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## The Enduring Impact of Borderline Personality Pathology: Risk for Threatening Life Events in Later Middle-Age

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### Abstract

Both neuroticism and borderline personality disorder (BPD) are associated with increased frequency of stressful life events in young adults. It is not clear, however, whether this effect extends to later life because BPD is apparently diminished in frequency and severity when people reach middle adulthood. This issue was examined in a representative, community sample of men and women between the ages of 55 and 64 ( $N=1,234$ ). Ten DSM-IV PDs and neuroticism were assessed at baseline using a semi-structured interview (SIDP-IV) and questionnaire (NEO-PI-R). Life events were measured 6 months later with a self-report questionnaire (LTE-Q) followed by a telephone interview. BPD features and neuroticism predicted increased frequency of life events, based on both self and interviewer-adjusted reports of negative life events. Avoidant and paranoid PD features predicted decreased frequency of negative life events. Approximately 42% of events reported on the LTE-Q were discounted following the telephone interview; higher scores on BPD symptoms were associated with more adjustments to self-report of threatening experiences. These findings indicate that symptoms of BPD and neuroticism continue to have a harmful impact on the lives of older adults.

### Keywords

borderline personality disorder; neuroticism; depression; life events; stress; aging

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Research has consistently shown that various aspects of personality are associated with outcomes ranging from subjective well-being and relationship satisfaction to health and mortality (Ozer & Benet-Martinez, 2006; Roberts et al., 2007). Neuroticism, a personality trait characterized by high levels of negative affect and impulsivity, has received attention because of its link to a number of important life outcomes including increased risk for chronic health conditions and early mortality, decreased occupational success, and disrupted marital relationships (Lahey, 2009). Neuroticism is also associated with several forms of psychopathology, including personality disorders (PDs) (Costa & McCrae, 1992), which are known to be associated with significant social impairment and personal distress.

One topic that plays a central role in our understanding of the connection between personality and consequential outcomes involves the occurrence of stressful life events,

which represent a known risk factor affecting the onset and course of many mental disorders, most notably major depression (Monroe & Harkness, 2005). Studies focused on *stress generation* (i.e., the idea that individuals play an active role in their environment and that certain personal characteristics or behaviors can lead to the actual experience of more stressful life events) have repeatedly found that higher levels of negative emotionality are linked to the subsequent experience of more frequent interpersonal stressful events, which, in turn, increase the probability of depression (Hammen, 1991, 2006; Harkness & Luther, 2001). Neuroticism (Kendler, Gardner, & Prescott, 2003; Kendler, Kuhn, & Prescott, 2004) and various types of PDs (Cohen et al., 2005; Samuels, Nestadt, Romanoski, Folstein, & McHugh, 1994; Shevlin, Dorahy, Adamson, & Murphy, 2007) have been linked to increased frequency of stressful life events. Pagano et al. (2004) found that borderline PD (BPD), in particular, was related to an increased number of stressful life events, with evidence for decreased psychosocial functioning following the experience of those events. Personality and its disorders are clearly important variables in the complex network connecting psychopathology and stressful life events, but the specific nature of their role is not well understood. It is unclear, for instance, given the way stressful life events are often assessed, whether personality pathology leads to the actual occurrence of more stressful life events or to the report of more events.

The two primary methods for assessing stressful life events are self-report checklists and structured interviews. The Life Events and Difficulties Schedule (LEDS) (Brown & Harris, 1978) is an interview that is a highly regarded and substantiated life stress assessment and provides a comprehensive evaluation of life events (Monroe, 2008). Because this interview requires hours to complete, it is seldom used in large sample studies that must encompass many other assessment tools in a short amount of time. Alternatively, self-report checklists offer a broad assessment of the presence of specific types of events (e.g., loss of a job or death of a family member) and are the most widely used method to date (Dohrenwend, 2006). Research examining consistency in reporting between checklists and interview-based assessments has shown that the information obtained often differs quite substantially, with less than seventy percent of checked events being considered important after a comprehensive interview has been completed (Lewinsohn, Rohde, & Gau, 2003; Monroe, 2008). Checklists do, however, appear to accurately identify people who have not experienced stressful life events (>90% accuracy) (Costello & Devins, 1988).

One important aspect of participant error with life event checklists relates to intracategory variability. Checklists tend to include broad categories of event types (e.g., serious illness or injury), and the reasons that participants endorse an item can vary drastically (from stomach flu to a heart attack to breast cancer) (Dohrenwend, 2006). Additionally, recall bias and interpretation of the meaning behind each category may depend on a person's current context and recent experiences (e.g., an argument might be judged as being more stressful by someone who is in the process of getting a divorce). Therefore, it is particularly important to distinguish between perceptions of and the actual experience of stressful life events (Harkness et al., 2010; Uher & McGuffin, 2010). The over inclusion of events with self-report checklists hinders our ability to discern how stressful life events may relate to psychopathology because it conflates the individual's perception of an event with the individual's personality. Individuals with certain personality traits may actually generate higher levels of stressful events in their lives, but it is also possible that individuals with certain personality traits perceive more routine events as being highly stressful, regardless of the actual severity of the events. To our knowledge, no studies have examined how reporting method (checklist or interview) may influence the relationship between personality and the experience of stressful life events.

We also know very little about the impact of PDs in later life because existing longitudinal studies of PDs have focused on adolescents and young adults (Oltmanns & Balsis, 2011). The types of stressful life events that individuals experience change across the lifespan (Jordanova et al., 2007); interpersonal events, such as divorce or getting fired from a job, are more common among younger adults, and health-related difficulties, such as illness or death of a loved one, are more common among older adults. Because interpersonal stressors become less common as people get older, the relationship between personality pathology and stressful life events found in adolescence (Cohen et al., 2005) and younger adulthood (Pagano et al., 2004) may be substantially diminished in later life. On the other hand, there is mounting evidence that personality matters in diverse outcomes (e.g., health) across the life course. Therefore, the nature of the link between personality and life stress in later adulthood remains open to question.

As part of an on-going longitudinal study of personality and life transitions in a community sample of older adults, we examined how both neuroticism and personality pathology differentially relate to self-reported and interview-adjusted counts of stressful life events. Specifically we tested the following hypotheses:

H1: Is the number of self-reported life events predicted by any of the 10 DSM-IV PDs and/or neuroticism?

