How Are Common Major Life Events Perceived? Exploring Differences Between and Variability of Different Typical Event Profiles and Raters

Sarah Kritzler¹, Andrew Rakhshani², Sophia Terwiel¹, Ina Fassbender³, M. Brent Donnellan²,
Richard E. Lucas², & Maike Luhmann¹

¹ Ruhr University Bochum

² Michigan State University

³ University of Siegen

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Correspondence concerning this article should be addressed to Sarah Kritzler, Ruhr University Bochum, Universitätsstraße 150, 44780 Bochum, Germany. E-mail: Sarah.Kritzler@rub.de

Abstract

Research on major life events and personality change often focuses on the occurrence of specific life events such as childbirth, unemployment, or divorce. However, this typical approach has three important limitations: (1) Life events are typically measured categorically, (2) it is often assumed that people experience and change from the same event in the same way, and (3) external ratings of life events have unknown levels of validity. To address these limitations, we examined how common life events are typically perceived, how much perceptions of life events vary within events, and how well external ratings of events correspond to subjective ratings from people who experienced the events. We analyzed ratings of nine psychologically relevant characteristics of 10 common major life events from three different types of raters ($N = 2,210$). Each life event had a distinct subjectively rated profile that corresponded well to external ratings. Collectively, this study demonstrates that life events can be meaningfully described and differentiated with event characteristics. However, people's individual perceptions of life events varied considerably even within events. Therefore, research on major life events and their associations with personality change should incorporate individual perceptions of the events to advance the understanding of these associations.

Keywords: life events, personality change, perception, event characteristics, external ratings

How Are Common Major Life Events Perceived? Exploring Differences Between and Variability of Different Typical Event Profiles and Raters

Major life events¹ are “events that are clearly timed, disrupt one’s everyday routine, and are perceived as personally significant and memorable by those who experienced them” (p. 2, Luhmann et al., 2020). Life events play an important role in personality change (e.g., Bleidorn et al., 2018, 2020; Jackson & Beck, 2021; Specht, 2017). Studies examining major life events often focus on specific life events such as childbirth or unemployment and often find that different life events differ in the strength, direction, and duration of their effects on personality change (e.g., Bleidorn et al., 2018, 2020). To explain such differences, major life events have been categorized based on attributes such as valence (e.g., positive vs. negative life events) or life domain (e.g., work-related vs. family-related life events).

As we elaborate below, this typical approach of comparing different life events or categories of life events has at least three major limitations. In this article, we discuss and empirically examine three issues with common approaches to studying major life events in a descriptive and explorative study. We examine (1) how common major life events are typically perceived on psychologically relevant, dimensional characteristics of life events, (2) how much perceptions of life events vary within specific events, and (3) to what extent perceptions of life events by external raters correspond to perceptions of life events by people who actually experienced the events.

¹ We use the terms *major life events*, *life events*, and *events* interchangeably throughout the paper to facilitate comprehension. All terms are meant to represent major life events as defined in the first sentence.

How Should Major Life Events be Characterized?

Previous research on life events and personality change often measured life events categorically by either assessing the occurrence of specific life events (e.g., got married: yes or no) or grouping life events into categories (e.g., positive or negative events). Bleidorn et al. (2018), for example, reviewed prospective longitudinal studies on life events and personality change in two broad life domains: close relationships and work. All studies included in this review used a categorical approach by focusing on the mere occurrence of life events, that is, they examined differences in personality change between people who did and people who did not experience certain life events. However, these categorical approaches are problematic because (1) it is unclear which characteristics of the events are relevant to personality change, (2) other potentially relevant characteristics of the life events that are not reflected in the categories are disregarded, and (3) any differences among events within a category are overlooked. Divorce and unemployment, for example, may both be categorized as negative life events, but they may differ in how negative they are. Moreover, they may also differ on other relevant characteristics such as predictability: Whereas divorces are typically predictable due to the bureaucratic process, unemployment can (at least sometimes) occur suddenly.

A solution to these issues is measuring multiple dimensional characteristics of life events instead of the mere occurrence of life events. Such characteristics have the advantage that they are measured on continuous dimensions and thus also capture more subtle differences between events. Over the years, several different characteristics of life events such as adjustment and change (e.g., Holmes & Rahe, 1967), controllability (e.g., Göral et al., 2006; Wilson & Gilbert, 2008), and desirability or valence (e.g., Dohrenwend, 2000; Hasan & Power, 2004) have been examined (for an overview, see Luhmann et al., 2020). However, these characteristics have often

been examined unsystematically, and it remains unclear which and how many characteristics are important for characterizing major life events.

Researchers recently addressed this lack of clarity by developing broad taxonomies of event characteristics that are relevant for characterizing major life events. One such taxonomy is the Event Characteristics Questionnaire (ECQ; Luhmann et al., 2020), a taxonomy of psychologically relevant characteristics of major life events comprising nine dimensions: challenge, change in world views, emotional significance, external control, extraordinariness, impact, predictability, social status changes, and valence. Table 1 provides descriptions and sample items of these dimensions. This taxonomy addresses many issues of previous research by empirically identifying relevant characteristics of life events and using a dimensional approach to measuring life events (Luhmann et al., 2020). However, because most previous studies focused on only one or very few event characteristics, there is little data on the typical profiles of characteristics of life events, that is, how life events are typically perceived on all relevant characteristics. Thus, our first research question is: What are the typical profiles of characteristics of common life events?

Variability in Perceptions of Major Life Events

A second limitation of focusing on the mere occurrence of specific life events is that a specific life event is assumed to have the same characteristics and the same effects on personality change for all persons (Bleidorn et al., 2020; Luhmann et al., 2020). However, effects of life events on personality change typically vary across individuals: For example, studies on changes in conscientiousness in response to first romantic relationships found that conscientiousness increases overall (Leikas & Salmela-Aro, 2015; Neyer & Asendorpf, 2001), increased in specific subgroups only (Neyer & Lehnart, 2007; Wagner et al., 2015), or did not change significantly

(Lüdtke et al., 2011). Moreover, Denissen et al. (2019) as well as Schwaba and Bleidorn (2019) reported significant individual differences in personality trait change in response to life events such as unemployment or retirement.

