COURSE AND PREDICTORS OF RECOVERY FROM DISRUPTIVE LIFE EVENTS

BY

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DISSERTATION

Submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Psychology in the Graduate College of the University of Illinois at Urbana-Champaign, 2011

Urbana, Illinois

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Abstract

There is a history in research of studying traumatic and stressful life events as if they are two completely separate phenomena. Yet there is reason to believe these sets of events are not as different as the literature would suggest. For the many studies that have examined the effects of traumatic or stressful life events, far fewer have examined such effects as they change over time. Though it is important to understand the immediate impact of disruptive life events, it is at least as important to understand the longitudinal course of the sequelae of such events. The current study attempts to characterize the temporal nature of recovery from disruptive life events, and to explore predictors of different patterns of recovery as well as outcomes. The sample consists of 86 women who completed the study and had experienced a traumatic or “very stressful” event. These women completed a semistructured interview, a modified Life History Calendar, and questionnaires assessing anhedonic depression, PTSD symptoms, and negative affect. Results indicate that the type of life event has little influence on outcomes. Recovery from such events is often non-linear, and symptoms tend to have different courses over time. In particular, many women experience two types of symptom discontinuities: sudden gains and spikes. Women often attribute these discontinuities to external events, though they also attribute about half of sudden gains to cognitive or emotional changes. Sudden gains predicted several long-term outcomes, whereas spikes only significantly predicted one outcome.
Acknowledgements

This project would not have been possible without the help of many people. I must thank my dissertation chair, Howard Berenbaum, who was unfailingly supportive, reliable, and challenging. This project would not be what it is without his consistent guidance. Likewise, I thank my advisors, Louise Fitzgerald and Nicole Allen, for guiding me through graduate school, helping me to develop my ideas and sense of myself as a professional. Indeed, my entire committee seemed dedicated to simply helping me to make this the best project I could and to supporting me along the way.

In addition, I could not have made it this far without the help of friends and family. First, I thank my parents, who always believed in me. Second, I thank my friends, who encouraged me and struggled through the process with me. And last, but most of all, I thank my husband. I absolutely could not have done this without you. Your belief and love has meant the world to me.
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Introduction

There is a long history in psychological research of investigating the effects of stressful events. The study of traumatic life events started with interest in war veterans and rape victims, and has steadily grown in interest. At the same time, there has been a long history of studying the effects of stressful life events, mostly as contributors to depression. Although these literatures both deal with negative life events, they have remained largely separate, and focused on their respective sequelae. Yet there may be reason to believe that these sets of events are not as different as their separate literatures would suggest. Certainly there is variability within each category of events, and many events are overlapping and commonly studied by both. Within both literatures, many studies focus on one type of trauma or one type of outcome, which does not allow us to investigate whether such events are meaningfully different. It also narrows researchers’ focus onto a particular set of outcomes or emotions, such as PTSD vs. major depressive disorder, or fear vs. sadness, when it may be the case that such outcomes are quite similar across event types. Therefore, I will investigate outcomes associated with a broad range of what I will call “disruptive life events,” which would include events traditionally incorporated within the traumatic stress and the stressful life events literatures.

For the many studies that have examined the effects of traumatic or stressful life events, far fewer have examined such effects as they change over time. Though it is important to understand the immediate impact of disruptive life events, it is at least as important to understand the longitudinal course of the sequelae of such events. Very little research has examined, in a descriptive way, what the course of recovery from traumatic or stressful life events looks like. There is evidence that, for instance, PTSD can be a chronic condition, one that causes impairment for years after a traumatic life event (e.g. Kessler, Sonnega, Bromet, Hughes, &
Nelson, 1995). Therefore, it is important to understand why disruptive life events affect some people for years, whereas others quickly recover. Hopefully, a better understanding of the natural course of recovery (not just treatment-assisted recovery) will help to elucidate the maintenance of life event-related symptoms and suggest ways to assist in treatment. For instance, studies of naturalistic recovery have yielded important insights into areas as broad as smoking cessation (Carey, Snel, Carey, & Richards, 1989; Cohen, et al., 1989), alcohol use (Cunningham, Sobell, Sobell, & Kapur, 1995; Humphreys, Moos, & Finney, 1995), and specific phobias (Vernon & Berenbaum, 2004).

To my knowledge, there has only been one non-therapy study of patterns of recovery following disruptive life events. Gilboa-Schechtman and Foa (2001) conducted a longitudinal study of recovery following sexual and non-sexual assaults. They reported that, although the course of recovery is theoretically important, their study was the first to examine how trauma variables affect patterns of recovery. For instance, anxiety theory predicts that people must emotionally engage with a “fear network” in order to process and recover from a trauma (e.g. Foa & Kozak, 1986), but most studies miss such fine-grained analysis by aggregating individual change patterns. They found, as predicted, that particular patterns (e.g. emotional engagement, operationalized as early peaks in symptom levels) predicted lower overall symptom levels. Such naturalistic studies have the potential to yield important insights about what recovery looks like, what predicts it, and, perhaps, how to assist in the recovery process. Although this study was an important first step in such research, it also raised many more questions. First, they focused only on physical or sexual assaults, leaving unclear whether these patterns would apply more broadly to traumatic or stressful events. Moreover, it would be useful to see whether other factors, such as additional events during the course of recovery, would also have an influence on the pattern of
recovery. Second, this study did not examine some patterns of recovery that have been found in therapy studies (e.g. sudden gains and spikes), so it is not clear whether these would apply to a naturalistic recovery sample. Overall, the study raised interesting questions in a new area of research. The current study aimed to build on this type of research in a somewhat exploratory manner, in order to examine a broader range of events and patterns of recovery. Thus, the main goal of the current study was to examine descriptively what recovery from disruptive life events looks like, as well as what predicts different patterns of recovery and outcomes.

**The Course of Recovery from Disruptive Life Events**

In order to best understand the effects of disruptive life events, it is first important to understand at a basic, descriptive level, what recovery looks like. Although researchers have paid some attention to what variables predict recovery, there has been less attention to temporal patterns and changes in symptoms, per se. In other words, for the most part research has focused on how variables contribute to the onset of depression, PTSD, or other disorders, without an explicit focus on when and why people recover from them. For instance, we know little about even whether recovery is a linear process or is best characterized in some other way (quadratic, discontinuous, circular). There is perhaps important—and neglected—information to be learned from examining descriptive accounts of what symptoms look like over time. Indeed, in the past ten years, therapy researchers have started to empirically examine symptom course during therapy, including the assumption that change in therapy is mostly a gradual, linear process. Hayes et al. (2007), for instance, argue that symptom discontinuities can be particularly informative because they mark periods of transition, where important change processes are likely to be occurring.
In particular, two types of discontinuity have been found to be important in therapy, and may have relevance for naturalistic recovery as well: sudden gains and spikes. Sudden gains—large, rapid, stable improvements in symptoms—were first studied by Tang and DeRubeis (1999), who found that these often took place after therapy sessions involving substantial cognitive shifts. A large literature has now developed to show that sudden gains in psychotherapy predict lower symptom levels at the end of treatment. Sudden gains have generally been defined similarly to how Tang and DeRubeis defined them, using three (somewhat arbitrary) criteria: the gain was at least 7 points on the Beck Depression Inventory (BDI), the gain represented at least 25% of the pregain session’s BDI score, and the mean BDI score of the three therapy sessions before the gain was significantly higher than the mean BDI score of the three therapy sessions after the gain. Most of these studies have focused on cognitive behavioral therapy for depression (Tang & DeRubeis, 1999), but the same phenomenon has also been found to some extent in other populations, such as community-based “treatment as usual” for adults (Stiles, et al., 2003), and clients with social phobia (Hofmann, Schulz, Meuret, Moscovitch, & Suvak, 2006). Only one study has examined sudden gains in a non-psychotherapy sample (Kelly, Roberts, & Bottonari, 2007). Moreover, only one study has examined sudden gains in PTSD symptoms (Kelly, Rizvi, Monson, & Resick, 2009). This study found that sudden gains in PTSD symptoms were associated with greater reductions in avoidance/numbing and hyperarousal symptoms at posttreatment, though the non-sudden gain group had achieved equal reductions in symptoms by a 6-month follow-up. However, a group experiencing sudden gains in PTSD symptoms had lower depression severity at both posttreatment and follow-up.

Spikes, as defined by Hayes et al. (2007), are large, rapid increases in symptoms, followed quickly by a corresponding decrease in symptoms. Hayes et al. (2007) hypothesized
that “spikes” in depression scores in the middle phase of therapy would be important indicators of emotional processing. Indeed, they found that those clients who experienced a spike in depression scores (operationalized as a seven-point increase in depression scores followed by a decrease of that same amount in the same phase of therapy) had significantly lower posttreatment depression scores than those who did not. Such spikes are conceptually similar to the “peaks” examined by Gilboa-Schechtman and Foa (2001). They hypothesized that emotional engagement, or fear activation, is necessary to fully process and recover from a trauma. Indeed, they found that those who “peak” earlier (operationally defined as the highest level of PTSD symptoms recorded) exhibited less severe pathology at the final assessments. These two studies examine slightly different constructs, and in very different populations, but they both seem to point to the importance of increases, as well as decreases, in distress levels as predictors of overall recovery.

Unfortunately, to date there has been only one non-therapy study of sudden gains, and none of spikes. Although therapy samples provide important information about one type of change process, it is not clear whether such information will generalize to people recovering on their own, as most do. Moreover, most therapy studies only examine one symptom (e.g. depression). And because most such studies have examined clinical trials, they are often 12 to 16 weeks of therapy, thus providing a very small window by which to view the process of change. Even when they include a follow-up, this generally only provides one further time point. Therefore, I examined sudden gains and spikes, but in a naturalistic recovery sample, including several symptoms, up to three years following the disruptive life event.
Potential Negative Outcomes of Disruptive Life Events

In examining the linearity, or discontinuity, of recovery, I focused on three major types of sequelae of disruptive life events: negative affect, PTSD, and anhedonic depression. I should also note that there is evidence that some people experience few or no adverse outcomes from trauma or stressful life events (Bonanno, 2005), and that this study focused on those who do, at least initially.

Clearly, PTSD and depression are both important outcomes of disruptive life events. In a review of epidemiological studies, Solomon and Davidson (1997) noted that lifetime prevalence of PTSD following traumatic events varies from 1% to 12.3%, with certain events (e.g. rape) leading to higher rates of PTSD. Additionally, PTSD is associated with severe distress and impairment (Solomon & Davidson, 1997), making it an important outcome to understand further. Hundreds of studies have converged on the finding that stressful life events lead to depression, though of course not everyone who experiences such events becomes depressed (see Kessler, 1997). Moreover, many studies have found that early traumatic events lead to depression, mostly early-onset (Kessler, 1997). Depression is one of the leading causes of disability worldwide among all diseases (as measured by years lived with a disability; Lopez & Murray, 1998), and so it is also very important to understand its etiology and course.

Potential Predictors of Outcomes and Discontinuities (Sudden Gains/Spikes)

In addition to descriptively examining the course of recovery, I also studied predictors of both outcomes and recovery discontinuities (i.e. sudden gains and spikes).

Predicting outcomes.

Nature of the event. As noted above, there is an implicit assumption within the stress and trauma literatures that stressful events are primarily associated with depression (sadness), and
traumatic events are primarily associated with PTSD (fear). However, it may be the case that extremely stressful life events are empirically not very different than DSM-IV-defined traumatic events, and that they in fact cause similar outcomes. Therefore, I included both traumatic and extremely stressful events and examined whether they, in fact, lead to different outcomes.

**Sudden gains and spikes.** As mentioned above, sudden gains and spikes have been associated with positive outcomes in the therapy literature. They predict better outcomes at post-treatment and, less consistently, at later follow-ups. In order to determine whether such findings generalize to naturalistic recovery, I examined whether they would also predict better outcomes in a non-therapy sample.

**Predicting sudden gains and spikes.**

**Nature of the event.** There may be differences in type of recovery from stressful or traumatic events, even if these are not associated with different outcomes. Thus, I examined whether the incidence of sudden gains or spikes was different across stressful as opposed to traumatic events.

**Further external or internal “events”**. In addition to the event itself, there are likely to be other significant external or internal “events” (i.e. psychological changes) that may affect the course of recovery from a particular disruptive life event. In some cases these may lead to discontinuities in distress, either positive or negative. This issue has been preliminarily examined in the therapy literature, and some hypotheses posed. For instance, Tang and DeRubeis (1999) found that following sessions involving “cognitive shifts,” people are likely to have a large decrease in depressive symptoms. However, other studies have been unable to find hypothesized cognitive or self-esteem changes leading to sudden gains (Hofmann et al., 2006; Kelly, Roberts, & Ciesla, 2005) or have found that sudden gains occurred before cognitive processing work was
conducted in therapy (Kelly et al., 2005). One study found that sudden gains sometimes occur before the first therapy session, calling into question whether therapeutic processes are involved at all (Busch, Kanter, Landes, & Kohlenberg, 2006). Additionally, a study examining whether events outside of therapy contribute to sudden gains found no support for the hypothesis (Hardy et al., 2005). Thus, to date there is little evidence for what might lead to sudden gains and spikes, suggesting that a more exploratory, qualitative approach may be helpful as a starting point. Many studies of sudden gains essentially examined the variables available to them in existing datasets, so they did not have the ability to examine new variables. Therefore, in the current study, I asked women for their own interpretations of why sudden gains and spikes occurred.

**Gender and Disruptive Life Events**

Traumatic and stressful life events are common among both men and women. In the current study, I decided to focus on women. This is partially a matter of personal interest, and partially a matter of logistics. There is substantial evidence that, on average, women experience different types and amounts of traumatic and stressful events as well as different rates of mental disorders, such as depression and PTSD, following such events (e.g. Breslau & Anthony, 2007; Freedman et al., 2002; Olff, Langeland, Draijer, & Gersons, 2007; Tolin & Foa, 2006). Thus, given limited resources for the current study, I decided to focus on disruptive life events among women in particular.

**The Current Study**

The overarching goal of the current study was to begin to understand the process of naturalistic recovery from disruptive life events. This goal was composed of two main constituent goals: (1) to characterize the temporal nature of such recovery, and (2) to explore predictors of different patterns of recovery as well as outcomes.
(1) What does naturalistic recovery from a disruptive life event look like? I first examined whether it was possible to identify distinctive patterns of recovery across women. I also examined, more specifically, whether recovery can best be characterized as a fairly linear process, in which symptoms gradually decrease at approximately the same rate. If recovery is not linear, I proposed to examine two particular ways in which it might be characterized: sudden gains and spikes (including prevalence, magnitude, and reasons for them).

(2) Second, I proposed to explore what factors predicted different patterns of recovery (i.e. sudden gains or spikes) or outcomes, including several interrelated questions:

(A) Predicting outcomes

  i. Nature of the event: Do stressful and traumatic events indeed predict different kinds of outcomes (e.g. negative affect, depression, or PTSD symptoms), or are outcomes overlapping?

  ii. Sudden gains or spikes: If recovery can be characterized by sudden gains or spikes, do these patterns predict better long-term outcomes?

(B) Predicting sudden gains or spikes

  i. Nature of the event: Do stressful and traumatic events predict different patterns of recovery (i.e. sudden gains and spikes)?

  ii. Significant internal or external events during recovery: Can sudden gains or spikes be attributed to further events during the course of recovery or to significant shifts in cognition or emotion?
Methods

Epistemological Stance

Qualitative scholars have long called for authors to establish their place in their own research, including their values, biases, and assumptions. My interest in psychology actually started about nine years ago with an interest in sexism and violence against women. From the beginning of my involvement in violence against women issues, my applied and research work has been informed by feminist models and mentors. The current study is not explicitly feminist or critical, as it does not have an explicit emphasis on changing social inequality (Harding, 1987). However, it is still informed by feminist research models in at least two ways. First, and most basically, there is an explicit interest in understanding the experience of women and valuing their experiences as important. Second, feminist researchers emphasize that there is no “universal woman” and that women’s experiences must be understood individually and in context. Thus, although I have emphasized universals, I also feel there is a need to ground nomothetic laws in individual, contextualized experiences (i.e. privileging women’s voices) to truly understand them (e.g. Olesen, 2003).

This tension is evident in my struggle to place myself somewhere in the qualitative-quantitative or constructivist-positivist divides. I find it more likely that rather than the two choices, these paradigms are opposite ends of a continuum, along which one can situate oneself (see Johnson & Onwuegbuzie, 2004). My own intellectual location incorporates my position between these two endpoints as well as the other factors that have influenced my thinking in relation to my research. The feminist influence is one that has shaped my research as well as my clinical work. And in my thinking about paradigms, I have come to believe that I reside somewhere near a post-positivist (primarily quantitative) endpoint, but with a significant
constructivist (and certainly qualitative) influence. Like many post-positivists, I believe that there is a real world that can be studied and reported about (e.g. Ponterotto, 2005). I believe that there are nomothetic laws to be discovered and commonalities among people in the way that they respond to certain situations. But I also believe that each of us views, experiences, and constructs the “external” world somewhat differently depending on our own position in that world (Ponterotto, 2005). Moreover, in the conduct of my research, although I do not believe it is possible to be strictly “objective,” I believe that is a worthy ideal to strive toward, while simultaneously being aware of and transparent about one’s own views. I believe this mental model is reflected in the overall research questions I have posed in my work. Thus, I want in part to understand broadly how different ways of recovering from disruptive life events affect long-term outcome, a primarily quantitative purpose. However, I believe it is not enough to understand such differences across people. To truly understand a phenomenon (recovery from disruptive events, in this case) and how it is experienced by people, we must have an individualized and contextualized “insider” view (Gephart, 2004), one perhaps best illuminated using a qualitative methodology.