H2: Do interviewers adjust the number of life events reported using a self-report checklist?

H3: After interview-based adjustments, is the number of reported life events predicted by the 10 PDs and/or neuroticism?

H4: If there is significant change in the number of major life events after interviewer adjustment, is this change predicted by the 10 DSM-IV PDs and/or neuroticism?

## Methods

### Design Overview

A representative, community-based sample of adults aged 55–64 was recruited to participate in an on-going longitudinal study of personality and aging: The St. Louis Personality and Aging Network (SPAN) (Oltmanns & Gleason, 2011). Participants were recruited using listed phone numbers that were crossed with current census data in order to identify households with one member in the targeted age range. Households were asked to identify all eligible residents between the ages of 55 and 64, and the Kish method (Kish, 1949) was used to identify the target participant if more than one person living in the household was in that age range. Baseline assessment for participants in the SPAN study takes approximately three hours. It includes a brief life narrative interview, a semi-structured diagnostic interview for PDs, and several self-report measures. After completing the baseline measures, participants are asked to complete a brief follow-up assessment (30 minutes) once every 6 months. These assessments are concerned with mood, life events, health, and social adjustment. Participants received \$60 for completing the baseline assessment and \$20 for each follow-up assessment. Informed consent was obtained from all participants prior to the baseline assessment. This paper is concerned with personality information gathered at baseline and its relation to reports of stressful life events experienced during the subsequent 6 months measured at follow-up 1.

### Participants

Participants eligible for the current analyses had completed the baseline portion of the SPAN Study (N = 1,630) as well as the first follow-up assessment (completed 6 months after

baseline) by April of 2011 resulting in a sample of 1,234. Some individuals who had completed baseline were excluded from the present analyses for several reasons: 71 (4%) were not yet due to complete their first follow-up; 29 (2%) failed to complete the neuroticism measure at baseline; 4 (<1%) died prior to follow-up, 30 (2%) dropped out of the study prior to follow-up; 129 (8%) skipped the first follow-up but were still planning to continue in the study; 43 (3%) failed to complete the life events checklist at their first follow-up; 4 (<1%) failed to complete the depression scale at first follow-up; 47 (3%) could not be reached for the interview after completing the LTE-Q at first follow-up; and 39 (2%) were excluded due to experimenter error (including failure to ask about all events checked on the LTE-Q or failure to include the LTE-Q in the follow-up assessment).<sup>1</sup>

The average age of participants at baseline was 59.6 (SD = 2.8) and 54% were female (n = 670). Most participants were currently married (50%, n = 621), followed by divorced (28%, n = 340), never married (14%, n = 172), widowed (7%, n = 81), and separated (2%, n = 20). The racial distribution of the participants is comparable to that of the greater St. Louis metropolitan area: 69% White/Caucasian (n = 849), 29% Black/African (n = 357), 1% Hispanic/Latino (n = 12), .5% Biracial (n = 6), .3% Middle Eastern (n = 4), .2% Native American (n = 2), and .3% other/did not specify (n = 4). Due to small samples in several categories, race of participants was recoded into White/Caucasian and Black/African/Other for analyses. The participants varied in educational achievement with 30% (n = 375) having a high school education or less, 16% (n = 194) having education beyond high school, but not a bachelor degree, 26% (n = 323) having completed a bachelor degree, and 28% (n = 342) having a master's degree or higher. Median household income was between \$60,000 and \$79,000, with 11% of households being below \$20,000 and 12% being above \$140,000 (37 participants declined to answer).

## Measures

**Baseline Assessment—PD features** were measured using the Structured Interview for DSM-IV Personality (SIDP-IV; Pfohl et al., 1997), a semi-structured diagnostic interview that consists of 101 questions corresponding to the criteria for the ten DSM-IV-TR PDs (APA, 2000). SIDP-IV interviews were conducted by trained interviewers in the SPAN Study offices at the university (and on rare occasions at the participant's home). Each question/criterion is rated by the interviewer using a scale from 0 (*not present*) to 3 (*strongly present*). The 10 PDs, paranoid, schizoid, schizotypal, antisocial, borderline, histrionic, narcissistic, avoidant, dependent, and obsessive-compulsive were calculated by adding the relevant criteria for each disorder together and taking the average. The averages were then rescaled to a 0–10 scale (all scales used as predictors in regression models were rescaled to a 0–10 scale in order to make the regression coefficients more comparable; see Table 1 for means and SDs). Table 2 displays the Pearson correlations between 10 PDs; the mean correlation was  $r = .17$  (median  $r = .16$ , minimum  $r = -.08$ , and maximum  $r = .47$ ). All interviews were video-recorded, and 265 interviews were randomly chosen to be re-rated by independent judges. Reliability tests indicate adequate reliability at ICC = .67 for the overall scale (all PD's combined) with individual scales ranging from .53 for paranoid to .86 for avoidant; borderline had a reliability of .77. These compare favorably to reliability estimates for PD diagnoses in other studies (Clark, 2007).

<sup>1</sup>A series of independent t-tests were conducted to determine if there were any systematic differences between those who remained in the sample and those who were eliminated. Very few significant differences were found. Importantly, those who completed follow-up 1 and reported an event, but were unable to be reached or were lost due to experimenter error did not differ in number of life events reported from those who reported a life event at follow-up 1 and were reached for an interview. There was some indication that certain characteristics might make individuals less likely to complete all aspects of the study: those judged as being higher in borderline PD and paranoid PD, higher in self-reported neuroticism, and who were minorities. However given the number of comparisons conducted and the small number of significant differences (114 comparisons and 15 significant differences), we do not want to speculate on why this might be the case. In addition, these differences do not suggest that our findings would differ if all individuals were included.

*Neuroticism* was measured using the NEO-Personality Inventory-Revised (NEO PI-R) (Costa & McCrae, 1992). The NEO PI-R is a 240-item measure of the five major domains of personality (neuroticism, extraversion, openness, agreeableness, and conscientiousness), as well as the six traits or facets that define each domain. The six facets included in neuroticism are: anxiety, angry hostility, depression, self-consciousness, impulsivity, and vulnerability. Individual items are rated on a 5-point Likert scale, with responses ranging from 0 (*strongly disagree*) to 4 (*strongly agree*). The mean of the scale was calculated and then rescaled to 0–10 (see Table 1). Weighted averages were used for participants who skipped two or fewer items and were included in the analyses.