A potential explanation for these differences in personality change following major life events is that different people may perceive the same life event differently. These perceptions may in turn explain differences in personality change (Bleidorn et al., 2020; Luhmann et al., 2020). In general, perceptions of major life events may vary for at least two reasons: First, not all instances of a specific life event (e.g., different weddings) are the same and they may thus possess slightly different characteristics. For example, whereas most weddings are quite predictable, a spontaneous wedding in Las Vegas is not. Second, objectively similar life events may also be perceived differently by different people. Differences in perception may be due to past experiences, personality, age, or even current mood (e.g., Dohrenwend et al., 1990; Dohrenwend, 2006; Grant et al., 1976; Masuda & Holmes, 1978; Muhlenkamp et al., 1975; Rakhshani et al., 2020). For example, people in their 80s most likely perceive getting married as much more extraordinary than people in their 30s.

Perceptions of life events can thus vary for different reasons. But so far, little empirical attention has been devoted to examining variability in individual perceptions of life events. In one of few studies explicitly targeting variability, Redfield and Stone (1979) identified three demographic groups of people that differed in their perceptions of the same life events. Moreover, Muhlenkamp et al. (1975) and Grant et al. (1976) reported that different subgroups such as psychiatric patients, older participants, and normative control participants significantly differed in the amount of readjustment they assigned to life events. Thus, there are some studies indicating sizable variability in perceptions of the same life events. However, given that this

previous work mostly examined rather specific samples and a narrow band of event perceptions, a more comprehensive evaluation is needed. Thus, our second research question is: How much do perceptions of major life events vary within events?

Moreover, evidence suggests that certain person-related characteristics are associated with perceptions of major life events and may therefore explain individual differences in event perceptions (e.g., Masuda & Holmes, 1978; Rakhshani et al., 2020; Redfield & Stone, 1979). For example, older participants on average estimated lower needs for readjustment following the same life events than younger participants, and women estimated higher needs for readjustment than men (Masuda & Holmes, 1978). We therefore examined age and gender as potential correlates of perceptions of major life events. Moreover, we also examined temporal distance to experiencing the event as a method-related potential correlate of perceptions of life events (Masuda & Holmes, 1978; Paykel et al., 1971).

External Characterizations of Major Life Events

The third limitation of previous studies is that life event perceptions were often determined by external raters rather than the actual participant that experienced the event. Some studies have attempted to go beyond measuring the simple occurrence of an experienced life event by having a panel of judges—that is, people who did not experience the events themselves—rate characteristics of those events (e.g., Headey & Wearing, 1989; Holmes & Rahe, 1967). For example, the social readjustment rating scale (Holmes & Rahe, 1967) indicates how much people need to readjust after experiencing certain life events. The average readjustment score for the life events were obtained from participants who had not necessarily experienced the events themselves. While this strategy captures event characteristics that might be important in

predicting psychological change, it is unclear whether such external raters can accurately predict how a life event is typically perceived by those experiencing them.

In general, people who characterize major life events can (1) be either experts on life events or laypersons and (2) either have experienced the events themselves or not have experienced the events themselves. Here, we only focus on ratings from laypersons. We refer to people who actually experienced and were affected by the life events they are describing as *in situ raters* (from Latin *in situ*, ‘on site’; see Rauthmann, Sherman, Nave, et al., 2015). Luhmann et al. (2020), for example, had participants rate characteristics of life events they recently experienced and examined how these *in situ* ratings predicted subsequent changes in subjective well-being.

In contrast to *in situ* raters, we refer to people who did *not* experience the life events they are describing as *ex situ raters* (from Latin *ex situ*, ‘off-site’; see Rauthmann, Sherman, Nave, et al., 2015). *Ex situ* ratings can be further categorized based on the specific instructions: On the one hand, *ex situ* raters may describe how they themselves would experience the event (*individual ex situ ratings*). For example, Redfield and Stone (1979) instructed participants to rate certain events in terms of what they meant to them personally. On the other hand, *ex situ* raters may describe how people in general typically experience the event (*generalized ex situ ratings*). For example, Holmes and Rahe (1967) instructed participants to use all their experience, personal and learned from others, to rate the readjustment following certain life events.

Even though much of the research and knowledge about major life events is based on *ex situ* ratings, little is known about how *ex situ* ratings are related to *in situ* ratings. Are *ex situ* raters able to accurately infer how people experience major life events? It is known from related fields of research that external raters are relatively good at characterizing other people’s

personalities (Biesanz, 2010; e.g., Biesanz & Human, 2010; Human & Biesanz, 2011) and characteristics of other people's experienced situations (e.g., Rauthmann, 2017; Rauthmann et al., 2019), but only few studies addressed characterizing other people's life events. Some evidence suggests that in situ raters and ex situ raters rated characteristics of life events similarly (Bhattacharjee & Mogilner, 2014; Lundberg & Theorell, 1976; Rosenberg & Dohrenwend, 1975). However, this previous work mostly examined only ratings of readjustment but not other event characteristics. Therefore, a more comprehensive examination of how much in situ raters and ex situ raters agree in their perceptions of characteristics of major life events is needed. This is important because if these ratings were to differ, ex situ ratings may not be as valid as often assumed. Consequently, our third research question is: How well do ex situ ratings of major life events correspond to in situ ratings?

The Present Article

Research on major life events and personality change has typically examined specific life events, such as unemployment, marriage, or childbirth, or categories of life events, such as positive and negative life events. This approach may be problematic because it measures life events categorically, neglects any variability in effects within life events, and often relies on ex situ ratings without thoroughly examining their accuracy. To address these limitations, we examined perceptions of characteristics of different life events from different types of raters. We took an exploratory approach to answer the following three research questions: What are the typical profiles of characteristics of common life events (Research Question 1); how much do perceptions of major life events vary within events (Research Question 2); and how well do ex situ ratings of major life events correspond to in situ ratings (Research Question 3)?

Method

We combined data from six independent samples to compare three types of ratings of 10 common major life events. Studies were approved by local ethics committees of [INSTITUTIONS BLINDED FOR PEER REVIEW].