Participants

Three inclusion criteria were used to determine which women would be eligible to participate: (a) over the age of 18; (b) have experienced a “disruptive event” within the past three years; and (c) define themselves as having at least started to recover from the event. To determine whether a woman had experienced a “disruptive life event,” I asked whether she had experienced an event she considered stressful or traumatic, and that had some impact on her lasting at least one week (See Appendix B for recruitment script, including full definition of
“disruptive event”). One hundred seven women met these inclusion criteria and completed their participation in the study

The reported focal event varied widely, both in type and severity. As described below, each event was rated for 1) whether it would meet DSM-IV Criterion A standards to be considered traumatic and 2) whether it would be considered a “very severe” or “extremely severe” stressor. Of the 107 women who completed the study protocol, 50% were judged to have experienced traumatic events, and on average, events were rated as “very severe”. For the purposes of this study, I included only those participants who experienced an event that was rated to be “traumatic” and/or a “very severe” or “extremely severe” stressful event (see “Event severity” section below for more information). Twenty-one women were excluded who had experienced an event rated as neither traumatic nor a very/extremely severe stressor.

Of the remaining 86 women, 79% were recruited from the community, with the remaining 21% having been recruited from the Psychology Department subject pool. Community participants were entered in a drawing to win one of three $50 prizes, and subject pool participants received course credit for participating; all participants were thanked for their time with a bag of chocolates.

Participants’ average age was 36.3 ($SD = 17.1$, minimum = 18, maximum = 85). The majority of the sample (73%) self-identified as white, with an additional 12% identifying as African American, 8% Asian/Pacific Islander, 5% Hispanic, and 2% identifying “other” or more than one category. About half (49%) of participants self-reported that their household income was under $50,000, with 51% above $50,000. The sample was fairly highly educated: 11%

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1 Two additional women completed at least part of the protocol but were not included in any analyses. One woman became too upset during the study to complete the protocol. Another woman described an incident that happened four years ago.

2 Four of these stressors were rated as “a little” severe and 17 were rated as “moderately” severe.
reported a high school diploma or less, 57% had some college or a college degree, and 32% reported some graduate school or a graduate degree. Most (42%) were single, 31% married or partnered, and 26% divorced or widowed (1 person did not respond to the relationship question, so percentages do not add to 100).

**Procedure**

After an initial eligibility screening, participants completed an informed consent form and then questionnaires before meeting in person. They filled these out either in paper or electronic form (see below; See Appendix C for full quantitative questionnaires). Pre-session questionnaires included demographic information, information about the event itself, past stressful/traumatic events, and psychological functioning within the past week.

Next, participants completed an in-person session. This session began by asking participants to describe the event and how it affected them, in an open-ended way. When appropriate, probes were used to gather further information about distress, course of recovery, and coping. Next, participants completed a Life History Calendar with my assistance (see below; See Appendix D for sample Life History Calendar). After completing the life event portion, they filled out the remaining questionnaires, which assessed functioning (PTSD, depression, and negative affect) in the week after the event started (and, when relevant, in the week after the worst part of the event). Participants used the scores that they had completed to help determine severity of symptoms immediately after the event and in the past week. They were then asked to “draw” the trajectory of the sequelae from one week after the trauma to the present. In particular, they were asked to draw the trajectory of “dysphoria”/negative mood, and three PTSD symptom clusters: re-experiencing, avoidance, and hyperarousal. The session ended with further probes.

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3 For those women (n=14) who filled out the “week after the worst part of the event” questionnaires, these scores were substituted for the “week after the event” questionnaire scores in all relevant analyses.
about meaning-making, emotional processing, and recovery, and an invitation to add anything that had been missed.

Measures

**Quantitative questionnaires.** The quantitative questionnaires asked a series of closed-ended questions pertaining to the disruptive life event in question. Participants were asked to respond about the sequelae (negative affect, PTSD, and depression) with two time-points in mind: the week after the event and the previous week (and, when relevant for ongoing events, the week after the worst part of the event). Please see Table 1 for all scale reliabilities.

**Negative affect.** Twenty items assessed the extent to which the participants felt emotions: sad, afraid, angry, guilty, and ashamed. Each emotion was assessed using 4 items. Items were drawn from existing measures, modified to all be in the same format. In particular, they were drawn from the Brief Symptom Inventory (Derogatis, 1993), the Positive and Negative Affect Schedule—Expanded Form (PANAS-X; Watson & Clark, 1994), a scale from Thompson & Berenbaum (2006), and the State Shame and Guilt Scale (Marschall, Sanftner & Tangney, 1994). Finally, four additional items were drawn from the PANAS negative affect scale, so that the entire scale could be used as a measure of general negative affect.

**PTSD.** The PTSD Checklist (PCL; Weathers, Litz, Herman, Huska, & Keane, 1993) was employed to assess the presence and severity of PTSD-related symptoms. The PCL contains 17 items indicating the degree to which the respondent has been bothered by symptoms of re-experiencing, avoidance/numbing, and hyper-arousal corresponding to the DSM-IV (American Psychiatric Association, 1994) criteria for PTSD. Several studies have provided evidence for the psychometric properties of the PCL (e.g. Blanchard, Jones-Alexander, Buckley, & Forneris, 1993).

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4 Several other questionnaire scales were administered but not used for the purpose of this paper. These included the Life Events Checklist and measures of emotional processing, emotional expression, emotional suppression, physical health, meaning-making, impairment, posttraumatic growth, and several questions about the event itself.
Anhedonic depression. Eight items from the Mood and Anxiety Symptom Questionnaire (MASQ; Watson & Clark, 1991) were used to assess anhedonic depression. Watson, Weber et al. (1995) demonstrated that the Anhedonic Depression subscale differentiates depression from anxiety well, while maintaining good convergent validity. Further research has shown that items on the MASQ anhedonic depression scale load onto two separate factors, one of which consists of 8 items regarding depressed mood, lack of motivation and other symptoms of depressive disorders (e.g., "felt really slowed down"), and another which consists of 14 reverse-scored items related to experiencing pleasant emotions (e.g., “felt like nothing was very enjoyable”; Nitschke, Heller, Imig, McDonald, & Miller, 2001; Watson, Clark, et al., 1995; Watson, Weber, et al., 1995). Bredemeier et al. (in press) have shown that the 8-item subscale better predicts a current depressive disorder than either the 14-item subscale or the total anhedonic depression subscale; thus, only the 8-item subscale was used for this study.

Life History Calendar symptom drawings. The Life History Calendar (LHC) is a tool that has been used in various studies to collect life event information in as reliable a manner as possible. For instance, several authors have detailed the usefulness of inquiring about similar events in a sequence, using a visual format to allow comparison across life events as a check on accuracy, and using personally salient, time-anchored events to prompt recall (Caspi, et al., 1996; Freedman, Thornton, Camburn, Alwin, & Young-DeMarco, 1988; Kessler & Wethington, 1991; Lyketsos, Nestadt, Cwi, Heithoff, & Eaton, 1994). These methods have produced highly reliable reporting on life events, as well as psychopathology, for up to 12 years in the past (e.g. Lyketsos
et al., 1994). Test-retest reliability after five years shows concordance in the range of 70-100% for life events, substantially higher than with standard recall methods (Freedman et al., 1988).

I used this tool as a way to help participants most accurately recall the course of sequelae since a disruptive life event. After completing questionnaires, participants used the scores from the questionnaires to help determine severity of symptoms immediately after the event and in the past week. In particular, severity of four symptom clusters was determined: “dsyphoria”/negative mood, and three PTSD symptom clusters: re-experiencing, avoidance, and hyperarousal. Participants were then asked to “draw” the trajectory of the sequelae from the start of the event to the present. This was a fairly new use of the tool, as previously it has mainly been used with life events, and, to a lesser extent, with psychopathology. However, there is reason to believe that the LHC symptom drawings would improve recall of symptom change to the extent possible by using landmark personal events and framing the recall period between a serious life event and the present, rather than simply asking about a predetermined but arbitrary length of time (e.g. Loftus & Marburger, 1983).

**Qualitative interview.** In order to develop a more complete understanding of how recovery would actually be experienced by participants, I conducted qualitative interviews along with the questionnaires and LHC. Pennell (1996), for example, argues that narratives offer one way to “assure that interpretations and conclusions drawn from aggregate data remain rooted in the lived experiences of the individuals studied” (p. 779). For the purposes of this study, qualitative data consisted of the open-ended answer at the beginning of the interview (“tell me about the event you experienced and how it affected you”) as well as the rich information obtained while filling out the Life History Calendar, and answers to three semi-structured
questions at the end of the interview (“How did you deal with the emotions brought up by this event,” “How did you make meaning of the event,” and “What does recovery mean to you?”).

**Analysis**

**Use of qualitative data.** Though this study primarily focused on quantitative analyses, qualitative data were used for several complementary purposes. Because the constructs of “disruptive life events” and “recovery” are both multifaceted, new, and poorly understood, I wanted to explore them both from a nomothetic and an ideographic point of view. In particular, in examining sudden gains and spikes, I wanted to obtain a sense of their frequency and relationship to other constructs (quantitative data and analyses), as well as a sense of their meaning and importance to participants (qualitative data and analyses). Each main construct was assessed using both quantitative and qualitative methods, and will be presented below as informed by both types of data.

Qualitative data was used in several ways, such that each qualitative interview was engaged in multiple ways. Following each interview, I took field notes, minimally attending to temporal course of recovery (including sudden gains, spikes, and any other, unexpected parameters), contextual factors, and similarities and differences among women’s experiences. Additionally, I coded each interview (along with the LHC) for the presence of sudden gains and spikes, along with the reasons given for them. Asking for women’s own attributions for sudden gains and spikes allowed for new reasons and interpretations to emerge that had not yet been considered within the therapy literature. At the same time, this allowed me to quantify such reasons to give a sense of their overall frequency, at least as reported by women themselves. Finally, three participants’ experiences were also developed into case study narratives used to illustrate women’s lived experiences of recovery from disruptive life events.
In addition to qualitative data serving a complementary purpose, qualitative data was used for the purpose of development (Greene, 2007), informing instrument development and analyses\(^5\). Analyses proceeded in a somewhat iterative manner, in that data coding was started while interviews were ongoing. Thus, based on my field notes and the coding that had been done, I started to generate “lessons learned” so far and quantitative analyses to follow up on them. Although most quantitative analyses presented below were suggested by a reading of the relevant literature, some hypotheses and questions about the quantitative data were also suggested or influenced by initial findings and impressions based on field notes. First, coding both interviews and Life History Calendars suggested that there would be significant variability in terms of how gradual/linear recovery was, as well as how much various symptoms changed together over the course of recovery. Second, interviews tended to confirm the importance of sudden gains to participants, but suggested that spikes may have different meaning—and perhaps less importance—in this sample than in therapy samples. Third, interviews suggested that there may be important differences between women’s recovery from discrete vs. ongoing events\(^6\). Thus, ongoing engagement with the qualitative data (from conducting interviews, reviewing field notes, and coding data) suggested several exploratory, descriptive, and predictive quantitative analyses, which were based on both quantitative and coded qualitative data.

In part based on the results of these analyses (indicating the frequency and importance of various types of recovery), and in part based on my field notes, I chose three women to serve as case studies. These cases were not chosen to be representative of the women in the study but

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\(^5\) Though not directly relevant to this paper, qualitative data were used for purposes of questionnaire and interview development. First, emerging results during the interviews indicated that women were not understanding or using some of the quantitative measures in the way that I had intended. Thus, some measures were modified early on in the process to make them more useful and interpretable. Moreover, a new qualitative question (“What does recovery mean to you?”) was added as it became clear during interviews that the researcher and participants sometimes had very different ideas of what recovery meant.

\(^6\) Interviews also suggested the importance of sudden gains or spikes due solely to cognitive or emotional changes. Unfortunately these types of discontinuities were too rare to permit such analyses.
rather as exemplary (Schwandt, 2007). They were chosen because they (1) illustrated a variety of
types of disruptive life events, (2) illustrated sudden gains and spikes due to a variety of reasons
(both confirming and disconfirming hypotheses based on existing literature), and (3) were
articulate and insightful in their descriptions of their recovery process.

**Data coding.**

**Event severity.** Each focal event experienced by participants was coded for whether or
not it would count as a traumatic event according to the DSM-IV. The DSM-IV defines a trauma
by two criteria: an event in which “the person experienced, witnessed, or was confronted with an
events or events that involved actual or threatened death or serious injury, or a threat to the
physical integrity of self or others” (Criterion A1) and “the person’s response involved intense
fear, helplessness, or horror” (Criterion A2). Based on DSM criteria and the Life Events
Checklist (Gray, Litz, Hsu, & Lombardo, 2004), Howard Berenbaum and I rated whether each
event would meet Criterion A1. We agreed on 94% of events, leading to a kappa of .89. When
we disagreed, the events were decided by a third subject matter expert, Melissa Milanak.
Criterion A2 was determined by asking participants to indicate the extent to which they felt
afraid, helpless, or horrified following the event (1=not at all, 2=a little bit, 3=moderately,
4=quite a bit, 5=extremely). If they indicated a “4” or “5” (“quite a bit” or “extremely”) on the 5-
point scale, they were considered to have met Criterion A2. These two criteria were combined to
evaluate whether the participant met full DSM criterion A for a traumatic event.

Next, each event was coded for level of severity based on the Stressful Life Events and
Difficulties Interview. This is a comprehensive interview and rating system developed by Jane
Leserman to rate objective, contextual severity of stressful life events (Leserman et al., 1997;
Leserman et al., 1999; Leserman et al., 2000; Leserman et al., 2002; Leserman, Petitto, Perkins,
Folds, & Harmon, 2008). Based on Brown and Harris’ (1978) seminal work, this system relies on utilizing information about the event itself and the context around it, without reference to the individual’s reaction to the event. In order to obtain such information, three research assistants were first trained for approximately 5 hours in the use of this system. Following training, each assistant listened to approximately one-third of the interviews. They created event descriptions for each interview they listened to, excluding mention of the participant’s emotional reaction to the event. Then each event description was rated for severity by Sadie and the three research assistants (one of whom had written the description of that event and two of whom rated the event solely based on the event description). Each event was rated on a 1 to 4 severity scale (4=extremely severe, 3=very severe, 2=moderately, 1=little). Events judged to be a “normal hassle or minor difficulty” would not be rated (though all focal events in this study were judged to be at least “a little” or “moderately” stressful). Ratings were discussed, and a consensus was reached in cases of disagreement. Interrater reliability, measured by intraclass correlation (treating raters as random effects and the mean of the raters as the unit of reliability), was .95.

In addition to coding the focal event, research assistants recorded any further stressful life events that had occurred since the beginning of the focal event. These were also coded for stressfulness in the same manner as outlined above (intraclass correlation for rating these “other” events was .91).

**Sudden gains, spikes, and reasons for them.** Using both the LHC and the interviews, each interview was coded for the presence and timing of sudden gains and spikes. A sudden gain was judged to have occurred if there was a “sudden improvement in symptoms or well-being that occurred within a month’s time or less”. This change would be represented by at least a 1 point per month change on the LHC and/or a change that was expressed verbally by the participant as
“large” or “big” (see Appendix E for a description of the coding criteria). Similar criteria were developed for spikes to denote that they would be a large increase in symptoms (at least one point per month on the LHC) followed within two months by a large decrease in symptoms (at least one half point within the first month).

I trained two research assistants in this coding task (approximately 10 hours training). Each rater listened to each interview while observing the Life History Calendar. Each coder rated whether a sudden gain or spike had occurred for each symptom (yes, no, or probably), when it occurred, and whether it was stable (in the case of a sudden gain). Each interview was discussed, and consensus was reached in cases of disagreement.

To calculate interrater reliability, I examined each instance when there was a possibility of a sudden gain or spike. That is, each incident in which at least one rater coded a sudden gain or spikes as occurring was treated as a potential sudden gain or spike. For each one of these instances, each rater could have coded that a sudden gain (or spike) definitely occurred, probably occurred, or did not occur (if a rater had no code for that particular incident, this was counted as a “no”). To calculate interrater reliability for each of these instances, a “no” was coded as 0, “probably” as 1, and “definitely” as 2. I was then able to calculate an intraclass correlation coefficient for each sudden gain and spike, for each type of symptom. For sudden gains, intraclass correlation coefficients ranged from .91 to .95, and for spikes from .88 to .95 (see Table 2).