**Six-month Follow-up Assessment—Major Life Events** were assessed using the List of Threatening Experiences Questionnaire (LTE-Q, Brugha, Bebbington, Tennant, & Hurry, 1985). The LTE-Q includes 12 life events, such as the onset of a serious illness, that were found to have long-term negative effects on most people who experience them. These 12 items were presented in a checklist that also included three items added specifically for this study (see Table 3 for all items). We included an "Other Major Event" category; a few examples of other major events are retirement, moving, and going back to school.

**Structured follow-up interview:** If at least one event was checked, the participant was called by a trained interviewer.<sup>2</sup> The average length of time between filling out the self-report questionnaire and receiving a call was 4 weeks (range: 1 day – 3 months). The interviewer asked the participant a series of questions about the event in order to determine that it actually occurred, that it occurred in the specified time period (the preceding 6 months), and that it was a major and distinct event. Participants were first asked if they remembered filling out the LTE-Q; then, the interviewer read all of the checked events to the participant and asked for 1) *a brief description of each event* and 2) *an explanation of how the events (if more than one) were related to one another*. Interviewers then determined what category the event fell under:

1. **Major event:** The event is acute, distinct from any other event checked, and caused considerable distress.
2. **Main event:** The event is the chief event<sup>3</sup> that gave rise to other events marked and caused considerable distress.
3. **Associated sub-event:** The event occurred secondary to a main event.
4. **Daily hassle:** The event is a relatively minor everyday difficulty that may be irritating or frustrating, but would not normally cause considerable distress.<sup>4</sup>
5. **Not in time-frame** (previous six months): This is coded if the event checked did not take place in the last six months. Events are not coded twice. If the event is ongoing (e.g., a serious health problem), the event is only counted for the follow-up assessment in which it first occurred.

<sup>2</sup>Interviewers were trained by the SPAN project coordinator. Training occurred over three two-hour sessions and included instruction on the use of a detailed script, as well as an explanation of example events for each code. Training also included observing 2 phone calls being made and having 2 phone calls observed by the trainer. Once trained, all interviewers practiced coding examples to ensure that they were accurately coding life events. Detailed notes were taken during all phone calls for later review.

<sup>3</sup>For example, a participant marked three events: serious accident, unemployment for more than a month, and major financial difficulties. The participant explained that after being in a serious accident, he was laid off and is now unemployed and has financial problems. Accident would serve as the main event; the other events would be sub-events. If all three were distinct events, the events would fall into category 1.

<sup>4</sup>Our definition of daily hassles was taken from the work done on this topic by Lazarus and colleagues (see Kanner, Coyne, Schaefer, & Lazarus, 1981 and Lazarus & DeLongis, 1983 for more details). An example of this would be if someone checked that something valuable was stolen from them and the person's description was "A co-worker stole \$20 dollars from my wallet the other day"; this would be coded as a daily hassle.

6. Doesn't remember: This is coded if the participant does not recall the event listed. If the participant cannot remember the event, it is assumed that it did not have a major impact on the person's life.
7. Other: This is coded if an event is not fully captured by any of the above codes. The interviewer then specified in the notes why this code was used.<sup>5</sup>

All interviewers documented the descriptions provided by participants so that any confusion about event coding could be addressed at a later time. If there was any question about whether an event was a major stressor or a daily hassle, all follow-up questions were asked to ensure that the correct categorization could be made. If the event was coded 1 (major event) or 2 (main event), an interviewer then asked the participant three questions in order to determine the event's impact: 1) *Was this event expected?*, 2) *How much did experiencing this event change your day-to-day life at the time of the event?*, and 3) *How much did experiencing this event change your day-to-day life now (at the time of the phone interview)?*<sup>6</sup>

Interviewers had not had any previous contact with the participant and were blind to all information regarding the participant's scores on personality and PD measures. Interviewers were also blind to all study hypotheses at the time of the phone calls.

*Depression* was assessed using the Beck Depression Inventory (BDI-II; Beck, Steer, & Garbin, 1988). The BDI consists of 21 items rated on a 0 – 3 scale. Items were averaged and then rescaled to a 0 – 10 scale (see Table 1). Participants who skipped only one question were retained in the sample and a weighted average was obtained for their score.

## Results

Several participants met full diagnostic criteria for at least one specific PD ( $n = 90$ , 7.3%) and an additional 12 participants met criteria for PD not otherwise specified (PDNOS; 1%). Only 4 people exceeded the DSM-IV threshold for BPD (5 or more features) based on the results of the SIDP interview. Several more were rated as showing some features of BPD: 1 person was rated as having 4 symptoms, 12 had 3 symptoms, 32 had 2 symptoms, and 124 had 1 symptom of BPD.

More than half of the participants checked at least one major life event ( $n = 757$ , 62%, mean = 1.3,  $SD = 1.5$ ) with a maximum of 15 events being endorsed by a participant during one 6 month interval.<sup>7</sup> Correlations between self-reported and adjusted life events, PDs, and neuroticism can be found in Table 2. In order to test whether the number of self-reported events was predicted by the ten PDs and neuroticism (H1), we conducted a general linear model (GLM) analysis with a Poisson probability distribution using PROC GENMOD in SAS (SAS Institute, 2009). The Poisson distribution is recommended for use when the dependent variable is a count of a rare event; it is a probability distribution in that a one-unit increase in a predictor variable corresponds to the exponentiated value of that variable's regression coefficient and "is the predicted multiplicative effect of 1-unit of change" in the predictor variable (Coxe, West, & Aiken, 2009; p. 125). Age, gender, race, and depression at

<sup>5</sup>An example of this is a participant reporting an event that happened to a close other, but not to them (e.g. an adult child getting in a fight with a coworker).

<sup>6</sup>The events were coded before these questions were asked to ensure that the subjective distress of the participant did not influence the interviewers' objective coding of the life event.