Overview of the Data Sources

Table 2 presents an overview of the six samples, their original sources, types of ratings, and which research questions they are used to answer. Samples 1 to 4 provided in situ ratings. Samples 1, 2, and 3 were collected in cross-sectional online questionnaire studies asking participant to choose and describe a major life event they had recently experienced. Sample 4 came from the What's Next Study, a longitudinal five-wave preregistered study examining character development following major life events in young adulthood (for additional details, see the [preregistration on OSF](#)). In this study, participants described life events they had recently experienced at five different measurement waves over the course of one year. We combined those participants who described one of the events investigated in this study from the different measurement waves into a cross-sectional sample. However, if participants happened to describe the same event twice, we only included the first description of this event. Data from Samples 1 to 4 have already been used for other research projects (Luhmann et al., 2020, Study 5; Fassbender et al., 2021; Fassbender & Luhmann, 2021; Haehner et al., 2021) but have not yet been used to compare different events or types of raters.

Ex situ ratings were provided in Samples 5 and 6. Sample 5 contained cross-sectional individual ex situ ratings collected at a large North American university. Some findings from this study regarding associations between personality and life event perceptions have been reported by Rakhshani et al. (2020); however, the data have not yet been used to directly compare in situ

and ex situ ratings. Sample 6 contained cross-sectional generalized ex situ ratings from a cross-sectional online questionnaire study. Details on this study can be found in the [preregistration of the study design](#).

Participants

In total, we analyzed data from 2,210 participants providing 3,555 ratings of 10 different life events. The participants were on average 22.9 years old ($SD = 7.1$) and most of them (72.3%) were students. Table 2 provides additional demographic information.

Measures

Major Life Events

We selected 10 common life events for this paper: becoming a parent, breakup (with a romantic partner), death of a close family member, graduation (from high school or university), marriage, new friendship, new job, new (romantic) relationship, serious illness or injury, and vacation. Eight of these 10 events were selected based on their frequencies in the studies providing in situ ratings. In addition, we included marriage and becoming a parent as events that are frequently examined in the personality change literature even though their frequencies were comparatively low in our samples (for in situ ratings: $N_{\text{marriage}} = 23$; $N_{\text{parent}} = 26$). Detailed descriptions of the life events and their frequencies in the six samples can be found in the online supplementary materials ([OSM](#)).

For Samples 1 to 4, participants freely chose and described a life event they had experienced in the last three months. These open responses were categorized into specific life events by two research assistants. Interrater reliability was good with an unweighted Cohen's Kappa for two raters of .84 (86.22% agreement). Additionally, a third research assistant checked all codings that were relevant for this study for inconsistencies and excluded 27 individual events

with imprecise codings. Frequencies of the major life events ranged from 23 ratings for marriage to 214 ratings for vacation for the in situ ratings.

For the samples providing generalized and individual ex situ ratings (Samples 5 and 6), the authors selected the life events to be described in the studies. For Sample 5, 21 major life events that partially overlapped with the aforementioned 10 major life events (excluding breakup, new relationship, and vacation) were selected. Each participant was randomly assigned two major life events they had never experienced and indicated how they imagined they would perceive them. For Sample 6, the study included exactly the 10 life events listed above. Participants were randomly assigned three out of these 10 life events and indicated how young adults would typically experience each event. A priori power considerations using the highest observed standard deviation in the in situ ratings as an approximation of the smallest differences we wanted to be able to detect (Cumming, 2012) indicated that we needed at least 77 ex situ ratings per event to precisely detect differences between the life events (details on this power analysis can be found in the [preregistration of the study design](#)). Overall, we sampled about 150 ratings of each type of ex situ rating per event.

Event Characteristics

In all studies, participants rated the assigned or self-selected major life events using the ECQ (Luhmann et al., 2020). The ECQ comprises nine psychologically relevant event characteristics (see Table 1). Participants indicated on a scale from 1 (*not at all/strongly disagree*) to 5 (*totally/strongly agree*) how much certain statements applied to the event (e.g., for change in world views, one item was “The event changed my world views.”).

The different studies used different versions of the ECQ. The studies providing in situ ratings were conducted during the development of the ECQ and thus used earlier versions of the

items. Details on these studies can be found in Luhmann et al. (2020). The studies providing ex situ ratings used adapted versions of the ECQ short form in which the items were rephrased to fit the instructions for ex situ ratings (e.g., for change in world views, the item was adapted to “The event changes the world views of the affected person” for generalized ex situ ratings and “The event would change my world views” for individual ex situ ratings). We calculated scale scores by averaging the responses across all items that were available for a specific event characteristic dimension. Thus, the scale scores were based on different numbers of items across the studies. Descriptive statistics and reliabilities for each sample are available in the [OSM](#).

Potential Correlates of Perceptions of Life Events

We measured the following potentially relevant correlates of event perceptions. Age and gender were assessed in all studies. For in situ ratings, we additionally assessed the temporal distance (in weeks) between experiencing the event and reporting the event characteristics in our studies. For generalized ex situ ratings, we assessed whether participants had ever actually experienced this event themselves.

Data Quality Indicators

All studies included at least one quality control item asking participants whether they had paid attention to and/or answered the questions truthfully (Meade & Craig, 2012). The studies providing in situ ratings and generalized ex situ ratings additionally included instructed response items (e.g., “In order to secure the data quality, please select the answer option 3”; Meade and Craig, 2012) to identify careless responders. Participants who indicated poor data quality on any of these items were excluded from the analyses.

Results

The research questions and planned analyses for this article were preregistered online ([Link](#)). Data and analysis scripts for all analyses are openly available online ([Link](#)). The online supplementary materials ([OSM](#)) entail additional results, tables, and figures as interactive files. Analyses were conducted in R (Version 4.0.3; R Core Team, 2019).²

What Are the Typical Profiles of Characteristics of Common Life Events?