Next, I dichotomized ratings for each potential sudden gain and spike incident, such that for each potential incident, each person was judged to have experienced a sudden gain/spike or not. Any rating of “probably” was counted as having a sudden gain or spike. Then I computed interrater reliability (kappa) for this dichotomized rating of whether or not a sudden gain (or
spike) occurred. This was calculated for each symptom, as well as for whether there was a sudden gain or spike, regardless of symptom. For sudden gains, pairwise kappas were all significant and ranged from .67 to .91 ($M=.81$; see Table 3). For spikes, they were all significant and ranged from .65 to .90 ($M=.80$; see Table 3). Kappas for whether there was a sudden gain on any symptom were lower, though still significant: .52, .57, and .56 for sudden gains, and .67, .70, and .63 for spikes.

Interrater reliability was also calculated for the other information coded about each recovery parameter. First, raters noted how many months after the event each sudden gain or spike occurred. Intraclass correlation coefficients for the number of months was .99 for sudden gains and .99 for spikes. For each sudden gain, raters coded whether it was stable (yes, no, or insufficient data). Pairwise kappas ranged from .75 to .80.

Additionally, the two research assistants and I recorded the reasons given by participants for sudden gains and spikes. A single comprehensive list of reasons for each coded sudden gain and spike was created. A basic content analysis was conducted on this list to determine overarching categories. Most broadly, such reasons could be divided into “internal” reasons and “external” reasons (few people were unsure or unable to say what contributed to a sudden gain or spike). Internal reasons consisted of (1) cognitive changes, including changing beliefs, priorities, ways of thinking, or meaning attached to the event, and/or (2) emotional changes, including major changes in emotions or emotional processing. External reasons included (1) events related to the initial event (e.g. finding that a perpetrator of a crime has been placed in jail), (2) reminders of the initial event (e.g. the anniversary of an event), (3) events unrelated to the initial event, and/or (4) receiving social or emotional support, including seeking support through
therapy or clergy. Thus, the reasons given for each sudden gain or spike were coded as to whether they included internal and/or external reasons, or neither.

Finally, for each sudden gain and spike agreed on by consensus, one research assistant measured the size of the change on the LHC Symptom Drawing. In order to standardize this measurement, the largest 2 month change was measured for each sudden gain (starting from the month agreed on by consensus), and the largest one month increase and one month decrease was measured for each spike. Additionally, when a sudden gain or spike included more than one symptom, the one with the greatest change was recorded. Using a grid-type ruler, changes were measured to the nearest .1 point.

*Life History Calendar symptom drawing measurement.* A grid-type ruler was used to measure the level of each symptom (as drawn on the Life History Calendar) at each of four equidistant time points each month, thus providing symptom levels for approximately each week since the event.

*Coding for overall patterns.* Three research assistants and I attempted to categorize LHC symptom drawings into groups based on overall patterns. Assistants were first trained in recognizing similarities and differences among various line drawings, then grouping them into coherent groups and describing the differences among groups (approximately 1 hour training). Next, each of the four raters examined 21 LHC’s and attempted to sort them into groups and write a description of each of the groups. All raters then discussed groups to determine whether an overall system could be established.
Results

Case Studies

In order to ground data from the following quantitative analyses in women’s actual experiences of the recovery process, I will first present three case studies of women dealing with three very different life events. Data for these case studies was drawn primarily from the qualitative interview, as well as from questionnaires and LHC symptom drawings. In order to preserve confidentiality, names, identifying information, and some information about events have been changed. Further, though a full case study narrative was developed as part of the analysis, the full narratives are not presented here, as doing so would likely be identifying. Rather, pieces of the narratives (with details changed) are presented throughout the results in order to illustrate the quantitative events.

Talking to these three women, along with many others, suggested (and reinforced) the importance of the type of event experienced and of discontinuities in the process of recovery from that event (especially when these involved emotional or cognitive shifts). Though symptom changes during recovery were often gradual, at least as often they were quite rapid. In conducting quantitative analyses, I endeavored to illuminate how common some of these experiences were, as well as whether they had important effects on long-term outcomes for women. In this section I briefly introduce each woman, the focal event that she experienced, and other notable events experienced since the focal event. Throughout the quantitative results, I will refer back to these case studies and describe sudden gains and spikes they later experienced, in order to better illustrate what such results look like and mean for women.
Georgia

Georgia was a European-American woman in her 60’s who had led a relatively stable life. She had experienced several major life events earlier in life (e.g. serious injury, bankruptcy), but had married, had two children, and worked at a stable, profitable job for many years. Her mother had died some years previously, but this was an expected death, and though Georgia grieved for her, it also felt natural. But 6 months ago, when her sister died, she was taken off guard, even though her sister had been seriously ill for two years. Her sister had been expected to live longer, and there was a way in which she felt “it’s just inconceivable to lose my big sister.” Georgia was out of town when her husband called to tell her that her sister had died alone in her home. Later Georgia would learn that she had kept the extent of her illness from everyone close to her, and that it was likely complications from the treatment that killed her, rather than her illness. In the immediate aftermath of the death, Georgia felt anger that her sister’s treatment had not been done right, along with guilt at the image of her dying alone. “It was, you know, senseless, unnecessary, cruel, and our health care system just, fails dismally, and she-she-she suffered, so much.” She grieved at the loss of a close loved one, and at a loss of a sense of safety and protection. Georgia had always been the “baby” of the family, and looked up to her sister as someone who helped her deal with various life difficulties—from college exams to aging parents. Who would comfort her now?

Immediately following the death, Georgia was left to deal with an overwhelming amount of logistics. Not only did she need to travel long distances multiple times to take care of her sister’s affairs (clean and sell her house, find new homes for her plants, and transfer ownership of her mother’s estate, which had been in her sister’s name), but one month following her death, her father became ill and she had to visit him in the hospital for several weeks. Organizing this on
her own, on top of a full-time job, she felt very overwhelmed and upset for much of the three months following her sister’s death.

Susan

Susan was a European-American woman in her 50’s who was married with two children when she was diagnosed with breast cancer. This happened in a context in which her husband had recently quit his job and had been unable to find further employment. He had become increasingly depressed and started drinking, and was just starting to seek therapy when she was diagnosed. For her, the disruptiveness of the event came as much from her husband’s ongoing stressors as from her own diagnosis. Because her sister worked in cancer care, she was quite knowledgeable about cancer and knew that she had a relatively good prognosis. On the other hand, she was worried about whether she would really be able to give her husband the support she felt he needed at a difficult time in his life, just as he was reaching out for help. “It was an impossible time it seemed like, to have both things going on at the same time.”

This orientation to others’ needs was somewhat of a theme throughout her interview. In the immediate aftermath of her diagnosis, after her disbelief wore off, she started to immediately plan so that she could cope with her own treatment and continue to be available to her husband. She had surgery and started chemotherapy quite quickly. In the end, her husband’s therapy went quite well, and everything seemed to work out better than expected. So although at the time the situation seemed “impossible” and a “total disaster,” in the end Susan felt that things worked out better than expected—that “it sounds worse than the experience in a way.” By about five months after her diagnosis, her husband was doing much better and had found a new job, and she was done with the hardest part of her chemotherapy.
By about seven months after her diagnosis, her hair had started to grow back and she started a new job, so that she finally felt healthy again, and not immediately identifiable as someone who had recently gone through chemotherapy: “I could just be a regular person.” Further developments continued through the rest of that year, as Susan went through several reconstructive surgeries. Shortly after that, her husband had his last therapy session and was settling in to his work, and Susan remembers thinking that now they could move on with their lives.

The rest of that year, up until our interview, cancer played a small role in Susan’s family’s life. There were some other stressful events unrelated to the cancer, including her daughter acting out and being expelled from school (though she speculated that this may have been in part a reaction to the cancer/treatment), and then the death of her favorite grandparent.

Eliana

Eliana was a European-American woman in her 40’s with a long-term boyfriend. Her life had been almost completely unmarred by major disruptive experiences up until the focal event for her: a violent attack on her and a friend 17 months earlier. Six months before the attack, Eliana could hardly believe her luck when, within one week, her boyfriend proposed to her and she was offered a job as a photographer, something she had always wanted to do. Things were going well, until one weekend when she decided to visit a good friend of hers. They planned to have a lazy weekend catching up with each other and visiting a local gallery opening.

The first night Eliana was there they heard a bang on the roof, but after investigating, decided it must have been something innocuous. After watching a movie, they went to sleep. The next thing Eliana heard was a scream. A masked, armed man was between their beds. Without her contacts, the whole scene was a little fuzzy, and after the unreality wore off, Eliana’s first
thought was that the man was going to kidnap them. The man was rummaging through the room, taking things, and then grabbed Eliana by the arm and dragged her to the other room.

…he made me sit down and then he made [my friend] sit down next to me, and then at that moment I thought, I like knew he was gonna kill us … I just remembered this cold steel feeling, just, went over my whole body, I was just like, this was the way it’s gonna end … and then he closed the door, and locked it … and then I remember it kinda of dinged in my head that um, oh there are things worse than death.

At that point he started taking off his clothes as Eliana and her friend tried to run for the door. As he grabbed them, they both fought with him, at one point with a knife to Eliana’s throat.

Something in Eliana remembered that humanizing yourself can be helpful, and so she went into a numb, emotionless mode as she started talking to the man about who they were. He continued to grope and fondle both of them, and Eliana’s friend seemed to have gone limp and be unable to move. After what seemed like ages of talking to him and trying to convince him not to rape them, he left the room. When they felt safe to move, they called the house owner and the police, who came over soon.

The next few days felt surreal, and also sleepless (to this day, she is still easily wakened and terrified by noises in the night, especially screams). “I remember thinking that I was maybe dead” because everything felt so surreal. Also, at night she was terrified:

Every night, when the sun would go down, I would just know that… I would just know that something horrible out there would happen, I mean at one point, I, I woke up convinced that the person in bed with me wasn’t my boyfriend, and he was downstairs murdered or something, and I-it was just, it was absolutely, it wasn’t like a dream or
something, it was like a instinct, and it was like I-I couldn’t, I felt like I was being, I felt like I was strangled all the time.

And it was difficult to tell people and to live her normal life. It felt as if everything had changed, and yet the world around her kept going on as usual. Moreover, her boyfriend implied that she could have done something to prevent the attack, and ultimately she felt he did not understand how horrifying the experience had been. She became increasingly upset and unable to focus on what she needed to do in her daily life. Shortly after that she quit her job and postponed her wedding plans with her boyfriend. She decided to move in with her sister and brother-in-law while she figured things out. She felt that her life had been shattered: “this had been my dream, and then, it was just…blown up in one night”.

At the end of that same month she moved in with her sister and brother-in-law, and so started a much longer recovery process than she had anticipated. At first she imagined that she would get better quickly, but realized as she went on that her worldview had really been shattered. At first she was like “a walking zombie”, not able to feel emotions, to see the point of doing things with family, or even to desire to see her good friend who was expecting a baby. She didn’t know whether or not she would get back together with her fiancée—she was emotionally and physically separated from him for almost a year after the attack. She felt she had no future, or at least one that was worth caring about.

We had this nice—it wasn’t always perfect, but it was this nice little life, I loved my little place there, and umm, and I had some good local friends and I left that and now that was gone, and so—I was grieving that, I was grieving, I don’t know everything, it just felt like my life was like gone, I was grieving for that person I was before because I couldn’t be
that person anymore, I was *sooo* cynical, I was so cynical about life … what’s the point, I don’t *have* anything to look forward to.

Eliana also experienced several other stressful events during the year and a half after the attack. At various points she heard about other attacks similar to what she had experienced. In the spring following the attack, her aunt died and her sister got a divorce; shortly after that she was visiting a friend in Wisconsin when a tornado came close to where they were staying.

Along with these events, she started to experience some positive events, including the birth of her good friend’s baby six months after the attack, and, more recently, reuniting with her fiancée, getting a job she was excited about, and purchasing a car.

**Quantitative Analyses**

**The nature of the life altering events.** Focal events reported in this study varied widely, both in type and severity. Events included the death of a close relative or friend (34%), serious physical illness or accident (13%), a divorce or relationship breakup (12%), an “event” consisting of multiple events (see below; 9%), a physical or sexual assault (9%), life threat to a loved one (e.g. friend’s suicide attempt, daughter’s heart attack; 6%), events related to children or parents (e.g. estrangement from daughter, learning of a daughter’s sexual abuse, mother leaving daughter during high school; 6%), events related to pregnancy or childbirth (e.g. miscarriage, adoption; 3%), natural disaster (e.g. tornado, 2%), and miscellaneous other events (e.g. being forced to leave one’s church, eating disorder hospitalization, husband’s worsening depression; 3%).

Each event was rated for objective severity. Of the participants included in this study, 45 reported an event that was rated as “very severe” and 41 as “extremely severe”. Each event was also rated separately for whether it would qualify as a DSM-IV trauma. Fifty-four women
reported an event that was rated to be potentially traumatic (Criterion A1: an event involving death, serious injury, or threat to physical integrity). Of these 54 women, 46 also reported that they were “quite a bit” or “extremely” afraid, helpless, or horrified at the time of the event (thus meeting Criterion A2). These 46, then, met full DSM-IV criteria to be considered a trauma.

Defining when an event began and ended was more difficult than expected, as women often did not report a single, discrete event. For some women there was a clear, discrete event, such as a sexual assault or the unexpected death of a close friend. On the other hand, ongoing events were also identified, including abusive relationships or difficult, unwanted pregnancies. But many times it was at least initially unclear, either to the participant or to me, whether to categorize an event as discrete vs. ongoing. For instance, cancer diagnoses were common events. Most women ended up identifying the diagnosis itself as the single, discrete disruptive event. Yet they often also thought of it as an ongoing event, given that it generally included some combination of surgeries, radiation, chemotherapy, check-ups, and other potential complications. For instance, Susan identified the cancer diagnosis as “the event”, but receiving chemotherapy continued to consume her time and energy for several months. It was not until almost one year later, when she was done with reconstructive surgeries and her hair grew back in, that she felt her life was back to “normal.” For the purposes of this study, the participant and I discussed the event together at the beginning of the interview. Then, when we filled out the LHC, the participant was asked to define when the event began and ended for purposes of filling out the calendar. Through this process, 78% of the sample identified a single event and 22% an ongoing event (with ongoing events lasting, on average, 2 years).

Defining an event was also difficult because several women identified multiple separate events occurring around the same time. At times, they could identify one event as the most
disruptive or traumatic. But at other times, women thought of these events as part of one larger event that could not be separated. Overall, eight of the women (9%) decided to define the disruptive “event” as more than one event. For instance, one woman experienced 6 deaths over the course of 2 years. She said that any one of them would not have been as bad, but the combination became overwhelming for her. Another woman, over a period of 15 months, was diagnosed with two diseases, found out her husband had been lying to her, and obtained a divorce from him. She said she was unable to disentangle the effects of these (discrete) events. Of the eight women who defined the focal event as consisting of multiple events, seven classified the event as an “ongoing” event and one as a “single” event. This was a woman who experienced several interrelated events within a single week.

Is recovery linear? As described above, three research assistants and I began by attempting to code the LHC symptom drawings for overall recovery patterns. Unexpectedly, no overall patterns emerged. Instead, we identified a number of dimensions of recovery that were quantified as described below.

I began by examining descriptive statistics for each of the four symptom variables from the LHC symptom drawing measurements. I examined—for each participant—each symptom’s minimum, maximum, and intraindividual mean, as well as the cross-participant mean, median, and standard deviation for each of these measures (see Table 4). Note that, although symptoms should have a potential range from 1 to 5, some participants drew them higher than 5, thus giving a maximum of 5.8 to 6.0. However, on average, symptom levels peaked at 5 (“extremely”) for negative mood and somewhat lower for other symptoms, with all symptoms on average having a minimum level between 1 (“not at all”) and 2 (“a little bit”). Mood and reexperiencing had the
highest mean levels (both 3.1), and mood tended to change the most over time. Hyperarousal in particular was generally low and changed fairly little.

I next examined whether recovery is a linear process in which symptoms decrease steadily across time. To do so, I created a variable with one time point corresponding to each of the four time points per month measured in the LHC (i.e. a measure of “time”). Then I correlated each of the symptoms with this measure of time to obtain a “linearity” score for each symptom. Thus, a correlation close to 1.0 indicates a highly linear symptom course, with symptoms gradually increasing, whereas a correlation close to -1.0 indicates a highly linear, gradually decreasing symptom course. See Figures 1 through 4 for histograms indicating frequencies of these linearity scores for each symptom.

Table 5 also presents the mean and median correlation with time for each symptom. Note that there was a skewed distribution, with all symptoms most likely to decrease linearly, but with a very wide range of correlations. This varied by symptom as well, such that mood and reexperiencing were more likely to decrease linearly than avoidance or hyperarousal. Approximately half of participants experienced a fairly linear recovery, in which symptoms gradually and consistently improved, whereas approximately half experienced a recovery that was either moderately linear, not at all linear, or actually a steady worsening of symptoms.

I next examined a different type of question: whether the temporal patterns of different symptoms correlated with each other over time. Even if symptoms were perfectly linear (or non-linear), they could presumably all change at the same time or at very different times, in very different ways. Therefore, I next correlated symptoms at each time point (within subjects) to examine how much symptoms tended to change together. See Figures 5 through 10 for histograms indicating frequencies of correlations between different symptom levels. Here a
correlation of 1.0 would indicate that the symptoms correlated perfectly and changed in the same direction, with a 0 indicating no relationship between them.