<sup>7</sup>Only one participant reported 15 events. The next highest level of events reported was 10, again by only one participant. Interviewers only questioned participants about 10 events meaning that the participant who reported 15 events was only interviewed about 10 of them. Analyses were run with and without this case included; results did not differ significantly when this case was retained. Reported findings include this participant.

time of life-event reporting were entered as adjustment variables; all predictor variables were centered or effect coded in order to ease interpretation of the intercept.

The predicted number of self-reported events when all variables are held constant at their mean was 1.30 ( $\exp(0.26) = 1.30$ ); see Table 4 for coefficients and Figure 1. BPD and neuroticism were positively associated with event reporting; for every point increase 1.17 and 1.08 *times* more events are predicted, respectively. That is a person with a score of 2 on the BPD scale is expected to report 1.17 times as many stressful life events as someone with a score of 1 (the predicted number of events for someone with a score of 1 on the centered BPD scale would be 1.52 events and for a person with a score of 2 it would be 1.77 events). Paranoid and avoidant PDs were negatively associated with event reporting; every point increase in each PD score was associated with .88 and .93 *times* fewer events being reported, respectively.

Three of the four adjustment variables were significant. As expected concurrent depressed mood (at the time of the 6-month follow-up) significantly predicted the number of events reported (coefficient = 0.28,  $\exp(.28) = 1.32$ ,  $X^2 = 74.94$ ,  $p < .01$ ); every point increase in depressed mood was associated with 1.32 times more events being reported. In addition, minority participants (coefficient = 0.34,  $\exp(.34) = 1.41$ ,  $X^2 = 40.3$ ,  $p < .01$ ) reported significantly more life events than white/Caucasian participants (predicted value holding all other predictors at their mean for a minority = 1.54; predicted value for a white/Caucasian participant = 1.1) and the younger participants (coefficient =  $-0.03$ ,  $\exp(-0.03) = 0.97$ ,  $X^2 = 10.1$ ,  $p < .01$ ) reported significantly more events than the older participants (predicted value for a 55 year-old = 1.49; predicted value for a 65 year-old = 1.11). Gender was not a significant predictor (coefficient = 0.05,  $X^2 = 1.0$ , ns).

After the telephone interviews had been completed (asking about events initially reported on the LTE-Q), the number of people judged to have experienced at least one event dropped to  $n = 634$ , 51%) with a maximum of five events. See Table 3 for a breakdown of all events. A paired t-test demonstrates that this is a significant decrease (H2). After the interview, the number of life events retained is significantly smaller than that originally reported by the participant ( $t(1233) = 20.3$ ,  $p < .05$ ;  $\text{Mean}_{\text{before}} = 1.33$  (SD = 1.54);  $\text{Mean}_{\text{after}} = 0.76$  (SD = 0.94); Cohen's  $d = .73$ ); this comparison also holds if only using those participants who self-reported a life event at follow-up 1 are included in the analysis ( $t(756) = 20.8$ ,  $p < .05$ ;  $\text{Mean}_{\text{before}} = 2.16$  (SD = 1.44);  $\text{Mean}_{\text{after}} = 1.25$  (SD = 0.91); Cohen's  $d = .92$ ).

In order to test whether the interview-adjusted number of self-reported events was predicted by the ten PDs and neuroticism (H3), we again conducted a general linear model (GLM) analysis with a Poisson probability distribution (see description for H1) and age, gender, race, and depression at time of life-event reporting were entered as adjustment variables; all predictor variables were centered or effect coded in order to ease interpretation of the intercept.

When all variables are held constant at their mean, the predicted number of interviewer-adjusted events was 0.75 ( $\exp(-0.28) = 0.75$ ); see Table 4 for coefficients and Figure 2. BPD and neuroticism were again positively associated with event reporting; for every point increase 1.18 and 1.09 *times* more events are predicted, respectively. These are nearly identical to the rates found when predicting self-report of events. A person with a score of 2 on the BPD scale is expected to report 1.18 times as many stressful life events as someone with a score of 1 (the predicted number of events for someone with a score of 1 on the centered borderline scale would now be 0.89 events and for a person with a score of 2 it would be 1.05 events). Paranoid and avoidant PDs were again negatively associated with

event reporting; every point increase in each was associated with .90 and .93 *times* fewer events being reported, respectively.

Concurrent depressed mood still significantly predicted the number of events reported (coefficient = 0.23,  $\exp(.23) = 1.25$ ,  $X^2 = 27.0$ ,  $p < .01$ ); every point increase in depressed mood was associated with 1.25 *times* more events being reported. Minority participants (coefficient = 0.28,  $\exp(.28) = 1.32$ ,  $X^2 = 14.8$ ,  $p < .01$ ) again reported significantly more life events than white/Caucasian participants (predicted value holding all other predictors at their mean for a minority = 0.87; predicted value for a white/Caucasian participant = 0.66). Younger participants (coefficient =  $-0.01$ ,  $X^2 = 0.8$ , ns) were no longer significantly likely to have higher counts of major life events and gender was once again not a significant predictor (coefficient = 0.11,  $X^2 = 2.4$ , ns).

These findings demonstrate that *according to interviewer adjustment*, participants generally reported a greater number of life events than they experienced over a 6-month-period. In addition -- both before and after adjustment -- people with more symptoms of BPD and higher levels of neuroticism reported and/or experienced more major life events than the average person in the sample (conversely those with more symptoms of paranoid and avoidant PD reported/experienced fewer life events). It is not clear, however, whether reports from people higher in personality pathology and neuroticism are adjusted at the same rate as the majority of the sample or whether they are particularly likely to have their self-reported count of life events adjusted (up or down) by interviewers. In order to investigate this question, we predicted the *change* in number of major life events due to interviewer adjustment using a GLM analysis with a Poisson probability distribution (see H1 for more details on the analytic approach). Again our predictors were the 10 PD scales and neuroticism measured at baseline and we controlled for age, gender, race, and depression measured at follow-up; all predictor variables were centered or effect coded in order to ease interpretation of the intercept.

As demonstrated above with the paired sample t-test, the number of life events reported significantly decreased after interviewer adjustment. We therefore calculated change by subtracting interview adjusted count of events from initial self-report count of major life events. The predicted change in number of self-reported events when all variables are held constant at their mean was 0.54 ( $\exp(-0.61) = 0.54$ ); see Table 5 for coefficients. Schizotypal PD and BPD, but not neuroticism were positively associated with rate of change; for every point increase 1.21 and 1.15 *times* more events were eliminated, respectively. Paranoid PD, but not avoidant PD was negatively associated with the rate of change in the number of events; every point increase was associated with .85 *times* fewer events being eliminated.