We considered only in situ ratings for the first research question. Figure 1 displays the average profiles of perceptions of our selected major life events, that is, how the life events were typically perceived on the ECQ dimensions. We made two important observations: First, major life events had distinct profiles of perceived characteristics. Breakup, for example, was characterized by high levels of perceived emotional significance, challenge, impact, and negative valence. In contrast, vacation was characterized by high levels of perceived positive valence and predictability, and comparatively low levels of challenge and impact. Moreover, some events

² We, furthermore, used the R-packages *BayesFactor* (Version 0.9.12.4.2; Morey and Rouder, 2018), *car* (Version 3.0.10; Fox and Weisberg, 2019); Fox et al., 2020), *carData* (Version 3.0.4; Fox et al., 2020), *circlize* (Version 0.4.12; Gu et al., 2014), *coda* (Version 0.19.4; Plummer et al., 2006), *corx* (Version 1.0.6.1; Conigrave, 2020), *dplyr* (Version 1.0.4; Wickham et al., 2020), *emmeans* (Version 1.5.5.1; Lenth, 2021), *forcats* (Version 0.5.1; Wickham, 2021), *ggiraph* (Version 0.7.8; Gohel and Skintzos, 2020), *ggplot2* (Version 3.3.3; Wickham, 2016), *ggpubr* (Version 0.4.0; Kassambara, 2020), *inlmisc* (Version 0.5.2; Fisher, 2020), *irr* (Version 0.84.1; Gamer et al., 2019), *jpeg* (Version 0.1.8.1; Urbanek, 2019), *kableExtra* (Version 1.3.4; Zhu, 2021), *lemon* (Version 0.4.5; Edwards, 2020), *lme4* (Version 1.1.26; Bates et al., 2015), *lmerTest* (Version 3.1.3; Kuznetsova et al., 2017), *lpSolve* (Version 5.6.15; Berkelaar and others, 2020), *Matrix* (Version 1.2.18; Bates and Maechler, 2019), *papaja* (Version 0.1.0.9997; Aust and Barth, 2020), *patchwork* (Version 1.1.1; Pedersen, 2019), *plyr* (Version 1.8.6; Wickham et al., 2020; Wickham, 2011), *psych* (Version 2.1.3; Revelle, 2019), *purrr* (Version 0.3.4; Henry and Wickham, 2020), *readr* (Version 1.4.0; Wickham and Hester, 2020), *readxl* (Version 1.3.1; Wickham and Bryan, 2019), *report* (Version 0.2.0; Makowski et al., 2020), *sjstats* (Version 0.18.1; Lüdtke, 2020), *stringr* (Version 1.4.0; Wickham, 2019), *tibble* (Version 3.1.0; Müller and Wickham, 2021), *tidyr* (Version 1.1.2; Wickham and Henry, 2020), *tidyverse* (Version 1.3.0; Wickham et al., 2019), *tinylabels* (Version 0.2.0; Barth, 2020), *wec* (Version 0.4.1; Te Grotenhuis et al., 2016b); Te Grotenhuis et al., 2016a), and *yarr* (Version 0.1.5; Phillips, 2017).

were perceived as quite similar to each other and others as quite different. For example, new friendship and new relationship had very similar profiles but differed substantially from events like death of a family member.

Second, although the different events were characterized by distinct profiles, the life events examined in this study also seemed to share a common core of characteristics: All life events examined in this study were on average characterized by high levels of perceived emotional significance ($M_{\text{means}} = 4.27$, $SD_{\text{means}} = 0.44$, $\text{Range}_{\text{means}} = 3.65 - 4.74$) and impact ($M_{\text{means}} = 3.86$, $SD_{\text{means}} = 0.59$, $\text{Range}_{\text{means}} = 2.51 - 4.67$) and by low levels of external control ($M_{\text{means}} = 2.45$, $SD_{\text{means}} = 0.45$, $\text{Range}_{\text{means}} = 1.69 - 3.00$) and extraordinariness ($M_{\text{means}} = 2.48$, $SD_{\text{means}} = 0.50$, $\text{Range}_{\text{means}} = 1.86 - 3.23$). In contrast, average perceptions of the event characteristics challenge ($M_{\text{means}} = 3.26$, $SD_{\text{means}} = 0.79$, $\text{Range}_{\text{means}} = 2.05 - 4.12$), predictability ($M_{\text{means}} = 3.30$, $SD_{\text{means}} = 0.66$, $\text{Range}_{\text{means}} = 2.26 - 4.24$), and valence ($M_{\text{means}} = 3.75$, $SD_{\text{means}} = 1.42$, $\text{Range}_{\text{means}} = 1.28 - 4.75$) varied more across the different life events. Challenge, for example, differentiated between a group of life events with low levels of perceived challenge—vacation, marriage, new friendship, and new relationship—and a group of life events with high levels of perceived challenge—becoming a parent, breakup, death of a family member, graduation, new job, and serious illness or injury.

To sum up, we found that the different life events had distinct profiles of perceptions of their event characteristics. These profiles seemed partially attributable to a common core profile of major life events and partially due to the individual features of the specific life events.

How Much do Perceptions of the Same Major Life Event Vary?

To examine how much perceptions of life events varied within events, we again focused on in situ ratings. Figure 2 displays individual participants' perceptions as separate lines along with the average profiles of the different life events. The plots demonstrate that there was indeed considerable variance in the perceptions of life events within the same event as indicated by the by the different trajectories of the individual lines. Different people who had experienced a breakup, for example, perceived this event quite differently such that some participants perceived it as very negative, whereas others perceived even as moderately positive.

Moreover, there were differences in the variability of perceptions between the different events and event characteristics (for detailed tables, see [OSM](#)). First, we aggregated standard deviations within events and found that across all event characteristics, perceptions new friendship ($\overline{SD} = 0.70$) varied the least, whereas perceptions serious illness or injury ($\overline{SD} = 0.91$) varied the most. That is, people perceived new friendships typically more similarly than serious illnesses or injuries. However, as the two aggregated standard deviations were still quite similar, this difference in variability between the events was rather small.

Generally, however, differences in the variability of perceptions were more pronounced between event characteristics: Aggregating standard deviations of event characteristics across all life events, the event characteristic valence ($\overline{SD} = 0.56$) was the least variable, whereas the event characteristic predictability ($\overline{SD} = 1.15$) was the most variable characteristic. That is, within specific life events, people perceived the valence of the events much more similarly than the predictability of the events. Compared to the difference between life events, these differences in variability between event characteristics were considerably greater.