Table 6 also presents the mean correlation (below the diagonal) and median correlation (above the diagonal) for each pair of symptoms. Again, there was much variation across the symptoms in terms of how much they correlated with each other. As the histograms and average correlations indicate, mood and reexperiencing correlated more highly with each other than they did with any other symptoms, most of which, on average, correlated “weakly” to “moderately” with each other.

In many cases, then, recovery did not appear to be a linear process. Participants did not necessarily gradually and steadily improve, nor did different symptoms necessarily improve in the same way. For instance, Eliana experienced recovery as more of an “ebb and flow” than a linear improvement, such that she experienced some rapid improvements between three and six months following the attack, then felt significantly worse again, and finally improved again more recently. Eliana also spoke about (and drew) symptoms changing at different times and for different reasons. For example, her avoidance (mainly of going out at night) decreased early on after a visit to friends, reexperiencing increased around times that reminded her of the attack, and mood improved after the birth of her good friend’s baby and then worsened around the anniversary of the attack (which coincided with her sister’s divorce and the death of her aunt).

Clearly, though, for many women recovery was a fairly linear process in which symptoms decreased fairly steadily, and at least some of the symptoms tended to decrease at the same time—this was part of the wide variation in the sample. For those who did not linearly improve, symptoms often changed in discontinuous ways. In particular, two types of symptom
discontinuities—sudden gains and spikes—were examined in the current sample; these speak to some of the common ways that recovery is non-linear.

**Sudden gains.** Sudden gains were relatively common in this sample, with most women experiencing at least one sudden gain of some kind during their recovery period (see Table 7). To illustrate what such gains may look like, I present below three examples of sudden gains. The first two gains were experienced by Georgia, the woman whose sister died and who was left with many logistics to take care of.

In the two months following her sister’s death, Georgia had to manage her sister’s possessions, mother’s estate, and father’s acute illness, all while traveling to her sister’s house and taking time off her full-time job. Two months following her sister’s death, she closed on the sale of her sister’s house while frequently visiting her father in the hospital. The next month her sister’s memorial took place. This was a turning point for Georgia in terms of being done with all the logistics and decisions. There was a sense of relief in having family affairs taken care of, as well as receiving some positive feedback about the memorial. She felt much better. This period was coded as a sudden gain in terms of mood (though it was not stable).

Meanwhile, as Georgia’s mood was improving, the frequency of intrusive thoughts about her sister’s death stayed fairly steady. In fact, it was not until four months after her death that these thoughts really decreased. Georgia describes the event leading to this improvement, when she prepared a set of rare vintage records in order to ship them to a friend of her sister’s:

Well I had a really, emotional, experience when I [was wrapping the records]. And, umm, I, played the music that she had left and, and just really really felt the loss. And, after that, I was kind of absolutely drained, and it-it I-I feel like that was the last really
emotional expression I had. … And that, that was kind of the last, major symbol of her being my big sister and then she wasn’t there anymore.

Following this experience, intrusive thoughts of her sister’s death dropped off to the point that she now rarely thinks about it. This period was coded as a sudden gain in terms of reexperiencing. Not all sudden gains are quite so rapid as this one, which essentially changed within a day, to the point that her intrusive thoughts of her sister decreased rapidly almost to nothing.

Eliana, for instance, experienced a sudden gain that was significant but somewhat more drawn out, continuing to unfold for several months. One year after she went through a violent attack, Eliana was feeling almost worse than she initially had, due to a number of factors (including other stressful events and a feeling that something was wrong with her for not feeling any better by the first anniversary of the attack). After the anniversary, she started to feel significantly better.

A few things contributed to her feeling better, aside from the anniversary of the attack being over. First, her fiancée came to live with her for the first time since the attack. For the first time, their relationship felt right again, as it had when they had worked well together before the attack. At the same time, she did a lot of painting over the summer. She was painting a series of paintings that she ended up relating back to the event. So painting felt “therapeutic” and she felt good about what she was doing each day. Things felt peaceful. Those few months a lot of meaning-making also started to fall into place:

I think the most important thing was … realizing that it’s ok to say—you had this idea of this life and it didn’t work and it just blew up in your face and its ok—I guess I was like—that’s ok—you can have another dream… it took a long time for that realization.
This was when she started to feel she was making some progress toward recovery, part of which was realizing that the attack was no longer was the central theme of her thoughts and her life:

And I think when I realized that things were on the upswing, it was kinda of when I realized well, it’s not all of me anymore but it’s just this part of me. I think that was the big jump whereas before, I felt like a lot of last year, that was like…it just encompassed everything about my life, you know and about my thoughts.

She also described some other meaning-making that had taken place. She could not say yet that “I’m glad it happened because now my life has taken this other direction,” but she can see that that might happen. Also, she started to realize that she has learned how to handle crisis. Over a year after the attack, she was visiting a friend when a tornado touched down nearby. Although her friend was very upset, she was able to stay calm during it, similar to how she had been during the attack. She has realized that this is empowering in some ways—that she has learned she is strong enough to make her way through many crises that she would not have thought possible.

Things seemed to positively spiral upward after that. Her relationship with her fiancée has remained very positive. And one month later, Eliana found out that she had received a job she was very excited about. Up until that point, she had resisted getting a permanent job because the future felt too uncertain to her. She felt ready to plan for the future, and the job seemed to solidify that. She talked about taking next steps—she is now considering finding a place to live on her own.

Table 8 presents the percentage of women who experienced a sudden gain on each of the symptoms at any point, as well as within the first 4 months. However, for some women certain symptoms were never elevated (especially avoidance and hyperarousal). By definition such
women could not have experienced a sudden gain on those symptoms. Therefore, I also calculated the percentage of women who experienced a sudden gain, excluding those who never had elevated symptoms (those whose symptoms never reached at least a 3 on the 1-to-5 scale at some point during the recovery period). These percentages are included in the rows of Table 7 labeled “excluding asymptomatic”.

Overall, 74% of women experienced at least one sudden gain on one or more symptoms during the reported recovery period. Any given sudden gain sometimes consisted of a change in a single symptom and at other times consisted of changes in up to all 4 symptoms simultaneously. Most commonly women experienced sudden gains in mood, even when accounting for the higher levels of this symptom in the sample. For example, mood sudden gains were twice as common as hyperarousal sudden gains, even accounting for women who never had high levels of hyperarousal.

Given that women differed in the length of time that had passed since the disruptive life event, I also examined how many had experienced a sudden gain starting by the fourth month of recovery or earlier. This is a useful time period because (1) all women in the study experienced an event that ended at least 3 months ago, allowing for a comparison of the full sample, and (2) many therapy studies examine whether sudden gains took place during a course of therapy that generally lasts between 3 and 4 months, thus allowing for comparison to other studies. In this sample, 51% of women experienced at least one sudden gain starting within the first 4 months, again most commonly in mood. On average, women experienced a sudden gain 8 months after the end of the event ($SD = 8.4$, minimum = 0 months, maximum = 35 months).

In addition to timing, sudden gains varied by the size of the change (as measured by the LHC) and whether or not the sudden gain was stable. Size of the sudden gain could vary from 0
to 4 points, as all symptoms were measured on a 1 to 5 scale on the LHC (although some
participants drew their symptoms above or below these lines, leading to occasional changes of
greater than 4 points). For those sudden gains involving more than one symptom, the symptom
with the greatest change was noted (see the “any symptom” row in Table 8). On average, the
greatest symptom change represented a change of 2.4 points within 2 months ($SD = 1.0,
minimum = .5$ points, maximum = 4.3 points). A little over half the sudden gains (58%) were
stable, defined as maintaining at least 50% of the gain for at least 3 months following the end of
the sudden gain (27% were not stable and 15% happened too near the interview to be able to tell
yet).

**Spikes.** Spikes were less common, although nearly half the sample experienced at least
one (see Table 10). To illustrate what such spikes may look like, I present below several
eamples of spikes. The first follows after the gains experienced by Georgia, as described above.

Following the gain in mood she experienced after her sister’s memorial service, Georgia
experienced what we coded as a spike in mood starting one month later, as her mood got much
worse again. Looking back, Georgia says that she thinks that taking care of the logistics did not
really give her a chance to notice, until later, what her sister’s death really meant to her. Indeed,
she realized that her sister’s death had brought to the forefront a lot of anxiety and identity
confusion that had been brewing for some time. It came to symbolize a transition from being the
younger sibling to being the main caretaker of the family. She eventually realized she needed to
deal with

the transitions in my life which are much larger than just, my sister’s death, it’s sort of,

facing the fact that the family is over as I knew it. And, aging myself, my husband aging
significantly … and knowing that I’m passé at work, I’m, you know hoping to retire in a
couple years and just feeling like I’m less and less important and less and less taken
seriously so, all those things kind of hit, at the same time.

But in the midst of this worsening period, she did not quite realize her sister’s death had
brought up all these emotions. Instead, she noticed the behavioral manifestations:

I was just getting angrier and angrier and, I was starting to blow up at everybody, I was
starting to blow up at work, I was starting to blow up at my husband, he was sort of the
only one I could blow up at in my, in my private life, and it was causing problems.

Finally, five weeks before our interview, she tired of being “nasty” with her husband after
picking a fight over something “stupid” that ended with both of them in tears.

The next day she contacted a therapist and started talking about what was really bothering
her. She discussed with her therapist all her different emotions and their sources, as well as the
multiple role transitions she was undergoing. When she was starting to feel better, she
impulsively decided to visit a friend she had not seen in years: “I did that, three weeks ago and I
really feel like that was the turning point of, of starting to get out of it.” Following the emotional
processing she had done with her therapist, this visit to friends helped solidify a change in
perspective:

And umm, going to see my friends was just, well they’re both, retired, having decided,
having been through some major stuff like he’d [been ill] and … her parents are declining
the way mine declined and, again getting affirmation from, a friend I’ve known for over
thirty years, that there’s good stuff to come, and that we can have a great time together
and that, umm, and that we have a future together. So… so, you know, I just needed to,
I-I needed to confirm who my support system is and, and, that happened.
Talking to her friends confirmed for her, not only that she had a social support system, but that someone else in a similar situation could have a meaningful life. Georgia had been starting to think that the health of everyone around her would only decline, she would not be able to keep up a house, tend her garden, and there was really nothing to look forward to anymore. But after talking with her friend, she realized she could still be capable of doing a lot.

I feel like I’m, I’m back to quite a bit of optimism. And, that just feels like a qualitative change and that was very sudden, that that happened through talking to these friends and looking how they’ve made decisions about, how they’re living and umm, and I really thought through some of my outlook. … Seeing people who are improving their lives as a result of these very difficult things that happened so they’ve just decided to, to make the most of what they have, everyday. And I see them doing that, and it—it’s fun. And so I see myself being able to do that, when I have more time in my life.

Although her work with her therapist helped lead up to this, she talks about this change in perspective as a “dramatic switch”. This helps her in looking forward as well:

Well I will know that-that there are gonna be awful times and times of, of just you know, really horrible, logistical stuff, that I have to make it through, and then I’ll be devastated for a certain amount of time and then, it will get better.

This illustrates a very significant spike involving major changes in perspective and meaning-making. It involved changes in her own way of thinking that were aided by the insights and examples of others.

Some other spikes look very different, as they are mainly brought on by particular “external” events (these were more common in this sample; see section below, Table 12). For instance, Susan, the woman who was diagnosed with cancer, experienced two spikes nearly two
years after her cancer diagnosis that were unrelated to the initial focal event. She felt upset following the death of her favorite grandparent, although this did not last long (this was coded as a spike in negative mood). Then, she felt more tense and on edge following her daughter being expelled. But this too resolved within about one month (this was coded as a spike in hyperarousal). Still other spikes follow events that are reminders of the focal event. For Eliana, the woman who was attacked, she had two spikes in reexperiencing, both following reading about attacks that sounded so similar that they might have been the same perpetrator.

Overall, 42% of women experienced at least one spike on one or more symptoms during the reported recovery period (see Table 9). For some women, certain symptoms were never low enough to allow a symptom spike. Therefore, I also calculated the percentage of women who experienced a spike, excluding those who never had low symptoms (those whose symptoms were never 4 or below on the 1-5 scale). Percentages are included in the rows of Table 8 labeled “excluding extremely symptomatic”. As with sudden gains, spikes in mood were most common. Spikes in avoidance were least common, even taking into account those who could not have had one.

Again, I examined frequency of spikes starting within the first 4 months. In this sample, only 16% of women experienced a spike starting within the first 4 months. On average, women experienced a spike 10 months after the end of the event ($SD = 7.2$, minimum = 0 months, maximum = 32 months).

In addition to timing, spikes varied by the size of the change (as measured by the LHC). Size of the spike could vary from 0 to 4 points, as all symptoms were measured on a 1 to 5 scale on the LHC (although some participants drew their symptoms above or below these lines, leading to occasional changes of greater than 4 points). See Table 10 for the size of increases in
symptoms and Table 11 for the size of decreases in symptoms. On average, spikes represented a change of 1.9 points increasing (SD=1.0), and then 1.8 points decreasing (SD=1.0).

**Reasons for sudden gains and spikes.** It is clear, then, that recovery is often non-linear and that people tend to feel quickly both better and worse at various times during the recovery process. What might account for such changes?

First, disruptive life events are not necessarily isolated events within the course of an otherwise uninterrupted life. Rather, the majority (85%) of women experienced at least one other disruptive life event rated as at least “a little” stressful by the stressful events rating system described above (that is, considered to be more than “everyday hassles”) during the event itself or the rather brief follow-up period. Some, like the expulsion of Susan’s daughter or the death of Eliana’s aunt, contribute to spikes or times of higher symptoms. On average, women experienced another 2 stressful life events (minimum = 0, maximum = 7, M = 2.0, SD = 1.4) during the follow-up period. These ranged from events rated as “a little” stressful to events rated as “extremely stressful” (M=2.0 “moderately stressful”, SD = .7). Many women also experienced events not considered stressful enough to be rated within the current system (e.g. relationship difficulties with no clear “event”, minor illnesses). Moreover, even when there is no new stressful life event, the consequences of the event itself often continue to play out for years, or people are reminded of the event by various other things (e.g. holidays, birthdays, or, in this study, Eliana’s reading about new attacks similar to the one she experienced). Finally, later positive events, even those unrelated to the focal event, may have an impact on the person’s recovery process (e.g. Georgia’s reconnecting with a friend of hers).

Second, for multiple reasons people sometimes experienced “internal” changes, whether related to cognitive shifts or to some sort of emotional processing of the event. This sometimes
took the form of meaning-making about the event, which could continue to unfold long after the event is “over”. Such internal changes can occur in the absence of external events, but often the two were interrelated in this sample (see Table 12).

The case studies presented above provide a rich description of the attributions women make about the reasons for sudden gains and spikes. Such reasons were divided into those related to external events and those related to internal changes, though these were highly overlapping. External events were sometimes those related to the focal event (e.g. Susan felt much better when her hair started to grow back and she was not immediately identifiable as a cancer survivor), to a reminder event (e.g. Eliana’s spikes in reexperiencing when reading about new attacks), to an unrelated event (e.g. Susan’s spike in negative mood when her daughter was expelled), to receiving social or emotional support (e.g. Georgia’s reaching out to a friend of hers and reaffirming her social support system), or to more than one of the above. Internal events were sometimes related to a change in cognitions (e.g. Georgia’s being able to shift from thinking her life was in decline to seeing new possibilities), or to emotional changes or both (e.g. Georgia having an emotional experience as she listened to her brother’s music and wrapped up his records). Georgia’s spike in mood illustrates the often interconnected nature of external and internal causes; she attributed this spike to first experiencing a shift in her own identity and sense that her life was in decline, then starting therapy, processing her emotions and thoughts about the situation, reaching out a friend, and then having a sudden shift in perspective.

In order to examine the relative frequency of reasons women reported for sudden gains and spikes, each sudden gain or spike attribution was assigned to one or more of the given categories and subcategories. Table 12 presents the percentages of participants who gave various reasons for sudden gains or spikes (note that these are percentages of the total sample, which do
not add to 100 because they are not mutually exclusive). Of the sudden gains experienced in this sample, women were unable to give a reason for only 6%. Thus, in most cases women generated one or more reasons for each sudden gain. Most often, these involved some sort of external event (87%), most often an unrelated event (35%). About half of women (52%) experiencing sudden gains gave an internal reason, most often involving a cognitive shift (38%). Most participants who gave an internal reason also gave an external reason. In these cases, most often (65%) the external event came first (in other cases the changes were simultaneous, the order was unclear, or an internal change preceded an external change).

Of the spikes experienced in this sample, women were unable to give a reason for only 3%. Relatively often, women indicated more than one reason for spikes, as different reasons might contribute to the initial increase in symptoms than the subsequent decrease in symptoms. The vast majority of women (95%) attributed spikes to an external reason, and events that reminded the participant of the initial event (26%) were more common than for sudden gains. Far fewer women gave internal reasons for spikes than for sudden gains (23% vs. 52%). Given the low frequency of internal reasons, only 22% of participants described both an internal and an external event contributing to a spike (of these, the external event often came first (71%)).