Concurrent depressed mood significantly predicted the rate of change in number of events (coefficient = 0.34,  $\exp(.34) = 1.40$ ,  $X^2 = 50.4$ ,  $p < .01$ ); every point increase in depressed mood was associated with 1.40 *times* more events being eliminated. Minority participants (coefficient = 0.43,  $\exp(.43) = 1.54$ ,  $X^2 = 27.2$ ,  $p < .01$ ) had significantly more life events eliminated than white/Caucasian participants (predicted value holding all other predictors at their mean for a minority = 1.50; predicted value for a white/Caucasian participant = 0.98). Younger participants (coefficient =  $-0.06$ ,  $\exp(-0.06) = 0.95$ ,  $X^2 = 15.0$ ,  $p < .01$ ) also had significantly more events eliminated than the older participants (predicted change for a 55 year-old = 0.70; predicted value for a 65 year-old = 0.40). Once again, gender was not a significant predictor (coefficient =  $-0.02$ ,  $X^2 = 0.1$ , ns).

Taken together these findings suggest that -- according to our interview-adjusted counts -- people have a tendency to over-report the number of major life-events that occur in a 6-



month period. However, initial self-reports, as well as adjusted reports, are higher for those individuals who also report more symptoms of BPD and are higher on neuroticism, even when controlling for concurrent depressed mood, age, race, and gender. Furthermore, the scores of those high in schizotypal PD and BPD are adjusted downward at a greater rate (they have a higher number of events adjusted) as compared to the average person. Conversely those high in paranoid PD are adjusted downward at a lower rate than the average person.

## Discussion

This is the first study to examine the relationship between personality traits, symptoms of PDs, and stressful life events in a large, community-based sample of older adults, using both self and interviewer-adjusted reports of life events. Consistent with prior research, we found that individuals with higher levels of neuroticism at baseline reported significantly more stressful life events at follow-up. When the number of life events was adjusted based on a standardized interview, this association was still present, showing that middle- to older-aged individuals with high levels of negative emotionality are more likely to experience life stressors, independent of depressed mood measured at the time of the event reporting. This result supports research on *stress generation* (Hammen, 1991), suggesting that the presence of negative emotionality is associated with increased risk for the experience of stressful events, even in later adulthood. The research on *stress generation* up to now has primarily focused on interpersonal stressors (Hammen, 2006), but our results suggest that the role of neuroticism in the experience of life stress may carry into other events, some of which are likely to occur more frequently in the lives of older adults (e.g. death of a loved one, or health problems).

Also in support of past research, we found that personality pathology was related to increased reports of stressful life events. Symptoms of BPD features at baseline were also related to increased experience of major stressors over the following six months controlling for concurrent depressed mood. This association held even after interviewers had adjusted self-reports of major life events. People high in borderline symptomatology not only reported experiencing more events than the average person, but we also found evidence that they had a higher rate of adjustment than the average person (e.g. interviewers were more likely to adjust reports from those high in BPD downward). Even with this higher rate of adjustment, those high in BPD reported more major life events. This increased rate of adjustment was also found for those higher in schizotypal PD; it is less clear what this indicates as those high in schizotypal PD did not generally report more events.

Our findings are consistent with previous research indicating a specific relationship between BPD and reports of more life stressors (e.g., Pagano et al., 2004). It is important to note that consistent with expectations regarding the prevalence of BPD in later life, we did not identify many individuals who exceeded the threshold for this diagnosis. In that sense, our results may be taken to confirm the notion that many features of borderline pathology burnout as people get older (Paris, 2003). In particular certain symptoms of BPD (e.g., impulsivity) are thought to occur less frequently in later adulthood (Blum et al., 2008). Recent evidence on the stability (or instability) of BPD suggests that while many symptoms do remit over time, the long term negative consequences of the disorder remain important (Gunderson et al., 2011). The present findings support growing evidence that there is something unique about the personality characteristics of BPD, even at subthreshold levels, and that features of the disorder continue to have a negative impact throughout an individual's life.

We also found that avoidant and paranoid PD features predicted fewer reports of stressful life events and those with higher levels of paranoid PD features are also less likely to have their self-reports adjusted by an interviewer. This result indicates that certain PD features actually lead to either underreporting or experiencing fewer stressful life events, although we cannot determine which is occurring within this sample as only those who reported events were called for a follow-up interview. It may be that the social isolation, often characteristic of these disorders, reduces individuals' interpersonal or work contact, thus limiting the opportunity for stressors to occur. The death of a close friend or family member was the most common event checked on the LTE-Q, and having a limited social network would clearly reduce the chance of this occurring for an individual. It is possible that the ramifications of these disorders, while not captured in the LTE-Q checklist, are still significant in later adulthood. For example, recent research has shown that loneliness in later adulthood is linked to many negative outcomes (Hawkley & Cacioppo, 2010), suggesting that the undesired social isolation in avoidant PD may be particularly detrimental to a number of psychosocial outcomes, including health and well-being. It is unclear why schizoid PD, also characterized by social isolation, did not have a similar pattern of fewer reported stressors. Further research is needed to determine the role that personality pathology may play in the underreporting of life events.

This unique sample allows us to show that the detrimental impact of neuroticism and symptoms of BPD appears to continue across the lifespan. Younger adulthood has been a more common focus for research on life events and PDs, perhaps in part because certain major events, such as divorce or other significant interpersonal problems, are more frequent in that phase of the lifespan. It is also a time when emotions are experienced and expressed more intensely, and we might expect the repercussions of personality pathology to be more severe. Although adults tend to exhibit less negative emotion as they get older, there is evidence to suggest that – when it is present -- negative emotionality has even stronger effects on well-being in later adulthood (Gomez et al., 2008). Features reflecting unpredictable or inappropriately strong emotional reactions, such as affective instability in BPD, may put older adults at particular risk for increased negative psychosocial functioning. The results of the present study support this idea and suggest that, even if the types of stressors change over the lifespan, the risks associated with neuroticism and BPD persist.