Finally, the specific combinations of life event and event characteristic also seemed to play an important role. For instance, perceptions of the valence of experiencing the death of a family member ($SD = 0.39$) and starting a new friendship ($SD = 0.39$) were the least variable, whereas perceptions of the valence of experiencing a breakup ($SD = 0.90$) were the most variable for this event characteristic. That is, people perceived the valence of experiencing the death of a family member and starting a new friendship quite similarly, whereas they perceived the valence of a breakup quite differently. In summary, thus, perceptions of the same major life events varied considerably between individuals, and the degrees of variability depended on the specific life events, the event characteristics, and combinations of life event and event characteristic.

Correlates of Perceptions of Characteristics of Major Life Events

We explored age, gender, temporal distance to experiencing the event, and prior experience with the event as potential correlates of perceptions of major life events. Overall, associations between correlates and perceptions of major life events were mostly specific to combinations of event characteristics and life events. Below, we discuss some selected results regarding these correlates. Detailed results can be found in the [OSM](#).

Age did not correlate strongly with the perceptions of major life events across all life events and event characteristics, $r = .04$, 95% CI [.02, .06], $p < .001$. However, interesting patterns of correlations between age and perceptions of major life events emerged within specific life events and event characteristics (see Figure 3A). For example, older participants perceived the life event breakup as more extraordinary, ($r = .26$, 95% CI [.07, .43], $p = .007$) and to be associated with more social status changes ($r = .28$, 95% CI [.09, .45], $p = .004$) than younger participants. Moreover, older participants perceived new friendships as more extraordinary

($r = .35$, 95% CI [.14, .53], $p = .001$) and less predictable ($r = -.26$, 95% CI [-.45, -.04], $p = .023$) than younger participants.

Temporal distance to the event, that is, the time passed between experiencing the major life events and reporting them in the studies, did not correlate with the perceptions of major life events across all life events and event characteristics at all, $r = .02$, 95% CI [.00, .05], $p = .095$. Again, however, interesting patterns of correlations emerged for specific life events (see Figure 3B). Starting a new friendship, for example, was perceived as less challenging ($r = -.40$, 95% CI [-.58, -.17], $p = .001$) and less extraordinary ($r = -.43$, 95% CI [-.61, -.21], $p < .001$), but as more impactful ($r = .35$, 95% CI [.12, .54], $p = .004$) and more positive ($r = .38$, 95% CI [.15, .57], $p = .002$) with longer temporal distances to the event. Serious illnesses or injuries were perceived as more challenging ($r = .34$, 95% CI [.06, .56], $p = .017$), more emotionally significant ($r = .43$, 95% CI [.17, .63], $p = .002$), more impactful ($r = .30$, 95% CI [.03, .54], $p = .032$), more predictable ($r = .28$, 95% CI [.00, .52], $p = .047$) and as causing greater change in world views ($r = .29$, 95% CI [.01, .53], $p = .041$) with longer temporal distances to the event. In summary, perceptions of major life events correlated in several cases with age and with temporal distance to experiencing the event but the pattern of correlations was quite unsystematic.

How Well do Ex Situ Ratings Correspond to In Situ Ratings?

We first compared the two types of ex situ ratings. Because many participants provided multiple ratings, we had a nested data structure with ratings nested in participants. However, an intercept-only multilevel regression model revealed that variance due to participants was estimated as zero, so multilevel models were not necessary. We therefore estimated normal regression models. As the main question was whether the two types of ratings generally differ from each other, we first predicted the value of the rating from the type of the rating (i.e.,

individual ex situ rating and generalized ex situ rating), regardless of life event and event characteristic. This simple regression showed that overall, individual ex situ ratings did not differ significantly from generalized ex situ ratings, $b = 0.02$, 95% CI [-0.02, 0.07], $t(17,080) = 1.13$, $p = .258$. We therefore combined these two ratings into one composite ex situ rating category to make it easier to compare in situ and ex situ ratings. Comparisons of all three types of ratings can be found in the [OSM](#).

To examine how well ex situ ratings correspond to in situ ratings, we then compared in situ ratings to the composite ex situ rating category combining both individual and generalized ex situ ratings. Figure 4 displays the average profiles of in situ ratings and ex situ ratings for the 10 selected major life events. Given the data structure noted above, we once again tested if multilevel regression was needed—it was not. We thus estimated normal regression models. As the main question was whether the two types of rating generally differ from each other, we first predicted the value of the rating from the type of the rating, regardless of life event and event characteristic in a simple regression. We found that overall, ex situ raters gave slightly higher ratings than in situ raters, $b = 0.13$, 95% CI [0.10, 0.16], $t(28,853) = 7.70$, $p < .001$.

To understand these differences in more detail, we then predicted the value of the rating from type of rating, life events, event characteristics, and two-way and three-way interactions between the three predictors in a second step. This multiple regression model showed that type of rating, $F(1, 28,675) = 56.13$, $MSE = 0.65$, $p < .001$, $\hat{\eta}_G^2 = .002$, as well as two-way interactions between type of rating and event characteristics, $F(8, 28,675) = 143.94$, $MSE = 0.65$, $p < .001$, $\hat{\eta}_G^2 = .039$, between type of rating and life event, $F(9, 28,675) = 10.02$, $MSE = 0.65$, $p < .001$, $\hat{\eta}_G^2 = .003$, and the three-way interaction between type of rating, event characteristics and life

event, $F(72, 28,675) = 9.16$, $MSE = 0.65$, $p < .001$, $\hat{\eta}_G^2 = .022$, explained rather small portions of the variance in ratings.