Is the nature of the event associated with sudden gains, spikes, or outcomes? I next examined whether the nature of the event was associated with sudden gains, spikes, and current symptoms (taking into account T1 symptoms). I dichotomized the nature of the event in a number of ways in order to compare several pairs of groups: (A) discrete vs. ongoing events, (B) “very severe” vs. “extremely severe” events, (C) presence vs. absence of Criterion A1 trauma, i.e. ratings of traumatic events, (D) presence vs. absence of Criterion A2, i.e. intense fear,
helplessness or horror, and (E) presence vs. absence of full Criterion A trauma, i.e. event rated as traumatic and reported intense fear, helplessness, or horror.

To test whether current symptoms differed by event type, I conducted a series of hierarchical linear regressions. Outcomes included current depression, negative affect, and PTSD, as well as negative mood, reexperiencing, avoidance, and hyperarousal scores from the end of the LHC symptom drawings. Each outcome was regressed separately on a dichotomized event type variable, with initial symptom levels entered in the first step of the regression. None of the five event types tested significantly predicted any of the symptoms examined, controlling for initial symptoms.

I next conducted a series of Fisher’s exact tests to examine whether the presence or absence of sudden gains or spikes (in the full follow-up period or in the first four months) would differ across event types. There were no significant differences across event type groups in terms of spikes (presence vs. absence, presence vs. absence in the first 4 months). There were two significant differences when examining sudden gains. First, participants who experienced a Criterion A trauma were significantly more likely to experience a sudden gain in reexperiencing within the first four months following the event. One potential explanation for this finding is that those who experienced a Criterion A trauma had higher levels of reexperiencing in the immediate aftermath of the event (this was a non-significant trend when examining reexperiencing as a whole, but significant when examining intrusive thoughts in particular) and so were more likely to experience regression to the mean.

Second, participants who experienced an ongoing as opposed to a discrete event were significantly more likely to experience a sudden gain in hyperarousal within the first four months (they were also more likely to experience sudden gains in mood and reexperiencing in the first
four months, though these were nonsignificant trends). In order to test whether this could be explained by regression to the mean, I conducted a t-test to see whether women with ongoing events had higher levels of hyperarousal immediately after the end of the event. However, there were no significant differences in levels of hyperarousal for those women who had experienced a discrete vs. ongoing event. Some qualitative data suggested that women going through an ongoing disruptive event have a chance to process the event and start to make meaning of it while it is happening. Thus, when the event is over, they are able to quickly recover because they have already begun to make meaning of it and to cognitively and emotionally process the event. In particular, this theme was salient in four of the interviews I conducted. For instance, the traumatic event for one woman was a 25-month period during which she was having difficulty with her son (including worries about his physical safety and her own). During this long period, she felt she was continually forced to think about her parenting, her relationship with him, and what she could do differently. She often talked with a friend and with a therapist, and came to realize that she could not control her son’s behavior. This was a significant cognitive shift for her and helped her start to feel somewhat better. However, it was not until her son stopped acting out and distancing himself from her that she felt the “event” was over. As soon as that happened, she felt rapidly better, which she partially attributed to relief, and to having already thought a lot about the event and what it meant to her. Three other women gave similar, salient examples of processing and meaning-making occurring during an ongoing event that then helped them quickly recover. These would fit with the finding that women with ongoing events have more sudden gains soon after the event is over.

**Are sudden gains and spikes associated with outcomes?** In order to examine whether discontinuities in the recovery process are related to outcomes, I conducted a series of linear
regressions. Outcomes included current negative affect, anhedonic depression, and PTSD, as well as levels of negative mood, reexperiencing, avoidance, and hyperarousal at 24 months post-event, taken from the Life History Calendar Symptom Drawings. Each outcome was regressed separately on a dichotomized variable (experienced vs. not experienced a sudden gain in a particular symptom), with initial symptom levels following the event entered in the first step of the regression.

Table 13 presents the findings of these regressions for sudden gains. Note that having a sudden gain in mood or avoidance (or a sudden gain on any symptom) significantly predicted lower avoidance at 24 months. Likewise, having a sudden gain in avoidance or on any symptom predicted lower levels of hyperarousal at 24 months (a similar nonsignificant trend emerged for sudden gains in mood and sudden gains in any symptom). Overall, sudden gains in avoidance predicted avoidance and hyperarousal at 24 months (there was also a nonsignificant trend for sudden gains in avoidance to predict mood at 24 months). Sudden gains in mood predicted anhedonic depression and avoidance at 24 months. Sudden gains in hyperarousal and reexperiencing did not predict any of these outcomes (though there was a nonsignificant trend for sudden gains in reexperiencing to predict lower levels of PTSD). Likewise, none of the sudden gains significantly predicted negative affect or reexperiencing at 24 months.

The same set of regressions was conducted examining whether experiencing a spike predicted outcomes. Only one regression was statistically significant: having a spike in avoidance predicted lower levels of avoidance at 24 months ($\beta = -1.5, p < .05$). This should be interpreted with some caution, given that there was only one significant result; nevertheless, it is worth noting that having a spike in avoidance predicted lower, rather than higher, levels of avoidance.
Discussion

The current study illustrates several of the complexities involved in women’s recovery from disruptive life events. First, descriptions by women in this sample reveal that disruptive life events are rarely clear-cut, discrete events. Rather, they often involve further related—or reminder—events that have a significant effect on the course of symptoms. In general, the type of event seems to have little influence on outcomes, though there is some evidence that traumatic vs. stressful events, and ongoing vs. discrete events, may lead to slightly different recovery courses. Second, recovery from such events is often non-linear, and symptoms tend to have different courses over time. In particular, many women experience two types of symptom discontinuities: sudden gains and spikes. These are often attributed to external events, though about half of sudden gains are also attributed to cognitive or emotional changes. Sudden gains predicted several long-term outcomes, whereas spikes only significantly predicted one outcome.

The Nature of Disruptive Life Events

Disruptive life events in this study were often ambiguous in terms of their temporal and psychological boundaries. That is, many such events, even if they can be classified as discrete events (e.g. a diagnosis of a serious illness), continue to have a direct and indirect impact on women’s lives for several years afterward. For instance, 21% of this sample experienced sudden gains that they attributed (at least in part) to an event directly related to the initial event, and 25% experienced spikes in symptoms that they attributed to a related event. Additionally, reminder events contributed to sudden gains for 5% of women and spikes for 26% of women. This boundary fluidity is not necessarily surprising, but it is generally ignored within the trauma literature. Although the stressful life events literature has long struggled with defining the boundaries of stressful events and chronic stressors (see Monroe & Roberts, 1990), the trauma
literature has focused on other issues (e.g. broad vs. narrow definitions of trauma, importance of Criterion A2; Weathers & Keane, 2007) without attention to the problems of defining when an event begins or ends.

Likewise, it is important not to assume that life event recovery follows a neatly sequential trajectory—that the event happens, then is over, and then recovery begins. Rather, as described above, even when a discrete event is over, related events are likely to continue to occur and affect the course of recovery. This is even more complicated when an event is ongoing. Therapists certainly see clients in the midst of a traumatic event—yet this is not something discussed in the therapy literature (that I know of). The current study suggests that recovery may begin in a meaningful way while an ongoing event is still occurring. I found that those who had experienced an ongoing as opposed to a discrete event had significantly more hyperarousal sudden gains within the first four months (though this should be interpreted cautiously given that it was one significant result among many analyses). Some qualitative data also supported this by suggesting that women who experience ongoing events may have more pressure—and time—to do some processing during the event, so that when it is over, they are able to quickly recover, having already made meaning of the event.

This study also suggests that the distinction between stressor and DSM-defined trauma, at least at high levels of stress, may be smaller than would be assumed based on their very separate literatures. In this sample, accounting for initial symptom levels, traumatic events were not associated with more anhedonic depression, PTSD, or general negative affect, nor with any differences in terms of symptom spikes. Those who experienced a Criterion A trauma experienced more sudden gains in reexperiencing during the first four months following the event than those without a Criterion A trauma. However, this may simply be due to regression
the mean, since those with a Criterion A trauma had higher levels of reexperiencing following the event. In general, the effect of trauma vs. stress appeared to be somewhat minimal in this sample. These findings, although perhaps counterintuitive, do fit with a small emerging literature examining the differences between traumatic and stressful events. Studies in this literature have generally found that traumatic events produce no more PTSD symptoms than stressful events, at least when accounting for other types of psychopathology (e.g. Lancaster, Melka, & Rodriguez, 2009). They also fit with theoretical work asserting that significant events could lead to many PTSD symptoms even if they did not involve high levels of fear (Dalgleish & Power, 2004) and empirical work showing that intrusive thoughts and avoidance of them may be just as common in depression as in PTSD (Brewin, 1998).

(Non)linearity of Recovery

This study revealed that recovery is less straightforward or linear (at least for many people) than might be imagined. That is, for many women, symptoms did not gradually decrease over time; moreover, symptoms tended to change at different times and not to correlate with each other over time. Though this is not particularly surprising, it is again a complexity that is often missing from the PTSD literature. First, very few trauma studies have examined changes over time, and those tended to examine total PTSD scores rather than symptom clusters. What therapy studies in particular more sorely lack is a longer-term follow-up period. Examination of many Life History Calendars reveals that most symptoms have a fluctuating course that lasts far more than 3 or 4 months. Any of the three case studies support this as well, showing that substantial recovery took at least six months, and sometimes more than one year.

At the same time, this study complicates general ideas of what it means to “recover from a disruptive life event”, because it is difficult to say when the process of recovering from a
disruptive life event ends and the process of living a life full of typical ups and downs begins. To the extent that trauma-induced difficulties represent a culturally relevant or salient attribution, women may be more likely to attribute ongoing difficulties to such an event, even if they would have had the same difficulties absent such an event. But they may still have experienced similar difficulties had they not experienced the same focal event. Susan’s story illustrates the difficulty in disentangling coping with typical life from the process of recovery from trauma. One of her spikes was due to her daughter being expelled from school. On the one hand, this may have produced a “spike” for anyone experiencing it, regardless of previous trauma. On the other hand, one could speculate that Susan was overwhelmed already and thus less able to cope with this. And Susan herself speculated that her daughter may have been acting out in part due to the cancer treatment. Thus, it is difficult to say to what extent Susan’s reaction to her daughter’s expulsion was related to having had a cancer diagnosis. Because there was no “control” sample in this study, it is impossible to make strong attributions about the extent to which this study represents recovery from the focal event versus coping with everyday life. It may be worth noting, however, that when asked to what extent they had recovered from the event at this point, only two women said they were 100% recovered (minimum = 20%, $M = 77$%), indicating that most women considered themselves to still be engaged in this process. Altogether, in the current study it is impossible to completely disentangle the effects of the focal event from further life events. As one participant said when asked how much she had recovered: “it’s kind of hard to distinguish—everything’s not perfect and everything’s not fine but is that just because that’s how it is or can it still mean that you’re 100% recovered from the event even though some things are still shitty”. In other words, participants themselves sometimes found it difficult to disentangle
life difficulties stemming from a disruptive life event from difficulties stemming from new life
events and issues.

Sudden Gains

It is first important to note that the sudden gains examined in this study have been
operationally defined differently than in previous studies. Most studies of sudden gains have
followed a definition relatively close to that originally used by Tang and DeRubeis (1999):
within one week, there is a gain of at least 7 BDI points, the gain represented at least 25% of the
pregain session’s BDI score, and the mean BDI score of the three therapy sessions before the
gain was significantly higher than the mean BDI score of the three therapy sessions after the
gain. In contrast, the current study defined gains as taking place within one month, representing a
change of at least 1 point on a 1 to 5 scale (along with a verbal account consistent with a sudden
gain), and being sustained for at least one week. Thus, this study may be speaking to a slightly
different phenomenon than the sudden gain literature—these are gains which represent a visible
change that the participant acknowledges as a significant gain, and they are gains that may take
place over the course of one month rather than one week (though it should be noted that, as with
some of the cases presented here, such gains did sometimes take place very rapidly, at least by
participant accounts).

Nevertheless, in many ways, the results related to sudden gains appear to fit with the
existing therapy literature around such gains. First, rates of sudden gains are remarkably similar
to therapy studies. General rates of sudden gains in this study are higher than typical therapy
studies. However, rates of sudden gains in only the first four months following the event are
fairly similar to therapy studies, which generally take place over three to four months. For
instance, of the studies that have examined sudden gains in depression, all have found rates of
sudden gains ranging from 39% to 46% (Busch et al., 2006; Hardy et al., 2005; Kelly et al., 2005; Tang & DeRubeis, 1999; Tang, DeRubeis, Beberman & Pham, 2005; Tang, Luborsky, & Andrusyna, 2002; Vittengl, Clark, & Jarrett, 2005). In this sample, 41% experienced a sudden gain in mood within the first four months, precisely in the range that would have been predicted by the existing literature. Only one other study has examined sudden gains in PTSD, finding that 39% of participants experienced a sudden gain in total PTSD score (Kelly et al., 2009). This study did not examine total PTSD score, so a direct comparison is not possible, but the rates of sudden gains in the first four months in our study (30% reexperiencing, 23% avoidance, and 12% hyperarousal), appear similar, though lower.

Though it is not possible to directly compare magnitude of changes (as all sudden gains were measured on a 1 to 5 scale for the current study), it is possible to compare the proportion of improvement accounted for. For example, Tang and DeRubeis (1999) found that for those who experienced sudden gains, these gains accounted for about 50% of their total change in treatment. Others found similar amounts, ranging from 50 to 60% (Hardy et al., 2005; Hofmann et al., 2006; Vittengl et al., 2005; Busch et al., 2006). However, in a study of sudden gains in a general psychotherapy sample, Stiles et al. (2003) found that the mean sudden gain actually constituted 105% of clients’ mean symptom reduction by the end of treatment. In the current sample, sudden gains in mood accounted for 64% of the mean total reduction in mood. Other sudden gains accounted for 92% (reexperiencing), 91% (avoidance), and 126% (hyperarousal) of the mean total reductions in those symptoms, respectively. Thus, the sudden gains in mood in this sample accounted for a similar proportion of change as previous studies. Sudden gains in

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7 Various studies have examined how much of a client’s total gains are due to sudden gains. However, some studies report these percentages only for those who had a sudden gain, some report them for the whole sample, and some are not clear. The percentages I report in text count the whole sample. The percentages of change accounted for only among those who had a sudden gain were slightly lower. Sudden gains accounted for 62, 71, 68, and 76% of the total change among those who had a sudden gain.
PTSD symptoms accounted for a larger percentage of change, but previous studies of sudden gains in PTSD have not reported such percentages, so it is not possible to directly compare them.

Several studies have examined the rate of reversal, generally defined as giving up 50% of the symptom improvement from a sudden gain. Two studies found reversal rates of only 17% and 19% (Tang & DeRubeis, 1999; Vittengl et al., 2005), but others more often ranged from 35% to 54% (Busch et al., 2006; Kelly et al., 2005; Stiles et al., 2003; Tang et al., 2005; Tang et al., 2002), including 50% reversals in a 9-week non-therapy study of students with major depressive disorder (Kelly et al., 2007). I defined stability in an essentially equivalent way, stipulating that if at least 50% of the gains are reversed within the first three months after the end of a sudden gain, then the gain is not stable (or is “reversed”). This definition is more conservative than others in some ways, requiring that the gain be stable from the end of the sudden gain, not just from one week of a sudden gain. Because some gains in this study lasted several months, they had larger decreases in sudden gains than if I had only included the first week. Therefore, if gains continued to be made following the first week of a sudden gain—and they often did—they were included in the amount that could not be reversed in the current study. Moreover, if half or more of the symptoms involved in a sudden gain reversed, all symptoms involved in a sudden gain were considered non-stable. On the other hand, it is possible that some participants experienced a reversal that was again immediately reversed, but that they “smoothed” this over in drawing their symptoms. In any case, by the current definition, 27% of sudden gains were reversed within 3 months (though 15% happened too near the interview to tell whether they would reverse), putting the reversal rate for this study between the two clusters of reversal rates found in previous studies. Thinking about sudden gains and reversals in the context of a three year follow-up puts reversals in a slightly different perspective, though. Some studies
noted that many participants with sudden gain reversals later regained the losses and went back to the lower levels of symptoms by the end of the study (e.g. Kelly et al., 2005; Stiles et al., 2003). Likewise, over a much longer time period, there is more time for having sudden gains, reversals, and further sudden gains.

In general, previous studies have found that sudden gains are consistently related to improved outcomes at the end of treatment, but only inconsistently related to improved outcomes at later follow-up (Hofmann et al., 2006). Thus, it is perhaps not surprising that sudden gains in this sample predicted some, but not all, outcomes. An alternative explanation of these findings is that the connection between sudden gains and later outcomes is simply an artifact: if women experience a large decrease in symptoms, then they would logically have lower symptoms in general. However, it is worth noting that within the current sample (as opposed to most other sudden gain studies), I examined whether sudden gains on particular symptoms predicted levels of other symptoms. Indeed, most significant findings involved sudden gains on one symptom predicting lower levels of a different symptom (e.g. sudden gains in avoidance predict lower levels of mood and hyperarousal). Additionally, sudden gains in mood predicted anhedonic depression questionnaire scores, a related but separate construct.