Like other studies, we found that the number of stressful life events reported on self-report checklists differs significantly from interview-based assessments (Lewinsohn et al., 2003). Across all participants, individuals' initial report of stressful life events was higher than the adjusted number. This finding supports evidence that checklists are biased toward over-reporting (as judged by interviewers) and indicates that this limitation should be acknowledged by researchers using this method. The LTE-Q is one of the best self-report measures of life events available because it represents a listing of events that are the most important in predicting negative outcomes, such as depression. It might be the case that self-report instruments that include more ambiguous events may be even more prone to such errors.

The longitudinal nature of our study helps to rule out some confounds that might interfere with the interpretation of the association between life events and PDs. We measured personality variables six months before inquiring about the occurrence of life events. This is important because life events can lead to depressed mood, and people who are experiencing an episode of depression can also produce elevated scores – relative to periods when they are not depressed -- on measures of personality pathology (Klein, Kotov, & Bufferd, 2010). We also controlled for the influence of depressed mood at follow-up in order to identify the independent influence of personality on life event reporting. Clearly, the relationship between depression and stressful life events should not be ignored, and the significant

association between number of life events and depressed mood score suggests that we have more to discover regarding the relationship between personality, stress, and depression in this sample.

Our similar findings for high levels of neuroticism and BPD are particularly relevant in conjunction with on-going efforts to revise the definition of PDs for DSM-5. The current system for classifying PDs has received extensive criticism (e.g., low reliability and overlapping constructs). Many researchers have encouraged the development of a dimensional, trait-based approach in which pathological personality traits are represented on a continuum similar to patterns of normal personality (Clark, 2007; Krueger et al., 2007). Researchers have demonstrated clear similarities between normal and abnormal personality patterns, most commonly through the framework of the five factor model (FFM) (Widiger & Trull, 2007). One central component of that model includes extreme levels of neuroticism (negative emotionality), and investigators have shown that extreme variants of four of the five domains (i.e., neuroticism—negative emotionality, extraversion—introversion, agreeableness—antagonism, and conscientiousness—compulsivity) capture much of the variation in the ten DSM-IV-TR PDs (Watson, Clark, & Chmielewski, 2008; Widiger & Simonsen, 2005). It is important to keep in mind that our results show a significant relationship between BPD features and the experience of stressful life events above and beyond the effects of neuroticism alone. Other research has shown similar independent borderline effects in relation to physical health and psychosocial outcomes (Morey & Zanarini, 2000; Powers & Oltmanns, in press). Although we cannot be certain what will be decided for the DSM-5, showing how neuroticism and personality pathology (as measured by the DSM-IV-TR PD criteria) operate in relation to stressful life events may help inform understanding of the connection between normal and pathological personality.

### Limitations

Some limitations should be kept in mind when interpreting the results of these analyses. First, this research was conducted with people in a specific age group (adults aged 55–64) and the experience of stressful life events in older adults may differ in important ways from other age groups. Research on life events across the life span (Jordanova et al., 2007) has shown that younger adults tend to experience relational or occupational difficulties in greater frequency while middle- to older-aged adults more often report health problems that are experienced by themselves and their loved ones. This difference is consistent with our results (i.e., health problems were reported frequently and marital separation reported infrequently). The connections that we observed among personality characteristics, self-reported events, and interviewer-adjusted events may work differently for younger adults, although our findings related to neuroticism and BPD were consistent with results found in younger adult samples.

Because we studied a representative sample of adults living in the community rather than a sample of clinical patients, our sample does not include a large number of individuals with extreme levels of personality pathology. However, 8.4% of our sample met DSM-IV-TR criteria for at least one PD (or PDNOS), as expected based on previous epidemiological studies (9.1%) (Lenzenweger, Lane, Loranger, & Kessler, 2007). In addition almost half of the people in our sample (>40%) have received some kind of mental health treatment, demonstrating that individuals with varying levels of psychopathology were represented in this data set.

Our methodology for measuring life events did not enable us to fully understand the potential role of underreporting in this sample. While certain PD features were associated with fewer reported life events (i.e., avoidant and paranoid PD), we did not follow up to establish whether or not these individuals underreported events or in fact experienced fewer

events. The LTE-Q provided a quick evaluation of life events that we could then follow-up on for individuals who indicated the presence of a life event. It was not feasible for us to contact all participants to assess their accuracy in *not* identifying the presence of a life event. While it would have been ideal to interview everyone, past research suggests that checklists do accurately identify people who have not experienced stressful life events (>90% accuracy) (Costello & Devins, 1988). It is possible that the individuals who are missed by checklists are precisely those who tend to be higher in paranoid and avoidant PD. Underreporting is an important issue to consider and should be a focus of future research.

Finally, we do not have inter-rater reliability data regarding the interviewer's judgments and therefore cannot determine the reliability of adjusted ratings for life events. It is important to note, however, that interviewers were blind to the personality characteristics of participants as well as the hypotheses of the current study.

## Conclusions

The results of this study suggest that high levels of neuroticism and BPD features predict the experience of more negative life events, while avoidant and paranoid PD features predict fewer reported negative life events when compared with individuals low on symptomatology. Personality is associated with individuals' experience of their environment, and as researchers continue to explore variation in individual life trajectories (Smith, 2009), the differential role of PDs in the experience of life events in later adulthood may prove critical in how we understand the relationship between personality and stressful life events across the lifespan.