Looking at the individual contrasts of in situ and ex situ ratings in different combinations of event characteristics and life event revealed many significant contrasts but no interpretable pattern (see Table 3 and [OSM](#)). For example, averaging across all event characteristics, ex situ raters gave higher ratings for serious illness or injury, $\Delta_M = 0.25$, $t(28,675) = 7.44$, $p < .001$, but lower ratings for vacation, $\Delta_M = -0.10$, $t(28,675) = -3.23$, $p = .001$, than in situ raters. In general, differences between in situ and ex situ ratings were larger when examining the different event characteristics (across all life events) than when examining the different life events (across all event characteristics). For example, averaging across all life events, ex situ raters gave higher ratings of social status changes, $\Delta_M = 0.39$, $t(28,675) = 10.47$, $p < .001$, but lower ratings of extraordinariness, $\Delta_M = -0.66$, $t(28,675) = -17.64$, $p < .001$, than in situ raters. A summary of these conditional contrasts is reported in Table 3 and full model results can be found in the [OSM](#). Figure 5 additionally presents the profiles of in situ ratings and ex situ ratings arranged by event characteristics.

In summary, although we found some significant differences between in situ ratings and ex situ ratings, effect sizes indicated that most differences were quite small. Moreover, the extent of the differences between in situ ratings and ex situ ratings depended on the specific life events, the event characteristics, and combinations of life event and event characteristic.

Discussion

The aim of this paper was to describe how common major life events are typically perceived, how much perceptions of major life events vary within events, and how major life

events are perceived by different types of raters. We examined ratings of event characteristics of 10 common life events from three different types of raters which had either recently experienced the events themselves (i.e., in situ ratings) or imagined how they (i.e., individual ex situ ratings) or people in general (i.e., generalized ex situ ratings) would experience the events. Our analyses led to five key findings. First, the life events had distinct profiles of perceptions of their characteristics. Second, there was still considerable variance in individual perceptions of the same event. Third, average profiles from in situ raters and ex situ raters were very similar to each other. Fourth, any differences between types of ratings were more pronounced when comparing different event characteristics (i.e., differences were most pronounced for change in world views, extraordinariness, and social status changes) than when comparing specific life events. Fifth, age of the participants and temporal distance to the event correlated with perceptions of some major life events, but these correlations were specific to different combinations of life events and event characteristics.

Typical Perceptions of Common Major Life Events

We found distinct profiles in average perceptions of major life events. Graduating from high school or university, for example, was typically characterized by high levels of impact, predictability, and positive valence. In contrast, being seriously ill or injured was typically characterized by high levels of challenge, emotional significance, and negative valence. However, as our samples included mostly students and young adults (which means that the selected major life events included those that were rather common in these samples), future research should replicate our findings in more representative samples and with other life events. Moreover, as some preliminary evidence suggests that there may be differences in perceptions of

major life events between different countries or cultures (Masuda & Holmes, 1978; Schwarzer & Luszczynska, 2013), it is also important to replicate our findings in different cultures.

An implication of finding distinct typical profiles of major life events is that it may be possible to create a database with profiles of major life events. If this database were to be created with representative data, it may be a helpful resource to supplement datasets that do not include perceptions of characteristics of major life events such as large panel studies. This would enable researchers to assign events sampled in these datasets their typical characteristics and thereby increase the comparability and generalizability of findings between events and studies.

Interestingly, we found that the typical profiles of the different major life events seemed to share a common core of characteristics. The life events included in this study were all characterized by moderate to high levels of emotional significance and impact and by low to moderate levels of external control and extraordinariness. These similarities may be attributable to different causes: The comparably low levels of extraordinariness, for example, may be because we specifically selected major life events that were well represented and common in the sample and thus in turn less extraordinary than other major life events (e.g., winning the lottery). The high levels of emotional significance and impact are probably due to the definition of major life events as events that are perceived as personally significant and memorable and the resulting instructions asking participants to report events fitting this description. Thus, these characteristics may be particularly important in differentiating major life events from other (minor) events and situations. In contrast, life events differed more on the event characteristics challenge, change in world views, predictability, social status changes, and valence. These event characteristics may thus be particularly important for differentiating among major life events.

Moreover, the average profiles mostly corresponded well to how external raters expected the events to be experienced. Although many comparisons between in situ ratings and ex situ ratings were statistically significant, the effect sizes were rather small, and the differences were thus most likely not practically meaningful. Therefore, previous studies using external ratings of event characteristics (e.g., Bhattacharjee & Mogilner, 2014; Holmes & Rahe, 1967) have probably used relatively accurate approximations of characteristics of major life events. In sum, this finding thus suggests that if one were only interested in average perceptions of major life events, it might be sufficient to use external raters. However, it has to be added that external ratings or categorizations were also often made by the researchers conducting the studies and not by uninvolved participants and that our findings may not generalize to external ratings from researchers.

Variability in Perceptions of Major Life Events

Beyond demonstrating that major life events have distinct profiles of event characteristics, this study also revealed considerable variances in perceptions of the same life event. These variances may stem from several sources: raters, life events, event characteristics, and interactions between these sources (Luhmann & Fassbender, in press; Rauthmann, Sherman, & Funder, 2015; Rauthmann, 2017). Variance due to raters may stem from relatively stable differences between persons such as their personality (e.g., Rakhshani et al., 2020), age, or gender, but it may also stem from momentary states such as current mood (Luhmann & Fassbender, in press). Variance due to life events refers to differences in the objective features of major life events such as time, place, or present people (Luhmann & Fassbender, in press). This variance refers to both variance between different instances of the same life event and variance between different life events. Moreover, it should also be acknowledged that part of the variance

in perceptions of major life events may also be attributable to less meaningful sources such as response styles (e.g., van Vaerenbergh & Thomas, 2013; Weijters et al., 2010) and measurement error.

In our study, we were unable to differentiate between variance due to raters and variance due to life events. As different persons reported their perceptions of different instances of an event, we do not know whether the observed variance was mostly due to differences between persons, differences between the instances of the events, or an interaction of the two. Future research should thus examine and identify the sources of variance in more detail. The underlying methods and theories may be readily adopted from research on person or situation perceptions. Rauthmann et al. (2019), for example, proposed a variance componential framework for the study of situation perceptions that could also be used to inform research on the perception of major life events. Adopting this or a similar approach, future research could address more complex issues such as similarity, consensus, and accuracy of perceptions of major life events (Rauthmann et al., 2019) as well as issues of normativeness and distinctiveness of perceptions of major life events (e.g., Furr, 2008; Rauthmann, 2017; Sherman et al., 2012).

