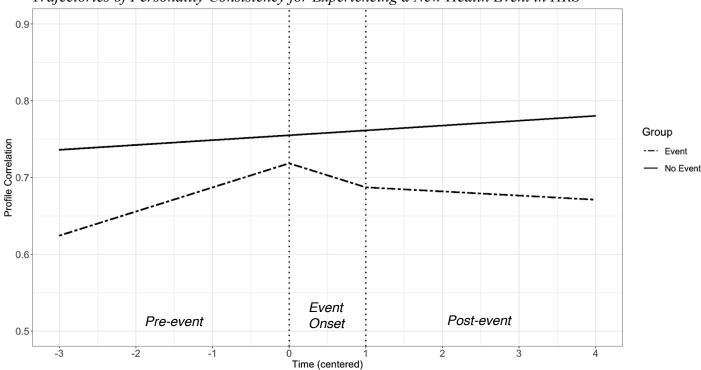
Table 6The Within-Person Contrast Effects for Pre-Event vs Post-Event Slopes Across Datasets

		Dataset				
Domain	Event	GSOEP	HILDA	HRS	LISS	
	Hospital	00		02	.01	
	Health Event			04	00	
Health	Operation			02	.01	
	Psych(ologist/iatrist) Visit		04		.01	
	Cigarette	02		06	01	
	Partner	01	05	01	01	
	Married	03	06	02	00	
Relationships	Separated	02	.03	.02	.01	
	Divorced	00	00	04	.01	
	Widowed	00	03	.01	01	
Family	Child	00	03		01	
railily	Close Other Died	00	03	.01	00	
Education	Finished Education	01	04			
Education	Attending School		.03		.01	
	Employed	02	02	02	00	
Caraar	Unemployed	.03	.01	03	.01	
Career	Retired	.01	00	03	01	
	New Job	.03	.01		.01	

	Military	.02			
Financial	Welfare		.04	01	00
Social	Volunteer	03	01	01	00

Note. Maximum a posterior probability (MAP) estimates are presented. Contrasts were set up such that if the estimate is positive, it indicates the post-event slope is larger in magnitude than the pre-event slope. If the estimate is negative, it indicates the post-event slope is smaller in magnitude than the pre-event slope. Bolded values indicate effects for which the 95% credible intervals did not include .00. Shaded boxes indicate that the life event was not tested in a dataset.

Figure 2
Trajectories of Personality Consistency for Experiencing a New Health Event in HRS



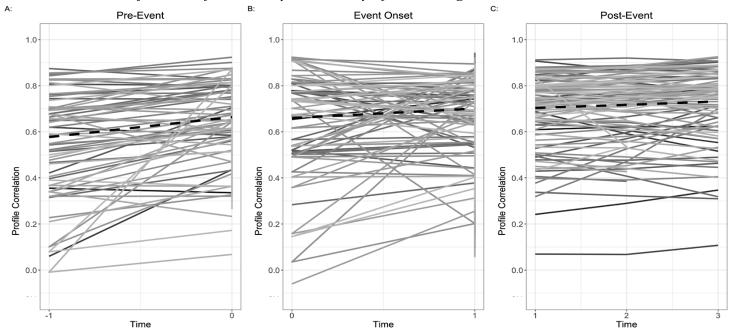
Note. Sample-level trajectories from HRS are plotted above for those who did not experience a new health event and those that did experience a new health event across the regions of preevent, event onset, and post-event. The solid black line is for those who did not experience the event, whereas the dashed line is for those who did experience the event.