## Acknowledgments

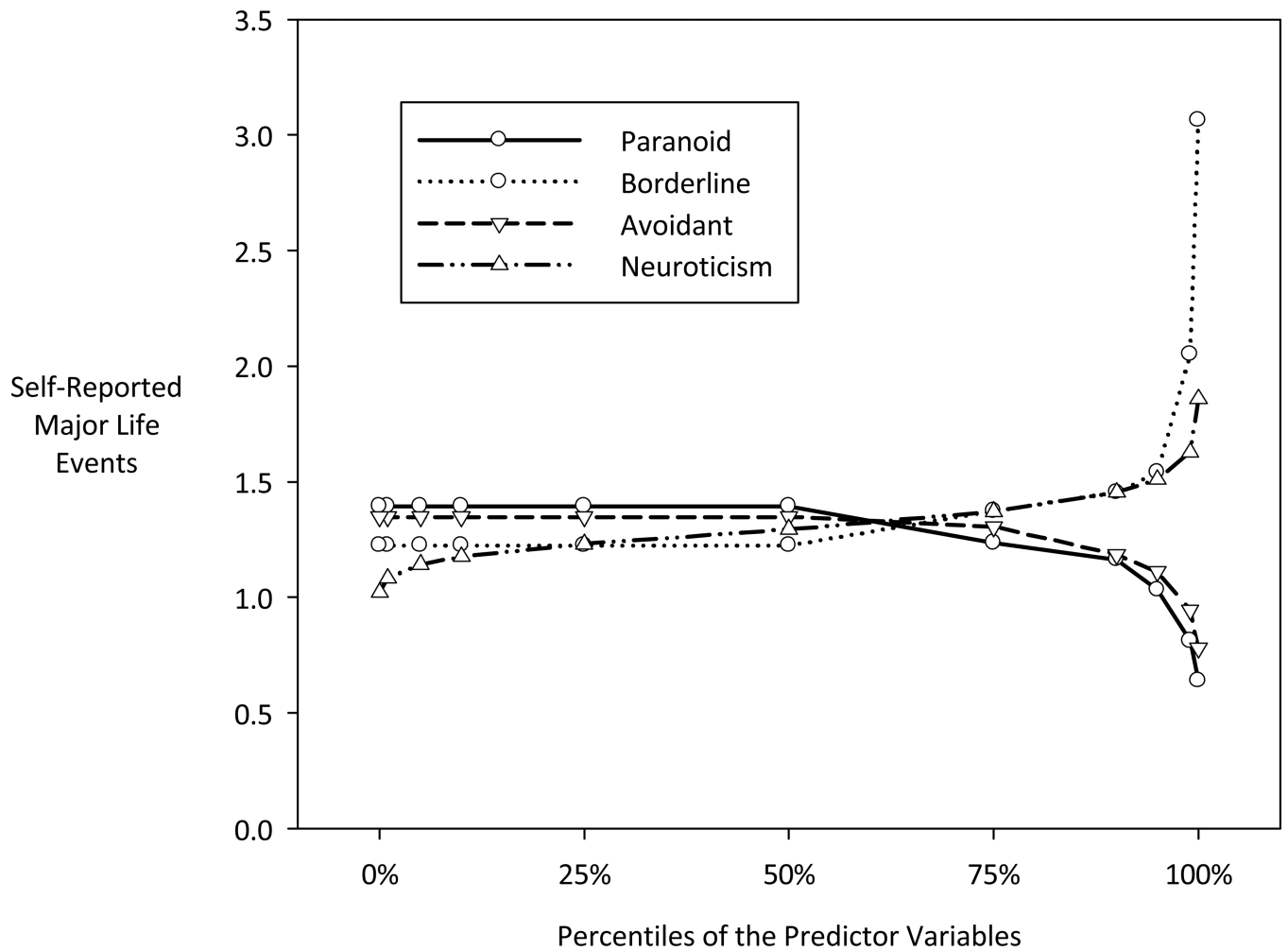
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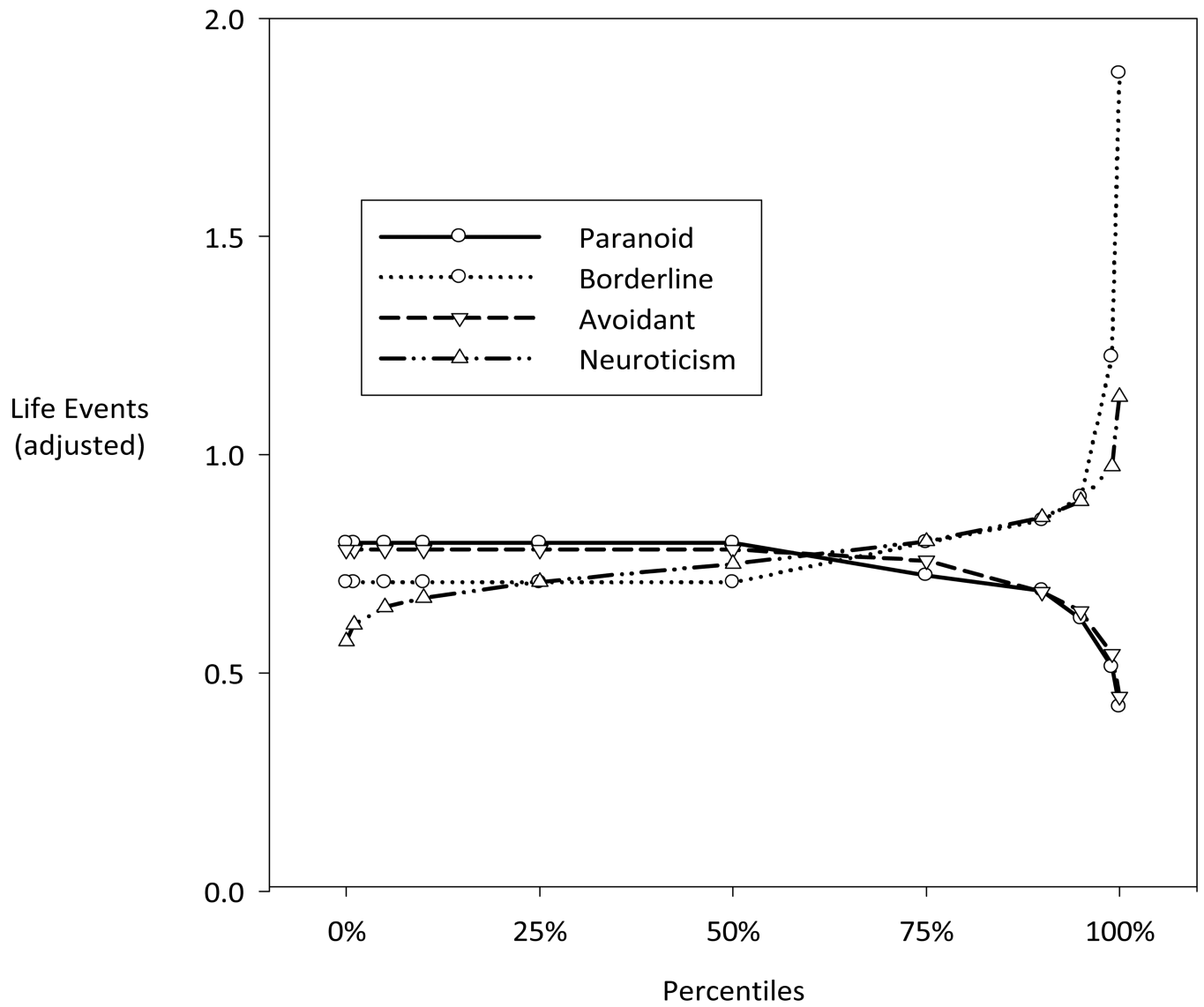
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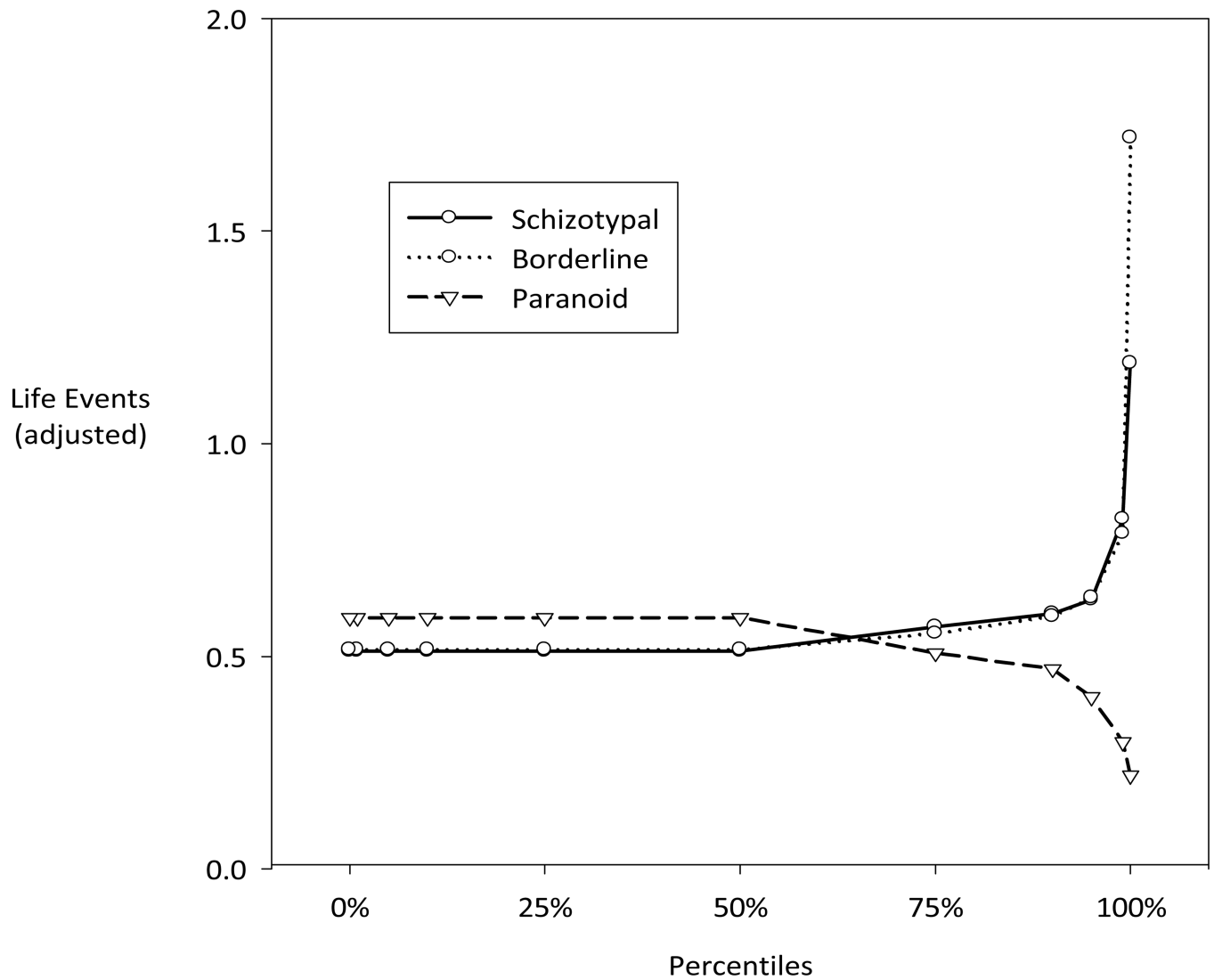