Another interesting approach to differentiating between variance due to life events and variance due to perceivers could be measuring event characteristics more objectively. Variance in objective characteristics cannot be due to raters and therefore only represents variance due to life events. At least some of the event characteristics comprised in the ECQ may indeed be measured more objectively. For example, impact of life events may be measured more objectively by assessing actual changes in people's lives following life events, such as changes in socio-economic status or changes in daily routines measured with mobile sensing methods (e.g., Harari et al., 2017). Such objective characteristics of life events could also provide many other valuable

insights into life events, their characteristics, and their associations with personality change and other outcomes and thus represent a quite interesting direction for future research.

Implications for Examining Associations Between Major Life Events and Personality Change

Our findings have important implications for research on life events and personality change. Empirical studies have often stressed the heterogeneity and variability in findings regarding life event and personality change (e.g., Bleidorn et al., 2018, 2020). One example for this variability are studies finding significant random slopes in personality change following life events: Schwaba and Bleidorn (2019), for example, found that after retirement, retirees on average experienced an immediate increase in agreeableness but then tended to decrease in agreeableness more rapidly than non-retirees. However, they also found sizable variation in the changes in agreeableness between participants but neither age, gender, nor any other contextual moderators accounted for this variability (Schwaba & Bleidorn, 2019).

So far, attempts to explain interindividual differences in personality change following life events mostly focused on person-related characteristics such as age, gender, or personality. However, another possible explanation for these differences may be that people differ in how they perceive major life events and that these perceptions are crucial to their reaction to the event (Lucas, 2007; Luhmann et al., 2020). Future studies should thus examine how including event characteristics and thereby considering variability in perceptions of major life events might improve the understanding of personality change following life events.

The same reasoning applies to the relationships between life events and other psychologically relevant outcomes such as well-being (e.g., Luhmann et al., 2012), loneliness

(e.g., Buecker et al., 2020), post-traumatic growth (e.g., Jayawickreme et al., 2020), or psychopathology (e.g., Monroe & Reid, 2009). Life events also play an important role in these research areas but, similar to research on personality change, effect of life events are often found to vary between individuals and between different life events (e.g., Buecker et al., 2020; Lucas, 2007). Therefore, the inclusion of individual perceptions of life events could also improve the understanding of the relationships between life events and psychologically relevant outcomes like well-being or loneliness.

Limitations

This study was subject to the well-known limitations of self-reports, cross-sectional designs, and WEIRD samples (Henrich et al., 2010). Moreover, the sample sizes of in situ ratings of some major life events (i.e., becoming a parent and marriage) were rather small and our findings can therefore only be regarded as preliminary evidence that must be replicated. Additionally, participants were instructed to describe personally significant, memorable, and clearly timed events in the studies providing in situ ratings. As a result, these studies likely include a fairly specific and probably unrepresentative subset of major life events. Moreover, because participants freely chose and described the life events they had experienced in the studies providing in situ ratings, the descriptions had to be coded post-hoc into the different major life events. The results might have been different if we had chosen a different coding strategy, for example, regarding the degree of abstraction in the different life events. For example, we coded serious illnesses and injuries as one life event, but it would also be conceivable to treat serious illnesses and serious injuries as two different life events. In general, we would expect the variability in perceptions to decrease with more specific and detailed life events and to increase with more abstract and broad categories of life events. A different approach to assigning the

descriptions to the different major life events could have been to combine these free-text answers with traditional checklist approaches and have participants identify the major life events.

Conclusion

We presented descriptive data on how characteristics of common major life events are perceived by different raters. We found that different life events had distinct profiles that corresponded well to external ratings. Major life events can thus be meaningfully described and differentiated with perceptions of event characteristics. However, individual perceptions also varied considerably within life events. Research on associations between major life events and relevant outcomes such as well-being, mental health, or personality change should thus incorporate individual perceptions of major life events to advance the understanding of these associations. Overall, measuring (individual) perceptions of characteristics of major life events can thus overcome the problems of categorical approaches and thereby deepen the understanding of life events and their associations with relevant outcomes such as personality change.

Data Accessibility Statement

- The study materials, data, and analysis scripts used for this article can be accessed at OSF (<https://osf.io/eyu4p/>)
- The online supplementary materials can be accessed at (<https://osf.io/cf2mw/>)
- Interactive figures and tables are presented in a Shiny App (<https://sarahkritzler.shinyapps.io/Perceptions-of-Life-Events/>)

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Table 1*Overview of the dimensions of event characteristics comprised in the ECQ*

Event characteristic	Description	Sample item
Challenge	Amount of stress and anxiety associated with the event	The event was stressful.
Change in world views	Extent to which one's views have changed due to the event	The event let me view things from a different perspective.
Emotional significance	Extent to which the event elicited strong feelings	The event elicited strong feelings.
External control	Extent to which the event was controlled or caused by others	The event was caused by other people.
Extraordinariness	Extent of how ordinary or extraordinary the event was	It is uncommon for people like me to experience such an event in their lives.
Impact	Extent to which one's life has changed due to the event	The event led to changes in my social, family, or work roles.
Predictability	Extent of how sudden or predictably the event had occurred	I knew in advance that the event would be happening.
Social status change	Extent of changes in one's social status and dependence on others	The event hurt my social standing.
Valence	Positive and negative aspects of the event	The event was positive.

Note. Descriptions and sample items were adopted from Luhmann et al. (2020)

Table 2*Description of the overall and individual samples*

	All samples combined	In situ ratings	Individual ex situ ratings	Generalized ex situ ratings
Research question		Research Question 1, Research Question 2, Research Question 3	Research Question 3	Research Question 3
Sample numbers		Sample 1, Sample 2, Sample 3, and Sample 4	Sample 5	Sample 6
Source of the samples		Studies 2 to 4 in Luhmann et al (2020); What's Next Study	Rakhshani, Lucas, Donnellan, Fassbender, & Luhmann (2020)	unpublished data
Instruction for the event perceptions		Please indicate the extent to which you agree with the following statements about the '[self-selected, recently experienced event]' event. (Translated from German)	Imagine you experienced the following life event: [randomly selected, never experienced event]. Please indicate the extent to which you agree or disagree with the following statements about this life event.	Please indicate the extent to which the following statements typically apply to the event [randomly selected event]. (Translated from German)
Number of participants	2,210	778	981	451
Number of ratings	3,555	1,001	1,201	1,353
Gender	422 male 1,645 female 10 other	178 male 594 female 1 other	213 male 759 female 6 other	31 male 292 female 3 other
Age	M = 22.93 SD = 7.07	M = 24.61 SD = 8.35	M = 19.81 SD = 1.35	M = 28.23 SD = 9.10

Note. Research Question 1: What are the typical profiles of characteristics of common life events? Research Question 2: How much do perceptions of major life events vary within events? Research Question 3: How well do ex situ ratings of major life events correspond to in situ ratings?