Thus, in the current sample sudden gains were useful predictors of outcomes. In particular, sudden gains in negative mood and in avoidance were the only sudden gains that predicted outcomes (in addition to sudden gains in any symptom, a result that may have been driven by the mood and avoidance sudden gains). To the extent that sudden gains in mood track changes in depression or in negative affect, it is perhaps not surprising that they would be strongly related to outcomes, given that past studies have found sudden gains in depression to be
important (and have measured depression via the BDI, a depression measure saturated with negative affect (Watson & Clark, 1984)).

Avoidance seems to be particularly important with regard to sudden gains. Avoidance was the symptom that was most predicted by sudden gains; additionally, sudden gains in avoidance predicted the most other symptoms. That is, avoidance seemed to hold a place of importance in this data; perhaps gains in avoidance and gains in mood have a bidirectional relationship. For instance, perhaps sudden gains in mood lead to lower avoidance, because starting to feel better overall makes it easier to face thinking about the trauma. On the other hand, perhaps sudden gains in avoidance lead to improvement because they allow for processing of the event. Likely these two sequences occur simultaneously and bidirectionally: gains in mood make it easier to handle thinking about the event, and gains in avoidance make processing or “working through” the event possible, leading to further gains in mood (and hyperarousal). This would fit with both Ehlers and Clark’s (2000) cognitive model of PTSD and Foa and Rothbaum’s (1998) emotional processing theory of PTSD, in both of which avoidance plays an important role in maintaining PTSD symptoms.

There is also some empirical evidence that avoidance plays a key role in PTSD symptom course, or at least tends to change in different ways than other symptoms. Gilboa-Schechtman and Foa (2001) found that a delayed peak in avoidance was the only PTSD symptom to predict higher levels of PTSD at 6 month follow-up. That is, the longer participants continued to avoid the trauma, the higher PTSD symptoms were at follow-up. Kelly et al. (2009) found that sudden gains in total PTSD significantly predicted lower levels of posttreatment avoidance and hyperarousal, but not reexperiencing. Finally, Nishith, Resick, and Griffin (2002) found that, for women undergoing two types of treatment for PTSD, PTSD symptoms followed a curvilinear
pattern, such that symptoms got worse before they got better. In contrast, avoidance symptoms showed a linear pattern of decreasing, in Cognitive Processing Therapy only (vs. Prolonged Exposure). The authors hypothesized that the decrease in avoidance drove the quadratic pattern in the other symptoms—as avoidance decreased, reexperiencing increased, then eventually decreased as the event was sufficiently processed. Thus, a series of studies provide preliminary evidence that avoidance “acts” differently than other symptoms and may play a pivotal role in recovery from—or maintenance of—PTSD. This study’s findings appear to fit into that pattern.

This study represents a departure from previous sudden gain research in that most gains in this study were not therapy related. Much of the literature to date has assumed that therapy-related factors (whether “non-specific” factors or cognitive restructuring) are a driving force behind sudden gains. Instead, it appears more likely that sudden gains are part of the natural course of depression or PTSD following a disruptive life event. Therapy may assist in helping clients maintain such gains when they do occur (Kelly et al., 2007), or sudden gains may be simply the largest of continuous symptom fluctuations (Stiles et al., 2003). However, even in this naturalistic sample (most of whom did not receive therapy), sudden gains still appeared to be important predictors of outcomes. Thus, even if they occur in the midst of continuous symptom change, they appear to be clinically meaningful.

This study also departs from previous research in examining participants’ own attributions for the cause of sudden gains. Previously, studies have tested hypothesized reasons for sudden gains, most often using measures in existing datasets, to try to predict sudden gains. However, this has yielded limited results, with almost no consensus or replication in the literature around what may be important (other than two studies finding that there were more cognitive shifts in the session before a gain than in other sessions (Tang & DeRubeis, 1999;
Similar to Tang & DeRubeis (1999), I found that many women attribute their sudden gains at least partially to cognitive and/or emotional shifts (52%). Many—though not all—of these shifts had to do with meaning-making about the focal event.

Importantly, 87% of the sample attributed gains to some external reason (and almost all the women who gave an internal reason also gave an external reason). This differs from the one study that examined positive and negative life events and found them to be unrelated to gains (Hardy et al., 2005). Why might this be? The Hardy et al. study used a standard life event checklist, administered weekly. However, this type of standard checklist may well miss some of the context important in determining the personal meaning of events. Certainly there is converging evidence that life events measured contextually are stronger predictors of depression than are life event checklists (Kessler, 1997). This is likely to be the case for predictors of sudden gains as well. For instance, in this study, event checklists may have missed events related back to the focal event (e.g. Susan’s hair growing back following chemotherapy), as well as events that were reminders of that focal event. Additionally, the provision of social or emotional support would likely not have been included in an event checklist. Finally, even unrelated events will likely need to be measured contextually for their importance to the particular person in their particular (historical) context.

**Spikes**

Findings for spikes were more discrepant with the existing literature. Because only one study has examined spikes, it is worth closer examination. Hayes et al. (2007) examined exposure-based cognitive therapy for major depressive disorder. The first eight sessions (the “stress-management” phase) were designed to increase resources and motivation for change. The
second eight sessions (the “exposure-activation” phase) were designed to explore clients’ negative self-concepts, including writing and reading narratives about their own depression. The authors hypothesized that such exploration would increase cognitive-emotional processing and cause spikes in depression symptoms. Although some clients (35%) experienced spikes during the stress-management phase, significantly more (62%) experienced them during the exposure-activation phase. The authors found, as predicted, that spikes in the exposure-activation phase of treatment were associated with cognitive-emotional processing and with lower posttreatment depression scores. However, spikes in the stress-management phase of treatment were not associated with cognitive-emotional processing, predicted higher depression at mid-treatment, and were unrelated to depression at posttreatment.

In the current sample, almost half of women experienced a spike in some symptom during the follow-up period. However, far fewer women had spikes within the first four months following an event (16% for any symptom, 12% for mood) than in the Hayes et al. (2007) study. The spikes experienced in this sample appear to be different from the exposure-processing spikes described by Hayes et al. in at least two ways. First, only about one quarter of the women in this study attributed a spike to a cognitive or emotional reason (and of these, almost all also attributed spikes to external events). In fact, women attributed 95% of spikes in the current sample to external events, about evenly distributed among events related to the initial event, unrelated events, or reminder events.

Related to this finding, spikes generally did not predict long-term outcomes. The only significant finding (which should be interpreted cautiously) was that spikes in avoidance contributed to lower long-term avoidance. But it is worth noting that a spike in avoidance would be the conceptual opposite of the spikes described by Hayes et al. (2007), who described spikes
brought on by engaging with difficult materials, rather than avoiding it. Why might spikes be unrelated to outcomes in the current sample? First, it seems likely that the spikes described by Hayes et al. were fairly therapy-specific, in that they dealt with cognitive or emotional processing guided by a therapist, a type of experience that may be unlikely to replicate outside of therapy. It may be that the spikes experienced in this sample are more similar to the spikes experienced during the stress-management phase of the Hayes study (which were unrelated to outcomes). Or, more broadly, spikes in a naturalistic sample may be more likely to reflect periods of transient worsening, not because people are doing more processing and therefore feeling temporarily worse, but because other difficult events happen.

The spikes experienced by the case study women illustrate the contrast between spikes due to cognitive/emotional processing and spikes due to unrelated events. Georgia, for instance, experienced a spike in negative mood that caused her to really examine her emotions and thoughts about her world, and to seek emotional support in the form of a therapist and friend. She ended up having a profound shift in perspective that helped her feel significantly better. This may be the type of spike described by Hayes et al. (2007), and it is worth noting that a therapist was involved. On the other hand, Susan experienced at least two spikes related to negative life events (first, her grandparent dying, then her daughter being expelled). If spikes stemming from external events do not lead to significant emotional processing (as was common in this sample), then there is no reason to expect them to lead to better long-term outcomes. Likewise, Eliana experienced spikes in reexperiencing brought on by hearing about new attacks and by the anniversary of the event. Again, though such reminder events may present an opportunity for further cognitive or emotional processing, they may simply be unlikely to do so in the absence of a therapy relationship. In that case, they may be unlikely to lead to improved outcomes on their
own. Unfortunately, because spikes caused solely by cognitive-emotional processing were so rare in the current sample, I was unable to analyze their importance—perhaps such spikes would have predicted outcomes in the way described by Hayes et al.

**Sudden Deterioration**

One unexpected symptom pattern was noted in reexamining LHC’s and field notes: for several women, there was a feature that would be the conceptual opposite of a sudden gain; in other words, they experienced a “sudden deterioration.” These women experienced times when a particular symptom became quickly much worse, but did not return to lower levels, or at least not quickly enough to be rated as a spike. Anecdotally, such changes seemed to be related to times when an external event occurred that disturbed the recovery process.

**Limitations**

The primary limitation of the current study is its reliance on retrospective, self-report data, particularly of symptom changes. Thus, different results may have been obtained with a prospective longitudinal study. However, such a study—with assessments beginning immediately after a disruptive life event and lasting up to three years following—would be extremely impractical, and thus this study adds to a tradition of using Life History Calendars to improve retrospective recall to the extent possible. Indeed, Freedman et al. (1988) found that test-retest reliability for life events was in the 70-100% range, and Lyketsos et al. (1994) used such a format to gather information about psychological symptoms for the past 12 years. But currently it is unknown how accurate recall is around particular symptom clusters.

A related issue is whether to accept reports of sudden gains and spikes as objective reports or as part of participants’ narratives about their recovery process. For instance, even when the overall course of symptoms was generally accurate, participants may have “smoothed”
their symptom drawings somewhat, leaving out somewhat more minor fluctuations in the course of recovery. Moreover, it is likely that mood at the time of interview may be related to reports of current functioning as well as likelihood to report having had a sudden gain. Mood at the time of interview is also likely related to level of recovery, such that those who are currently more recovered may be better able to talk about a disruptive life event without inducing a lot of negative affect, which in turn may influence both reports of current symptom levels and of changes in symptoms. Related to this limitation, regressions of outcomes on sudden gains and spikes may be inflated due to some common-method variance. That is, gains in one symptom (as drawn) are used to predict later symptom levels (also drawn). It is worth noting, however, that sudden gains on particular symptoms predicted better outcomes on other symptoms, as well as a questionnaire measure of anhedonic depression.

Further, some caution should be used in interpreting the attributions women make about the reasons for sudden gains and spikes. The reasons given by women may reflect post-hoc rationalizations or inferred reasons based on culturally salient narratives. That is, in general people may be more likely to generate external reasons for symptom fluctuations. They may also be more likely to communicate such reasons than those related to cognitive or emotional changes. This is not to say that communicated reasons are not important, especially for the woman’s own psychological health; indeed, there is some evidence that people’s own narratives (including explanations for illness and increasing coherence and emotional engagement of narratives) are important for psychological health (e.g. Kleinman, 1988; Pennebaker, & Seagal, 1999). It is my position that reports of sudden gains and spikes, as well as attributions, should be taken as indications of people’s narratives about the course of recovery, rather than as objective reports of reality; nevertheless, such narratives are likely useful.
Implications for Clinical Work

One implication of the current work is that clients who have experienced “stressful” versus “traumatic” events may not require a completely different type of therapy. If it is the case that traumatic and stressful events have largely similar recovery courses and long-term outcomes, then treatment may be more similar than different. That is, clinicians should likely attend to the importance of both PTSD and depression (among other potential outcomes) in a client’s clinical presentation. Treatment may pull from interventions typically used for one or the other, even if the event is stereotypically “stressful” or “traumatic.” However, this is an issue that deserves further research; even if recovery course is similar, different types of treatments may still be necessary.

A second implication is that attention should likely be given to further external events, even in therapy to deal with a particular stressful or traumatic event. It would be premature to give detailed clinical recommendations based on this rather preliminary study. Nevertheless, one hypothesis based on the current findings is that new events during the course of recovery have an important role to play in the recovery process. For people who seek therapy to help process a disruptive event, therapists may capitalize on such knowledge. First, it is important to realize, and convey, that recovery will not—and need not—be a smooth, gradual process. Positive events often have a prominent role to play in contributing to sudden gains in the current sample. In some cases these are serendipitous events out of the person’s control. In these cases, the therapist may help to consolidate gains. In other cases, positive life events are ones that people create, including building social support, and therapists can certainly be a part of creating this kind of life change for clients. When negative events occur, especially ones related to—or reminders
of—the initial event, these may be useful when they lead to a revisiting of the event and an opportunity to make meaning or to do some cognitive or emotional processing.

**Implications for Research**

It is important that future research replicates and extends the findings of this study. Ideally such research would utilize a broad sample with a prospective, longitudinal design. However, given the logistical difficulties this would pose, it would be fruitful to continue to examine the course of recovery in a retrospective manner. Future research should examine other means of validating such retrospective reports, for instance by examining significant others’ reports of sudden gains and spikes. There is some precedent for this, as Davies et al. (2006) found that therapists could identify clients’ sudden gains at a rate better than chance. At the very least it will be important to start to examine recovery over a longer period than 3 months, especially when such recovery takes place outside of therapy. Though therapy studies offer a useful—and convenient—window into change processes, they likely also offer a biased view of how change generally takes place.

It will be important to continue to investigate the nature of the life event and its link to sudden gains, spikes, and outcomes. In particular, it would be useful to see whether the differences in sudden gains following traumatic vs. stressful events and ongoing vs. discrete events would replicate. One hypothesis based on current interviews is that ongoing events force people to continue to process events, which can sometimes lead to shifts in perspective while the event is going on, allowing for quick recovery when the event is over. Future research could examine whether other samples would find higher rates of sudden gains following ongoing events, and test whether these higher rates are due to more cognitive or emotional processing while the event is ongoing.
Future research should also follow up on the findings from this study examining sudden gains. First, if future research replicates the important role of sudden gains in avoidance, it should also examine what mechanisms mediate this process. I have speculated that gains in negative mood make it easier to face thoughts of the event, and that gains in avoidance allow for more processing. However, future research should examine this hypothesized causal chain. Second, future research should continue to examine reasons for sudden gains (and spikes). However, research to date has been rather simplistic in its approach. Reasons for sudden gains or spikes will likely not be captured by life event checklists or self-esteem measures. Initially more in-depth analyses of the reasons for such gains may be appropriate. For instance, Goodridge and Hardy (2009) examined full session transcripts for five clients experiencing sudden gains and found that increases in insight led to gains—though insight seemed to extend to more behavioral changes as well. Additionally, when examining the connection between life events and sudden gains, it is worth noting the importance of a contextual analysis of life events. Many of the events leading to sudden gains or spikes in this study (e.g. talking to a friend, listening to a loved one’s music, growing hair back) will not be captured by standard event checklists, so it is important to measure such reasons contextually (just as the stressfulness of life events should be measured contextually). However, given that this is the second study to find that sudden gains occur even absent therapy (Kelly et al., 2007), it will be important not to focus exclusively on therapy samples.

Although this study did not find that spikes were generally related to outcomes, it will still be important to examine them, given that they proved to be of such importance to depressed clients in the Hayes et al. (2007) study. It seems plausible that spikes (1) are a typical part of the recovery process from a stressful event or from depression, and (2) in general are not particularly
helpful unless they are indicators of increased cognitive-emotional processing. Unfortunately, due to too few spikes related solely to cognitive or emotional changes, this could not be examined in the current study. It may be that this is the norm in non-therapy studies (or even in different types of therapy, given that the Hayes et al. study examined a type of therapy hypothesized to cause cognitive-emotional processing spikes). In that case, it may be that only spikes in therapy are helpful, and not spikes in general. Currently it is not possible to say, and future research should examine this issue further.

It will also be important for future research to test for the presence of “sudden deterioration” in symptoms, given that this was an unexpected finding with potential importance. In particular, it would also be important to note the reasons for such deterioration, including whether it is often related to focal events.

Some other constructs should be further examined in a larger sample. In particular, because of the small sample size of women reporting multiple events as part of a single disruptive “event”, I was not able to examine differences in outcomes or in the process of recovery. A larger sample may be able to follow up by examining whether the experience of multiple events is similar to the experience of ongoing events in allowing the possibility of fairly rapid recovery following the end of the event (possibly facilitated by processing during the “event”). In any case, a significant minority of women reported multiple events as part of a single event, and this is an experience that should be further examined.

Finally, the current study points to the difficulty in defining recovery from disruptive life events. First, it was often difficult to disentangle recovery following a life event from the typical “ups and downs” of life. Second, it was not always clear that women were using the same definition of recovery when they talked about the process of recovery from disruptive life events.
Though for this study I essentially defined recovery as symptom remission, it will also be important to understand what recovery means to women themselves, especially for therapy purposes. Qualitative inquiry would be well positioned to pursue these types of questions.