Individual Differences in Event-Related Trajectories

Lastly, for the random effects of our pre-event, onset of event, and post-event within-person effects, there were a substantial number of findings (see Tables S4-S10 for full estimates; Figure 3 for an example graph). For variability around the pre-event slopes, 52/66 random effects emerged, nearly 79% of the possible effects. For variability around the onset of event slopes,

45/66 random effects emerged, or approximately 68% of the possible effects. Then, for the variability around the post-event slopes, 33/66 random effects emerged, or 50% of possible effects. Thus, even for those events which did not have an average within-person effect emerge for its pre-event, onset of event, or post-event trajectories, these random effects indicate that the impact of these life events varies greatly. That is, the mostly average null findings for life events across datasets mask the variable effect these life events have on people. These random effects suggest that individual differences reign supreme, further emphasizing taking a person-centered approach to evaluating factors influencing personality development.

Figure 3
Individual Trajectories of Personality Consistency After Marriage in HILDA



Note. Individual-level trajectories for those who reported getting married are plotted above across the regions of pre-event, event onset, and post-event. The dashed black line represents the average, sample-level effect. For the person-level trends, a random subset of 100 participants is plotted for each region.

Discussion

We investigated between- and within-person effects of 21 life events on the development of test-retest profile correlations using Big Five trait items. We found that life events were

associated with between-person effects on personality profile consistency, with these effects varying in both magnitude and direction depending on the specific life event. Moreover, when within-person effects of life events were present, a particular pattern of effects emerged. The onset of a life event always led to a decrease in profile consistency relative to one's prior level of personality consistency and in the waves following the life event (i.e., the post-event slope), increases in consistency were observed. This pattern of results indicates that life events can serve as a short-term disruption to the system of one's personality coherence.

Life Events Have Many Selection Effects, Fewer Socialization Effects

In line with past work, we found many selection effects for life events (Denissen et al., 2019; Jackson et al., 2012; Lüdtke et al., 2011; Specht et al., 2011). Compared to individuals who did not go on to experience the life event, people who reported undergoing an operation, beginning a romantic partnership, getting married, having a child, finishing their education, becoming employed, and volunteering all had higher initial values of consistency. In comparison, individuals who reported a new health event/diagnosis, seeing a psychologist/psychiatrist, smoking cigarettes, separating from a significant other, beginning to attend some form of school, unemployment, retirement, starting a new job, and receiving government financial assistance had lower initial values of consistency compared to individuals that did not report later experiencing these events. This pattern of selection effects appears to be in line with previous personality development research. For instance, past work has found that entering a relationship is associated with increases in extraversion and conscientiousness and decreases in neuroticism (Lehnart et al., 2010; Neyer & Lehnart, 2007). In our paper, individuals who began a romantic partnership or marriage had higher levels of initial profile consistency. Higher levels of profile consistency are associated with "mature" personality traits (i.e., high

agreeableness and conscientiousness, low neuroticism; Donnellan et al., 2007; Wright & Jackson, in press). Thus, it appears individuals who went on to experience events associated with mature social roles likely had personality profiles matching the "mature" personality profile.

Regarding socialization effects, it is somewhat difficult to compare our between- and within-person findings with most of the previous work on life events and personality development. This is because past research often focused on the impact of life events on changes in single traits and because these changes were quantified via mean levels rather than levels of consistency (Bleidorn et al., 2018; Denissen et al., 2019). However, our findings suggest two main conclusions.

First, life events have relatively small effects on personality development, but replicable patterns of effects across different types of change. For instance, among our life events, retirement was associated with lower levels of between-person profile consistency at onset of the event and after the event, which is in line with previous research finding that the transition to retirement is associated with changes in multiple personality traits (Löckenhoff et al., 2009; Schwaba & Bleidorn, 2019; Specht et al., 2011). If retirement elicits changes in personality that differ from someone's typical pattern of personality development, then their profile consistency understandably decreases relative to individuals not experiencing this life event. Furthermore, across the periods of retirement, within-person changes in consistency were sometimes found such that people decreased in consistency during the onset of the event and then began to subsequently increase in consistency following retirement. This pattern of results is also in line with past research finding both that a) some changes in personality traits following retirement continue to persist in years following the event, thus leading to increases in consistency as these changes are stable and b) the traits that change after retirement are consistent with increases in

levels of profile consistency (i.e., increases in agreeableness, decreases in neuroticism; Schwaba & Bleidorn, 2019). As such, these findings complement and extend previous findings, showing that different types of change are influenced by the same life events.