Table 3

Conditional contrasts of differences between in situ ratings and ex situ ratings within event characteristics and life events

contrast	condition	difference	Std. Error	df	t	p-value
Conditional contrasts A: Differences between in situ and ex situ ratings of specific event characteristics across all events						
ex situ - in situ	Valence	-0.21	0.04	28,675	-5.61	< .001
ex situ - in situ	Challenge	0.28	0.04	28,675	7.41	< .001
ex situ - in situ	Change in world views	0.83	0.04	28,675	22.22	< .001
ex situ - in situ	Emotional significance	-0.12	0.04	28,675	-3.31	.001
ex situ - in situ	External control	0.18	0.04	28,675	4.91	< .001
ex situ - in situ	Extraordinariness	-0.66	0.04	28,675	-17.64	< .001
ex situ - in situ	Impact	0.10	0.04	28,675	2.73	.006
ex situ - in situ	Predictability	0.00	0.04	28,675	-0.08	.939
ex situ - in situ	Social status changes	0.39	0.04	28,675	10.47	< .001
Conditional contrasts B: Differences between in situ and ex situ ratings of specific events across all event characteristics						
ex situ - in situ	Vacation	-0.10	0.03	28,675	-3.23	.001
ex situ - in situ	Graduation	0.12	0.03	28,675	4.30	< .001
ex situ - in situ	Becoming a parent	0.02	0.06	28,675	0.34	.734
ex situ - in situ	Breakup	-0.04	0.04	28,675	-0.96	.336
ex situ - in situ	Death of a family member	0.15	0.03	28,675	4.75	< .001
ex situ - in situ	New relationship	0.10	0.04	28,675	2.64	.008
ex situ - in situ	Marriage	0.25	0.06	28,675	4.32	< .001
ex situ - in situ	New friendship	0.01	0.03	28,675	0.27	.786
ex situ - in situ	New job	0.11	0.03	28,675	3.58	< .001
ex situ - in situ	Serious illness/injury	0.25	0.03	28,675	7.44	< .001

Note. The contrasts presented here are post-hoc comparisons of in situ and ex situ ratings separately within the different event characteristics but across all life events (A) and separately within the life events but across all event characteristics (B). Condition indicates the event characteristics or life events within which in situ ratings and ex situ ratings were compared. P-values were adjusted for multiple comparisons using the Bonferroni method. Differences were calculated based on unstandardized coefficients. Ex situ ratings as listed in this table represent the composite ex situ rating category combining both individual and generalized ex situ ratings.

Figure 1

Average profiles of in situ perceptions of characteristics of the major life events for all events together (A) and separately for each event (B)

A **B**

Note. Lines represent mean values, areas around the lines represent values within one standard deviation above and below the mean. Only in situ ratings (i.e., data from Samples 1 to 4) were considered in this figure. ChangeWV = change in world views, EmoSig = emotional significance, ExtCont = external control, Extraordi = Extraordinariness, Predict = predictability, and SocStatus = social status changes.

Figure 2

Individual and average profiles of in situ perceptions of characteristics of major life events

Note. The light grey lines represent individual perceptions, the black line represents mean values. Only in situ ratings (i.e., data from Samples 1 to 4) were considered in this figure. ChangeWV = change in world views, EmoSig = emotional significance, ExtCont = external control, Extraordi = Extraordinariness, Predict = predictability, and SocStatus = social status changes.

Figure 3

Correlations between participants' age and in situ perceptions of major life events (A) temporal distance to experiencing the event and perceptions of major life events (B)

A**Correlations between age and event characteristics** **B****Correlations between temporal distance and event characteristics**

Note. The dots indicate correlation coefficients, the lines represent 95% confidence intervals. Coefficients displayed in red were significantly different from zero. Participants older than 40 years and temporal distances longer than 12

weeks were excluded from these analyses because there were too little data beyond these limits. As a result, the life events becoming a parent and marriage were excluded completely from the correlation analyses because the sample sizes were too small. ChangeWV = change in world views, EmoSig = emotional significance, ExtCont = external control, Extraordi = Extraordinariness, Predict = predictability, and SocStatus = social status changes.

Figure 4

Average profiles of in situ and ex situ perceptions of characteristics of major life events arranged by life events

Note. The lines represent mean values, the areas around the lines represent values one standard deviation above and below the mean. Ex situ ratings represent the composite ex situ rating category combining both individual ex situ ratings (Sample 5) and generalized ex situ ratings (Sample 6) to simplify comparison. Ex situ ratings of the major life events breakup, new relationship, and vacation represent generalized ex situ ratings only, because these major life events were not included in the sample with individual ex situ ratings. ChangeWV = change in world views, EmoSig = emotional significance, ExtCont = external control, Extraordi = Extraordinariness, Predict = predictability, and SocStatus = social status changes.

Figure 5

Ex situ ratings represent the composite ex situ rating category combining both individual ex situ ratings (Sample 5) and generalized ex situ ratings (Sample 6)

Note. The lines represent mean values, the areas around the lines represent values one standard deviation above and below the mean. Ex situ ratings represent the composite ex situ rating category combining both individual ex situ ratings (Sample 5) and generalized ex situ ratings (Sample 6) to simplify comparison. Ex situ ratings of the major life events breakup, new relationship, and vacation represent generalized ex situ ratings only, because these major life events were not included in the sample with individual ex situ ratings.