Overall, this study points to the importance of intraindividual analysis of changes following disruptive life events (whether in therapy or not). It would be particularly useful to follow up on the current results by using longitudinal studies with frequent data collection points, so that patterns of change can be assessed, rather than using longitudinal time points in essentially cross-sectional ways.
References


Appendix A: Tables and Figures

Table 1: Scale Reliabilities

<table>
<thead>
<tr>
<th></th>
<th>Week after the event started</th>
<th>Week after worst part of the event</th>
<th>Past week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative Affect (24 items)</td>
<td>.93</td>
<td>.93</td>
<td>.94</td>
</tr>
<tr>
<td>PTSD</td>
<td>.87</td>
<td>.90</td>
<td>.91</td>
</tr>
<tr>
<td>Anhedonic Depression</td>
<td>.87</td>
<td>.70</td>
<td>.84</td>
</tr>
</tbody>
</table>

Table 2: Intraclass Correlations for Each Sudden Gain and Spike

<table>
<thead>
<tr>
<th>Intraclass Correlations for Sudden Gains</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mood</td>
</tr>
<tr>
<td>Reexperiencing</td>
</tr>
<tr>
<td>Avoidance</td>
</tr>
<tr>
<td>Hyperarousal</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Intraclass Correlations for Spikes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mood</td>
</tr>
<tr>
<td>Reexperiencing</td>
</tr>
<tr>
<td>Avoidance</td>
</tr>
<tr>
<td>Hyperarousal</td>
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</tbody>
</table>
Table 3: Kappas for Each Sudden Gain and Spike

<table>
<thead>
<tr>
<th></th>
<th>Minimum Kappa</th>
<th>Maximum Kappa</th>
<th>Mean Kappa</th>
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<tr>
<td><strong>Sudden gains</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mood</td>
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<td>.82</td>
<td>.74</td>
</tr>
<tr>
<td>Reexperiencing</td>
<td>.76</td>
<td>.83</td>
<td>.79</td>
</tr>
<tr>
<td>Avoidance</td>
<td>.82</td>
<td>.91</td>
<td>.87</td>
</tr>
<tr>
<td>Hyperarousal</td>
<td>.76</td>
<td>.88</td>
<td>.82</td>
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<tr>
<td>Any symptom</td>
<td>.52</td>
<td>.56</td>
<td>.55</td>
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<tr>
<td><strong>Spikes</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mood</td>
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<td>.83</td>
<td>.79</td>
</tr>
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<td>.84</td>
<td>.92</td>
<td>.87</td>
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<tr>
<td>Avoidance</td>
<td>.72</td>
<td>.86</td>
<td>.77</td>
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<tr>
<td>Hyperarousal</td>
<td>.78</td>
<td>.83</td>
<td>.81</td>
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<tr>
<td>Any symptom</td>
<td>.67</td>
<td>.73</td>
<td>.69</td>
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Table 4: Descriptive Statistics for Symptom Minimum, Maximum, and Mean Levels

<table>
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<tr>
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<th>Mean Symptom Levels</th>
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<tr>
<td></td>
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<td>Max</td>
<td>Mean</td>
</tr>
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<td>Mood</td>
<td>1.0</td>
<td>3.0</td>
<td>1.4</td>
</tr>
<tr>
<td>Reexperiencing</td>
<td>1.0</td>
<td>5.0</td>
<td>1.9</td>
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<tr>
<td>Avoidance</td>
<td>1.0</td>
<td>5.0</td>
<td>1.9</td>
</tr>
<tr>
<td>Hyperarousal</td>
<td>1.0</td>
<td>3.8</td>
<td>1.6</td>
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Table 5: Mean and Median Linearity Scores by Symptom

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<th>Mean linearity</th>
<th>Median linearity</th>
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<tr>
<td>Mood</td>
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<td>-.71</td>
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<tr>
<td>Reexperiencing</td>
<td>-.52</td>
<td>-.71</td>
</tr>
<tr>
<td>Avoidance</td>
<td>-.44</td>
<td>-.56</td>
</tr>
<tr>
<td>Hyperarousal</td>
<td>-.34</td>
<td>-.49</td>
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Table 6: Mean and Median Correlations Among Symptoms (Means above the Diagonal; Medians below the diagonal)

<table>
<thead>
<tr>
<th></th>
<th>Mood</th>
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<th>Avoidance</th>
<th>Hyperarousal</th>
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</thead>
<tbody>
<tr>
<td>Mood</td>
<td>--</td>
<td>.72</td>
<td>.49</td>
<td>.47</td>
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<td>.58</td>
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<td>.33</td>
<td>.33</td>
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<td>--</td>
<td>.33</td>
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<td>Hyperarousal</td>
<td>.37</td>
<td>.29</td>
<td>.34</td>
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Table 7: Percentages of Participants who Experienced One or More Sudden Gains

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<tr>
<th></th>
<th>Any Symptom</th>
<th>Mood</th>
<th>Reexperiencing</th>
<th>Avoidance</th>
<th>Hyperarousal</th>
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<tbody>
<tr>
<td>Full follow-up</td>
<td>74</td>
<td>64</td>
<td>45</td>
<td>37</td>
<td>21</td>
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<tr>
<td>Excluding asymptomatic</td>
<td>75</td>
<td>65</td>
<td>48</td>
<td>51</td>
<td>30</td>
</tr>
<tr>
<td>First 4 months</td>
<td>51</td>
<td>41</td>
<td>30</td>
<td>23</td>
<td>12</td>
</tr>
<tr>
<td>Excluding asymptomatic</td>
<td>52</td>
<td>41</td>
<td>32</td>
<td>31</td>
<td>14</td>
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Table 8: Size of Sudden Gains

<table>
<thead>
<tr>
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<th>Mean</th>
<th>SD</th>
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<tr>
<td>Mood</td>
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<tr>
<td>Reexperiencing</td>
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<td>2.4</td>
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<tr>
<td>Avoidance</td>
<td>.7</td>
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<td>.9</td>
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<td>Hyperarousal</td>
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<td>1.0</td>
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<tr>
<td>Any symptom</td>
<td>.5</td>
<td>4.3</td>
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Table 9: Percentages of Participants Who Experienced One or More Spikes

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<th>Mood</th>
<th>Reexperiencing</th>
<th>Avoidance</th>
<th>Hyperarousal</th>
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<tr>
<td>Full follow-up</td>
<td>42</td>
<td>37</td>
<td>22</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>Excluding extremely</td>
<td>42</td>
<td>37</td>
<td>24</td>
<td>9</td>
<td>12</td>
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<tr>
<td>symptomatic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First 4 months</td>
<td>16</td>
<td>12</td>
<td>7</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Excluding extremely</td>
<td>16</td>
<td>12</td>
<td>7</td>
<td>3</td>
<td>4</td>
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<tr>
<td>symptomatic</td>
<td></td>
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Table 10: Size of Increases in Spikes

<table>
<thead>
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<th></th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>SD</th>
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</thead>
<tbody>
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<td>Mood</td>
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<tr>
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<td>4.0</td>
<td>1.9</td>
<td>1.0</td>
</tr>
<tr>
<td>Avoidance</td>
<td>.8</td>
<td>4.0</td>
<td>1.6</td>
<td>1.1</td>
</tr>
<tr>
<td>Hyperarousal</td>
<td>.8</td>
<td>3.0</td>
<td>1.4</td>
<td>.6</td>
</tr>
<tr>
<td>Any symptom</td>
<td>.7</td>
<td>4.6</td>
<td>1.9</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Table 11: Size of Decreases in Spikes

<table>
<thead>
<tr>
<th></th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mood</td>
<td>.5</td>
<td>4.0</td>
<td>1.7</td>
<td>1.0</td>
</tr>
<tr>
<td>Reexperiencing</td>
<td>.6</td>
<td>4.0</td>
<td>1.8</td>
<td>.9</td>
</tr>
<tr>
<td>Avoidance</td>
<td>.6</td>
<td>4.0</td>
<td>1.9</td>
<td>1.0</td>
</tr>
<tr>
<td>Hyperarousal</td>
<td>.7</td>
<td>2.0</td>
<td>1.3</td>
<td>.5</td>
</tr>
<tr>
<td>Any symptom</td>
<td>.5</td>
<td>4.0</td>
<td>1.8</td>
<td>1.0</td>
</tr>
</tbody>
</table>
### Table 12: Percentages of Reasons Given for Sudden Gains and Spikes

<table>
<thead>
<tr>
<th>Reason</th>
<th>Sudden Gains</th>
<th>Spikes</th>
</tr>
</thead>
<tbody>
<tr>
<td>No reason given</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Internal</td>
<td>52</td>
<td>23</td>
</tr>
<tr>
<td>Cognitive change</td>
<td>38</td>
<td>6</td>
</tr>
<tr>
<td>Emotional change</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Cognitive and emotional change</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>External</td>
<td>87</td>
<td>95</td>
</tr>
<tr>
<td>Event related to initial event</td>
<td>21</td>
<td>25</td>
</tr>
<tr>
<td>Reminder of initial event</td>
<td>5</td>
<td>26</td>
</tr>
<tr>
<td>Unrelated event</td>
<td>35</td>
<td>26</td>
</tr>
<tr>
<td>Social or emotional support</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>Combination of reasons</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>Both internal and external</td>
<td>46</td>
<td>22</td>
</tr>
</tbody>
</table>
Table 13: Regression Results with Sudden Gains as Predictors

<table>
<thead>
<tr>
<th></th>
<th>Mood: 24 months</th>
<th>Reexperiencing: 24 months</th>
<th>Avoidance: 24 months</th>
<th>Hyperarousal: 24 months</th>
<th>Negative Affect</th>
<th>Anhedonic Depression</th>
<th>PTSD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sudden Gain:</strong> Mood</td>
<td>ns</td>
<td>ns</td>
<td>β = -1.18</td>
<td>ns</td>
<td>ns</td>
<td>β = -.34</td>
<td>ns</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>p ≤ .05</td>
<td></td>
<td></td>
<td>p ≤ .05</td>
<td></td>
</tr>
<tr>
<td><strong>Sudden Gain:</strong> Reexperiencing</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sudden Gain:</strong> Avoidance</td>
<td>ns</td>
<td>ns</td>
<td>β = -1.45</td>
<td>β = -.89</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>p ≤ .05</td>
<td>p ≤ .05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sudden Gain:</strong> Hyperarousal</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sudden Gain:</strong> Any Symptom</td>
<td>ns</td>
<td>ns</td>
<td>β = -1.21</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>p ≤ .05</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 1: Frequencies of Linearity Scores for Mood Symptoms

Figure 2: Frequencies of Linearity Scores for Reexperiencing Symptoms

Figure 3: Frequencies of Linearity Scores for Avoidance Symptoms
Figure 4: Frequencies of Linearity Scores for Hyperarousal Symptoms

Figure 5: Frequencies of Correlations Between Mood and Reexperiencing Symptoms

Figure 6: Frequencies of Correlations between Mood and Avoidance Symptoms
Figure 7: Frequencies of Correlations between Mood and Hyperarousal Symptoms

Figure 8: Frequencies of Correlations between Reexperiencing and Avoidance Symptoms

Figure 9: Frequencies of Correlations between Reexperiencing and Hyperarousal Symptoms

Figure 10: Frequencies of Correlations between Avoidance and Hyperarousal Symptoms
Appendix B: Phone Script for Screening Respondents

Hi. This is Sadie Larsen from the Psychology Department at the University of Illinois. I’m calling in response to the message you left with us regarding participating in our disruptive life events study. Are you still interested in our project?

If “No”: Okay. Thanks for calling and expressing an interest in our project.

If “Yes”: Great! I’m glad you’re still interested. Because this is part of a research study, we would like to ask you some preliminary questions to see if you fit the profile of the individuals we need for the current study. Do you have 5 minutes right now to answer a few questions on the phone?

If “No”: That’s fine. When would be a better time to call you back and spend 5 minutes going through some screening questions? (Get day and time and verify phone number.) Okay, that sounds good. Thanks and I’ll talk to you on (date arranged). Good-bye.

If “Yes”: Okay. Before I ask you the questions, I’d like to make sure you understand that participation in this project is strictly voluntary, and that you may decline to participate at any time. Also, all of your answers, including the ones you will give on the phone, will be kept strictly confidential and the only people who will have access to your answers will be myself, and the other researchers on the project. If you are selected to participate in the study, I will send you a few questionnaires to fill out on your own, and then we will set up a time and place to meet in person. During that in-person session, we will talk about the event, fill out a few more questionnaires, and fill a sort of timeline of things that have happened since the disruptive life event. This will probably take about 1 to 2 hours. You should know that that session will be audiotaped and then transcribed; we will not use your name or any identifying information in the transcript, and then the audiotape will be erased. To thank you for participating, you will be
entered in a lottery to win one of three $50 prizes. Do you have any questions about any of that?

Now I’m going to ask you some questions that will help me get an idea of whether you will be eligible for the study. First, are you over 18?

   **If “No”:** I’m sorry, you are not eligible for this study. Thanks so much for taking the time to help me out though. I really appreciate your answering my questions. Goodbye.

Second, have you experienced a disruptive event sometime between 3 months and 3 years ago? By disruptive event, I mean a negative event that was stressful, perhaps even traumatic to you. For instance, the kinds of events might include divorce, sexual assault, learning you had a life-threatening illness, being in a natural disaster, or losing a close loved one, among other things. This event must also have had some impact on you that lasted for at least 1 week. For instance, it might have affected your mood, how you view yourself or the world, your ability to function at work, or your relationships with other people. Have you experienced an event like that within the past 3 months to 3 years?

   **If “No”:** I’m sorry, you are not eligible for this study. Thanks so much for taking the time to help me out though. I really appreciate your answering my questions. Goodbye.

   **If “Yes” [and not already clear]:** Can you tell me very briefly what that event was? *Note event here: ____________________________________________________________*_

Finally, would you describe yourself as having recovered from this event or at least having started the process of recovery? By that I mean, do you feel like things have started to get at least a little bit better from the worst they have been?

   **If “No”:** I’m sorry, you are not eligible for this study. Thanks so much for taking the time
to help me out though. I really appreciate your answering my questions. Would you like any referrals to a therapist or support group or someone else you could talk to about this event? [If yes, provide resources as appropriate, referring to “protocol for distress interviewee”]. Goodbye.

**If “Yes” to all three questions:** Great! You’ve qualified for our current study. What I need to do now is schedule a time for us to meet in person. We have space available on campus, or I can meet you wherever is convenient for you, as long as it’s somewhere private. What would work best for you?

*Set up time and place. Note scheduled time on contact sheet.*

Also, I need to have you fill out a few questionnaires before we meet in person. I can either mail them to you or send you a link to a secure website where you can fill them out online. Which would you prefer?

*Note preference and email or mail address:*

Ok, thank you so much for calling in. I really look forward to meeting you!
Appendix C: Questionnaires

Pre-session Questionnaires

Age: __________

Ethnic background:
1. White
2. Hispanic
3. African American
4. Asian/Pacific Islander
5. American Indian or Alaskan Native
6. Other (please specify): _______________________

What is the highest level of education you have completed?
1. High school diploma/GED
2. Some college
3. Graduated from college
4. Some graduate school
5. Graduate or professional degree

Household income:
1. under $25,000
2. $25,000-50,000
3. $50,000-75,000
4. $75,000-100,000
5. Over $100,000

Relationship status:
1. Single
2. Married/partnered
3. Divorced or separated
4. Widowed
For this next set of questions, think about the past week, up through today. Using the scales indicated, please rate each item.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not at all</td>
<td>A little bit</td>
<td>Moderately</td>
<td>Quite a bit</td>
<td>Extremely</td>
</tr>
</tbody>
</table>

Using the scale above, indicate the extent to which you felt this way in the past week:

1. I felt sad.  
2. I felt blue.  
3. I felt downhearted.  
4. I felt hopeless.  
5. I felt afraid.  
6. I felt scared.  
7. I felt terrified or panicked.  
8. I felt anxious.  
9. I felt angry.  
10. I felt enraged.  
11. I felt hostile.  
12. I felt irritable.  
13. I felt guilty.  
14. I felt like I had done something wrong.  
15. I felt remorse or regret.  
16. I felt like apologizing or confessing.  
17. I felt ashamed.  
18. I felt like I was a bad person.  
19. I felt like avoiding people.  
22. I felt jittery.  
23. I felt upset.  
24. I felt distressed.