Second, within-person effects are short-lasting and relatively small in magnitude. When present, within-person changes do not appear to be long-lasting such that people "bounce back" to their level of pre-event qualities. This was observed in our study with levels of personality profile consistency and has also been found in studies examining mean-level changes in traits (Bollich-Ziegler et al., 2021; Denissen et al., 2019; Schwaba & Bleidorn, 2019; Wright & Jackson, 2022). This "bouncing back" could occur for a few reasons, such as people returning to their normal set-points for certain personality attributes (Diener et al., 2006; Headey & Wearing, 1989; Lucas et al., 2003), which is in line with past work examining mean-level changes elicited by life events and their often short-lived nature. Alternatively, event-elicited changes could become incorporated into one's personality structure and long-term effects are then less evident (Schwaba & Bleidorn, 2019). Regardless of the reason, our study adds to growing evidence that life events do not appear to be associated with numerous nor large within-person effects.

Life Events (Can) Have a Broad Impact...

Life events are often used as a source of promoting change. However, we found mixed and inconsistent findings of life events being associated with within-person changes and between-person differences. In general, those that eventually experienced negative events had lower levels of consistency whereas positive events were associated with higher levels of consistency. It could be undesirable for an individual to always have a shifting personality, which sets them up to experience life events where some constancy in who you are is beneficial, either to others (e.g., interpersonal relationships) or yourself (e.g., periods of poor mental health).

For example, in situations involving others, close others or professional colleagues likely expect you to behave a certain way or act in line with their prototypical idea of who you are. Unpredictable shifts in behavior that contradict people's expectations for how you think, feel, or behave could perhaps be unsettling or reveal tendencies that are not appealing in the long run, thus making it less likely to continue encountering positive events in the future. A similar influence could occur for between-person socialization effects. Life events seen as positive such that they represent the gain of something beneficial (e.g., attending school, employment) were associated with larger increases in consistency after the event. Conversely, events typically seen as negative such that they entail the loss of something (e.g., retirement, widowhood) were associated with larger decreases in consistency after the event and, for retirement, during the onset of the event as well. These changes could occur because negative life events result in lower levels of consistency because they impact the status quo of one's life, thus eliciting atypical trait changes. In comparison, positive life events could reinforce existing personality profiles, which likely include levels of beneficial traits associated with these events and "mature" profiles (e.g., conscientiousness and employment).

As for the within-person effects, when effects did emerge, the onset of a life event always had average effects of *disrupting* this consistency, such that it subsequently decreased from its previous level. This suggests that, regardless of the typical personality development for a person (i.e., their own person-specific levels of each item and changes in these items across time), life events disrupted these characteristic developmental patterns and resulted in atypical changes to their personality – thus resulting in decreased consistency. This disruption is typically brief, such that "bouncing back" occurs whereby an individual again approaches their pre-event level of consistency rather than there being a scarring effect as the result of the life event. Note that this

bouncing back does *not* mean individuals return to their previous personality profile. The slight increases in consistency that are observed post-event relative to onset of the event simply indicate that the changes in each trait indicator are simply more similar again. That is, there is a brief time where greater change occurs, then the change into the next period is similar to the amount of change pre-event.

A relevant theoretical framework for how these brief disruptions to personality consistency may arise is the TESSERA framework (Wrzus & Roberts, 2017). Notably, this framework can be used to speculate on why our observed pattern of pre-event (i.e., anticipatory), onset, and post-event effects all occur. Depending on if the event was predictable or if a person had advance knowledge of its occurrence beforehand (e.g., childbirth), then for both pre-event and onset of event-related effects, repeated instances of new situations could entail subsequent preparation for the upcoming event or sudden modifications to a normal routine. These modifications to one's lifestyle could necessitate changes in person-typical behavioral/state expressions of personality and, after enough time lapses with the maintenance of these new expressions, enduring personality change can take place. It is during the period that this new personality change manifests that profile consistency then decreases. However, if these changes are enduring, such that one's personality remains at this new level/configuration or these changes continue to persist over time, such that they become part of one's typical personality development, then profile consistency would subsequently increase.