Using the scale above, indicate how much you agree with each of the following for the past week:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly disagree</td>
<td>Disagree</td>
<td>Neutral</td>
<td>Agree</td>
<td>Strongly agree</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

25. I controlled my emotions by not expressing them.  
26. When I felt negative emotions, I made sure not to express them.  
27. I kept my emotions to myself.  
28. When I felt positive emotions, I was careful not to express them.
Using the scale above, indicate how much you did each of the following in the past week:

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

I usually didn’t do this at all

I usually did this a lot

Using the scale above, indicate the extent to which you agree with the following statements for the past week:

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Not at all       A little bit      Moderately       Quite a bit        Extremely

Below is a list of feelings, sensations, problems, and experiences that people sometimes have. Please mark the choice that best describes how much you have felt or experienced things this way in the past week, using the scale above:

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Felt like nothing was very enjoyable

Felt unattractive

Felt like there wasn’t anything interesting or fun to do

Felt really slowed down

Felt like it took extra effort to get started

Thoughts about death or suicide

Felt really bored

Felt withdrawn from other people
The following questions will refer to the disruptive life event we discussed earlier. Below is a list of problems and complaints that people sometimes have in response to stressful experiences. Please tell us if, in the past week, you have had any of these reactions to the disruptive life event you experienced, using the scale above:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not at all</td>
<td>A little bit</td>
<td>Moderately</td>
<td>Quite a bit</td>
<td>Extremely</td>
</tr>
</tbody>
</table>

48. Repeated, disturbing memories, thoughts, or images of this situation  
49. Repeated, disturbing dreams of this situation  
50. Suddenly acting or feeling as if this situation were happening again (as if you were reliving it)  
51. Feeling very upset when something reminded you of this situation  
52. Having physical reactions (e.g. heart pounding, trouble breathing, sweating) when something reminded you of this situation  
53. Avoiding thinking about or talking about this situation or avoiding having feelings related to it  
54. Avoiding activities or situations because they reminded you of this situation  
55. Trouble remembering important parts of this situation  
56. Loss of interest in activities that you used to enjoy  
57. Feeling distant or cut off from other people  
58. Feeling emotionally numb or being unable to have loving feelings for those close to you  
59. Feeling as if your future somehow will be cut short  
60. Trouble falling or staying asleep  
61. Feeling irritable or having angry outbursts  
62. Having difficulty concentrating  
63. Being “super-alert” or watchful or on guard  
64. Feeling jumpy or easily startled  

Using the scale above, indicate the extent to which you were able to do the following things in the past week:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not at all</td>
<td>A little bit</td>
<td>Moderately</td>
<td>Quite a bit</td>
<td>Extremely</td>
</tr>
</tbody>
</table>

65. I was able to make sense of the disruptive life event.  
66. I was able to find something positive in this life event (e.g. learning something about myself or others).
Thinking of the disruptive life event you experienced, please answer the following questions:

1. How old were you when this event occurred? __ __
2. How long did the event last? __ __ weeks/months/years

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Not at all</td>
<td>A little bit</td>
<td>Moderately</td>
<td>Quite a bit</td>
<td>Extremely</td>
</tr>
</tbody>
</table>

Using the scale above, to what extent:

3. was the event stressful or upsetting? 1 2 3 4 5
4. did the event cause some sort of change in your life? 1 2 3 4 5
5. did you fear for your life during this event? 1 2 3 4 5
6. did you fear for the life of someone else? 1 2 3 4 5
7. did you fear for your physical safety during this event? 1 2 3 4 5
8. did you fear for the physical safety of someone else? 1 2 3 4 5
9. did this event involve the loss of someone close to you? 1 2 3 4 5
10. did this event cause a loss of contact with someone close to you? 1 2 3 4 5
11. did this event involve sexual contact? 1 2 3 4 5
12. did you think that what happened was under your control? 1 2 3 4 5
13. did you think the consequences/outcomes of the event were under your control? 1 2 3 4 5
14. did you predict the event ahead of time? 1 2 3 4 5
15. do you think you could have predicted the event ahead of time? 1 2 3 4 5
16. was the event expected? 1 2 3 4 5
17. were there any warning signs at all? 1 2 3 4 5
18. did you feel afraid, helpless, or horrified? 1 2 3 4 5
19. did you feel this event caused you to violate your own moral standards? 1 2 3 4 5

20. was what happened to you unjust? 1 2 3 4 5
21. were you responsible for the event? 1 2 3 4 5
22. was another person(s) responsible for the event? 1 2 3 4 5
23. was a single person to blame (as opposed to multiple people)? 1 2 3 4 5
24. was it clear who was responsible for the event? 1 2 3 4 5
25. was the person(s) responsible intentionally trying to hurt you? 1 2 3 4 5
Listed below are a number of events which are sometimes disruptive to one’s life. Please place a check in the first column if this has *ever* happened to you. For those events you checked, please note how many years ago this event occurred.

<table>
<thead>
<tr>
<th>Event</th>
<th>Check if this happened to you</th>
<th>How many years ago?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Major change in financial status (a lot worse off)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Foreclosure on mortgage or loan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Being fired from job</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Retirement from work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Detention in jail or comparable institution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Transportation accident (for example, car accident, boat accident, train wreck, plane crash)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Serious accident at work, home, or during recreational activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Major personal illness or injury</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was this illness/injury life-threatening? Please circle: Yes No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Serious illness/injury of spouse, close family member, close friend</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Please specify who: ________________________________</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Death of spouse, close family member, or close friend</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Please specify who: ________________________________</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was it sudden? Please circle: Yes No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was it unexpected? Please circle: Yes No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was it violent? Please circle: Yes No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Having abortion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Divorce</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Sexual harassment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of harm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Other unwanted or uncomfortable sexual experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Natural disaster (e.g., flood, hurricane, tornado, earthquake)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Fire or explosion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Exposure to toxic substance (for example, dangerous chemicals, radiation)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. Physical assault (for example, being attacked, hit, slapped, kicked, beaten up)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. Assault with a weapon (for example, being shot, stabbed, threatened with a knife, gun, bomb)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. Combat or exposure to war-zone (in the military or as civilian)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. Captivity (for example, being kidnapped, abducted, held hostage, prisoner of war)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23. Severe human suffering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. Serious injury, harm, or death you caused to someone else</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25. Other disruptive life event</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Please specify: ________________________________</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### In-session Questionnaire for the week after the event started

For this next set of questions, think about **the week immediately after the event started**. Using the scales indicated, please rate each item.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not at all</td>
<td>A little bit</td>
<td>Moderately</td>
<td>Quite a bit</td>
<td>Extremely</td>
</tr>
</tbody>
</table>

Using the scale above, indicate the extent to which you felt this way in the **week after the event started**:

1. I felt sad.  
2. I felt blue.  
3. I felt downhearted.  
4. I felt hopeless.  
5. I felt afraid.  
6. I felt scared.  
7. I felt terrified or panicked.  
8. I felt anxious.  
9. I felt angry.  
10. I felt enraged.  
11. I felt hostile.  
12. I felt irritable.  
13. I felt guilty.  
14. I felt like I had done something wrong.  
15. I felt like apologizing or confessing.  
16. I felt remorse or regret.  
17. I felt ashamed.  
18. I felt like I was a bad person.  
19. I felt like avoiding people.  
22. I felt jittery.  
23. I felt upset.  
24. I felt distressed.

Using the scale above, indicate how much you agree with each of the following **for the week after the event started**:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly disagree</td>
<td>Disagree</td>
<td>Neutral</td>
<td>Agree</td>
<td>Strongly agree</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

25. I controlled my emotions by not expressing them.  
26. When I felt negative emotions, I made sure not to express them.  
27. I kept my emotions to myself.  
28. When I felt positive emotions, I was careful not to express them.
Using the scale above, indicate how much you did each of the following in the week after the event started:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
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</tr>
</thead>
<tbody>
<tr>
<td>29. I took time to figure out what I was really feeling.</td>
<td>1 2 3 4</td>
<td></td>
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<tr>
<td>30. I delved into my feelings to get a thorough understanding of them.</td>
<td>1 2 3 4</td>
<td></td>
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<tr>
<td>31. I realized that my feelings were valid and important.</td>
<td>1 2 3 4</td>
<td></td>
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<tr>
<td>32. I acknowledged my emotions.</td>
<td>1 2 3 4</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>33. I let my feelings come out freely.</td>
<td>1 2 3 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34. I took time to express my emotions.</td>
<td>1 2 3 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35. I allowed myself to express my emotions.</td>
<td>1 2 3 4</td>
<td></td>
<td></td>
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<tr>
<td>36. I felt free to express my emotions.</td>
<td>1 2 3 4</td>
<td></td>
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</tbody>
</table>

Using the scale above, indicate the extent to which you agree with the following statements for the week after the event started:

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<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>37. In general, my health was good</td>
<td>1 2 3 4 5</td>
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<tr>
<td>38. I seemed to get sick a little easier than other people</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
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<tr>
<td>39. I was as healthy as anybody I know</td>
<td>1 2 3 4 5</td>
<td></td>
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</tbody>
</table>

Below is a list of feelings, sensations, problems, and experiences that people sometimes have. Please mark the choice that best describes how much you have felt or experienced things this way in the week after the event started, using the scale above:

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</thead>
<tbody>
<tr>
<td>40. Felt like nothing was very enjoyable</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
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<tr>
<td>41. Felt unattractive</td>
<td>1 2 3 4 5</td>
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<tr>
<td>42. Felt like there wasn’t anything interesting or fun to do</td>
<td>1 2 3 4 5</td>
<td></td>
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<tr>
<td>43. Felt really slowed down</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
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<tr>
<td>44. Felt like it took extra effort to get started</td>
<td>1 2 3 4 5</td>
<td></td>
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<tr>
<td>45. Thoughts about death or suicide</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>46. Felt really bored</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>47. Felt withdrawn from other people</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
Below is a list of problems and complaints that people sometimes have in response to stressful experiences. Please tell us if, in week after the event started, you have had any of these reactions to the disruptive life event you experienced, using the scale above:

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</tr>
</thead>
<tbody>
<tr>
<td>48. Repeated, disturbing memories, thoughts, or images of this situation</td>
<td>1 2 3 4 5</td>
<td></td>
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<tr>
<td>49. Repeated, disturbing dreams of this situation</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
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<tr>
<td>50. Suddenly acting or feeling as if this situation were happening again (as if you were reliving it)</td>
<td>1 2 3 4 5</td>
<td></td>
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</tr>
<tr>
<td>51. Feeling very upset when something reminded you of this situation</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
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<tr>
<td>52. Having physical reactions (e.g. heart pounding, trouble breathing, sweating) when something reminded you of this situation</td>
<td>1 2 3 4 5</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>53. Avoiding thinking about or talking about this situation or avoiding having feelings related to it</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>54. Avoiding activities or situations because they reminded you of this situation</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55. Trouble remembering important parts of this situation</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>56. Loss of interest in activities that you used to enjoy</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>57. Feeling distant or cut off from other people</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>58. Feeling emotionally numb or being unable to have loving feelings for those close to you</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>59. Feeling as if your future somehow will be cut short</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60. Trouble falling or staying asleep</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>61. Feeling irritable or having angry outbursts</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>62. Having difficulty concentrating</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>63. Being “super-alert” or watchful or on guard</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>64. Feeling jumpy or easily startled</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Using the scale above, indicate the extent to which you were able to do the following things in the week after the event started:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>65. I was able to make sense of the disruptive life event.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>66. I was able to find something positive in this life event (e.g. learning something about myself or others).</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
For the following questions, first, rate each on a 0 to 8 scale (below), for both the week after the event ended and the past week.

1  2  3  4  5  6  7  8
No impairment at all                      Very severe impairment

Then, in the final column, please indicate how long the impairment lasted, using the following scale:

1  2  3  4  5  6  7
No impairment <1 week     1 week-1month 1-3 months 3 months-1 year 1-2 years 2-3 years

<table>
<thead>
<tr>
<th></th>
<th>Week after event started</th>
<th>Past week</th>
<th>How long did the impairment last?</th>
</tr>
</thead>
<tbody>
<tr>
<td>67. Because of the event, my ability to work was impaired.</td>
<td>1 2 3 4 5 6 7 8</td>
<td>1 2 3 4 5 6 7 8</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>68. Because of the event, my home management (cleaning, tidying, shopping, cooking, looking after home or children, paying bills) was impaired.</td>
<td>1 2 3 4 5 6 7 8</td>
<td>1 2 3 4 5 6 7 8</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>69. Because of the event, my social leisure activities (with other people, such as parties, bars, clubs, outings, visits, dating, home entertainment) were impaired.</td>
<td>1 2 3 4 5 6 7 8</td>
<td>1 2 3 4 5 6 7 8</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>70. Because of the event, my private leisure activities (done alone, such as reading, gardening, collecting, sewing, walking alone) were impaired.</td>
<td>1 2 3 4 5 6 7 8</td>
<td>1 2 3 4 5 6 7 8</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>71. Because of the event, my ability to form and maintain close relationships with others, including those I live with, was impaired.</td>
<td>1 2 3 4 5 6 7 8</td>
<td>1 2 3 4 5 6 7 8</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>72. Because of the event, my physical health was impaired.</td>
<td>1 2 3 4 5 6 7 8</td>
<td>1 2 3 4 5 6 7 8</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>73. Because of the event, my emotional or psychological health was impaired.</td>
<td>1 2 3 4 5 6 7 8</td>
<td>1 2 3 4 5 6 7 8</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>74. Is there anything else the event affected or impaired? Specify: _________________________</td>
<td>1 2 3 4 5 6 7 8</td>
<td>1 2 3 4 5 6 7 8</td>
<td>1 2 3 4 5 6 7</td>
</tr>
</tbody>
</table>

Using the scale above, please rate how much you did these things since the event:

1. I talked about the event with other people. 1 2 3 4 5
2. I talked about my feelings about the event with other people. 1 2 3 4 5
3. I talked about my recovery process with other people. 1 2 3 4 5
4. I wrote about what happened (e.g. in a diary). 1 2 3 4 5
5. I thought about the event. 1 2 3 4 5
6. I went to a therapist, counselor, psychiatrist, or other expert. 1 2 3 4 5

If so, please specify: How many months after the event: ________________
How many months did you see this person: ________________
Using the scale above, rate the degree to which this change occurred in your life as a result of the disruptive life event.

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>A very small degree</td>
<td>A small degree</td>
<td>A moderate degree</td>
<td>A great degree</td>
<td></td>
</tr>
</tbody>
</table>

7. My priorities about what is important in life.  
8. An appreciation for the value of my own life.  
9. I developed new interests.  
10. A feeling of self-reliance.  
11. A better understanding of spiritual matters.  
12. Knowing that I can count on people in times of trouble.  
13. I established a new path for my life.  
14. A sense of closeness with others.  
15. A willingness to express my emotions.  
16. Knowing I can handle difficulties.  
17. I'm able to do better things with my life.  
18. Being able to accept the way things work out.  
19. Appreciating each day.  
20. New opportunities are available which wouldn't have been otherwise.  
21. Having compassion for others.  
22. Putting effort into my relationships.  
23. I'm more likely to try to change things which need changing.  
24. I have a stronger religious faith.  
25. I discovered that I'm stronger than I thought I was.  
26. I learned a great deal about how wonderful people are.  
27. I accept needing others.
First, when did your recovery start?
For the following questions, think about how much you have “recovered” from the event. That is, since your recovery started, how much have any of the negative consequences of the event gone away:

1. Overall, how much do you think you have recovered from this event: _ _%

2. How much had you recovered as of:
   a. the first month: _ _%
   b. the first three months: _ _%
   c. the first year: _ _%
   d. up through today: _ _%

3. When would you say that you felt the worst? _ _ months after recovery started

4. Did you ever have a time when things suddenly felt much worse, but then fairly quickly got better again for some reason? Circle: Yes / No
   a. If yes, when: _ _ months after event

5. To what extent did your recovery process involve a gradual recovery process vs. involving times when you suddenly got much better?

<table>
<thead>
<tr>
<th></th>
<th>Very gradual</th>
<th>Mostly gradual</th>
<th>Some sudden better</th>
<th>I suddenly got better</th>
</tr>
</thead>
<tbody>
<tr>
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<td>4</td>
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<td>5</td>
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</table>
Appendix D: Sample Life History Calendar

<table>
<thead>
<tr>
<th>Year:</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
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<tbody>
<tr>
<td>Living arrangements</td>
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<td>Marriage/partner events</td>
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<td>Children</td>
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<td>Education/Work</td>
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<td>Health</td>
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<td>Landmark events</td>
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<td>Disruption-related events</td>
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<td>Turning points</td>
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<table>
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<tr>
<th>Year:</th>
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</table>
Appendix E: Definitions for Coding Sudden Gains and Spikes

- **Sudden gain**: a sudden improvement in symptoms or well-being. This change should be larger than day-to-day changes in symptoms. It should also occur fairly rapidly, within one month’s time or less. But it should not be transient; that is, it should last longer than one week. On a LHC, this should be at least one point per month difference. In the interview, it will be expressed as more than a “small” or “moderate” change. Rather, it will be a “large” or “big” change or things will be “really” or “quickly” better.

- **Spike**: a time when symptoms or well-being suddenly got worse for a short period of time, then better again. This change should be noticeable (larger than day-to-day changes in symptoms). It should also occur fairly rapidly, within about two month’s time or less. As with a sudden gain, on the LHC this should go up at least one point within one month; within two months of the start of the spike it should start to get better; and once it starts to get better, it should go back down by at least one-half point within the first month. And they may say in the interview that things got “much” worse then better, or that there was a “big” or “large” change.

- **A “stable” sudden gain**: If at least 50% of the changes from a sudden gain are reversed within the first three months after the end of a sudden gain, then a sudden gain would NOT be considered “stable” (e.g. if a person went from a 5 to a 3 during a sudden gain, then if she ever went back up to a 4 within the three months after the sudden gain ended, it would not be considered a stable sudden gain). Note that if the majority of the symptoms involved are stable, then code it as stable, and vice versa; if 2 are stable and 2 are unstable, then code as unstable.