Indeed, when comparing pre-event and post-event slopes, there is reason to believe that people may sometimes develop new characteristic patterns of personality development. For instance, for individuals who started a new job in GSOEP, their post-event slope was larger in magnitude than their pre-event slope. That is, those who got a new job became increasingly more

consistent. These increases in consistency are only expected to occur through transactional processes with one's environment (Fraley & Roberts, 2005; Wright & Jackson, in press).

The transactional nature of life events is not the same across different life events, however. Whereas the time following starting a new job was associated with increase in consistency relative to one's consistency prior to the event, the time following retirement was associated with decreases in consistency. This finding is however not immediately consistent with TESSERA, such that these new behaviors should not lead to declines in consistency from time to time. However, if life events like retirement are filled with continually new experiences (stretching the life event out into many separate experiences rather than a singular, discrete event), then profile consistency would be expected to continually decrease, as one is continuing to take on novel behaviors different from their previous profile.

... But Individual Differences Still Reign Supreme

Despite the person-centered approach in this study, there were not large nor widespread between- and within-person effects. However, when examining the individual differences around these average effects, it becomes clear that life events did not impact all individuals similarly. Individuals who went onto experience a life event differed the most in their pre-event slopes, which could speak to both varying initial levels of consistency and differences in anticipatory changes associated with the event. Anticipatory changes related to a life event have been documented in past research (Denissen et al., 2019; Wright & Jackson, 2022). To the extent that these vary in presence and magnitude across individuals and life events, it could reflect the predictability of the life event (e.g., sudden family death versus retirement), the extent that qualities of the individual strongly attracted them to that event (i.e., such that these attracting traits are more likely to be the ones to change in response to the event; Roberts & Wood, 2006),

and the degree to which an event might require preparation or adjustments in one's daily life before onset (e.g., a new child).

The slopes around the onset of the life events also evidenced large amounts of individual variability. Perhaps more obvious than reasons for individual differences prior to or after an event, reasons for variability in the effects of event onset can be dependent upon the individual themselves, such as their expectations of the event, attitudes about the event, and pre-existing personality characteristics (Lodi-Smith & Roberts, 2007; Lüdtke et al., 2011; Rakhsani et al., 2021). Basically, an event could mean different things for different people. Importantly, if an event does not bring forth new situations or necessary adaptations to one's typical lifestyle, then subsequent alterations in state or behavioral expressions of personality seem unlikely to follow (Wrzus & Roberts, 2017). For example, starting a new job for the first time (i.e., just finished school) might affect someone differently compared to someone starting a new position within the company they have been with for over a decade. While certain things may be similar between the two situations, such that it was important to be responsible, organized, and meet deadlines in both environments, the differences between progressing to a new job from school versus a from somewhat similar job might have implications for resulting personality change. For instance, if the adjustments needed to adapt to the new job are only substantial enough in the school \rightarrow job scenario to require changes to one's lifestyle compared to the job → job scenario, then we might not expect the same personality changes to occur for these two individuals.

Additionally, the variability around the onset of an event could be dependent upon the timing of the event in the individual's life, such that it may occur at a non-normative time, which has been suggested and found to lead to stronger effects compared to normative events (Neugarten, 1976; Luhmann et al., 2012). Or, it could be an atypical event for the environment or

culture one is in, resulting in them lacking a guide for appropriate future behaviors in that situation. This could instead strengthen their pre-existing characteristics rather than lead to event-specific changes (Caspi & Moffitt, 1993; Beck & Jackson, 2022). It may be the case that these atypical events are the ones that lead to personality change, which emphasizes the importance of examining the context and broader environment one is in when considering the impact of various life events.

Lastly, individual differences around the post-event slopes had the relatively fewest number of effects but still emerged for half of the possible total effects. Interestingly, the smaller number of effects around post-event slopes might reflect the finding that life effects may make people more similar (Jackson & Beck, 2021), such that individuals show similar patterns of personality development following a life event. This could occur for a few reasons. First, life events could bring people within an optimal range for certain personality characteristics, such that, for example, moderate levels of conscientiousness may be most beneficial for some events (e.g., partnership, marriage). Being responsible and able to stick to commitments is important in a relationship but being too rigid and inflexible may be detrimental to the reality of maintaining that relationship. Thus, individuals who are both low and high might be changed in the according directions to reach an optimal level of this trait – thereby reducing variability. Second, it could reflect that, on average, there are just fewer disturbances in one's personality system associated with the time following a life event. This could occur because any changes associated with the onset of the event then become typical for individuals, such that the changes were reinforced as the roles associated with the life event were maintained across time, and people often integrate these changes into their own characteristic personality development. Third, the event-related changes could have dissipated in intensity across time, such that disturbances to their personality

system became less pronounced and thus there are now less prominent changes occurring. In any case, it appears that, on average, the effects of life events after they occur are more similar for individuals compared to the pre-event and onset of event effects.

However, this need not be the case for everyone. Some theories, such as the paradoxical theory of personality coherence (Caspi & Moffitt, 1993), would posit that some life events that lack a particular scripted way to behave would strengthen pre-existing characteristics, such that individual differences in personality are maintained or even increase. For any given single event, there was rarely a clear pattern of when individual differences in consistency trajectories were always present or always largest in magnitude – suggesting that how people react to an event and any subsequent personality change that occurs after is likely a very individualized – or random – process such that broad generalizations about how life events impact personality development are not realistically feasible to make. This is especially true because people likely experience multiple life events within any given period of time, each with their potentially own event-specific effects on personality. We did not control for the experience of multiple life events; thus, it remains possible that the number and type of total life events experienced can also complicate the assertion that life events result in increases or decreases in individual differences.

Limitations & Future Directions

While our study had a number of advantages that made it well-suited to investigate the impact of life events on trends of person-centered personality consistency, it was not without its limitations. First, additional measures relevant to the life events such as expectations for and attitudes about the events would likely help to explain some of the individual variability we observed in within-person changes in consistency. Along similar lines, it could be helpful to track the occurrence of these life events relative to if they occur during normative periods for

individuals in a certain country or if they instead occurred at non-normative times. It could be that factors such as these largely account for which individuals are more so affected by life events. Second, each of our samples were from a country of European descent. Thus, while we can somewhat speak to the degree the results generalize across individuals from different environments, this generalization is limited to countries that share many similarities. Third, not every event was available in each dataset. Those events only present in one or two datasets have less evidence for their broad impact on personality consistency and thus their results should be considered less conclusive. Lastly, we did not control for the possibility of a person reporting multiple life events, which could complicate the interpretation of any event-specific effects.

Conclusion

In this study, we examined the impact of many life events on trajectories of personcentered personality consistency in four large-scale datasets each from a different country. The
most effects were by far found for between-person differences in which individuals go on to
experience a life event, whereas within-person changes associated with life events less frequently
emerged. When within-person effects did emerge, they indicated that life events always served
as a disruption to an individual's personality system. Furthermore, these changes in consistency
were often brief, such that people typically "bounced back" to higher levels of consistency in the
waves following the event. Our results add to the body of literature suggesting that, on average,
life events are not associated with numerous nor large within-person personality changes,
regardless of how this within-person change is quantified. However, the many individual
differences around these event-related effects suggests there are various mechanisms at play that
idiosyncratically link changes in personality development to some individuals and life events,
calling for further research that focuses holistically on the individual.

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