**Figure 1.** The association between significant predictors of interest: paranoid, borderline, and avoidant PDs, and neuroticism measured at baseline, and the predicted number of reported major life events at follow-up. The predicted lines were generated from an analysis adjusting for all other PDs (baseline), depression (at follow-up), gender, age, and race.



**Figure 2.** The association between significant predictors of interest: paranoid, borderline, and avoidant PDs, and neuroticism measured at baseline, and the predicted number of interviewer adjusted major life events at follow-up. The predicted lines were generated from an analysis adjusting for all other PDs (baseline), depression (at follow-up), gender, age, and race.





**Figure 3.**

The association between significant predictors of interest: paranoid, schizotypal, and borderline PDs measured at baseline, and the predicted change between the number of self-reported major life events and interview adjusted major life events at follow-up. The predicted lines were generated from an analysis adjusting for all other PDs (baseline), neuroticism (baseline), depression (at follow-up), gender, age, and race.

**Table 1**

Descriptive statistics for scaled predictor variables. All scaled predictors were rescaled to 0–10 scales.

	<b>Mean</b>	<b>SD</b>	<b>Min</b>	<b>Max</b>
Paranoid	0.54	0.86	0.00	6.19
Schizotypal	0.46	0.84	0.00	7.14
Schizoid	0.26	0.51	0.00	6.30
Antisocial	0.16	0.51	0.00	7.22
Borderline	0.39	0.66	0.00	5.93
Histrionic	0.43	0.68	0.00	5.42
Narcissistic	0.55	0.85	0.00	5.83
Avoidant	0.52	1.07	0.00	8.10
Dependent	0.25	0.51	0.00	5.42
Obsessive Compulsive	1.20	1.13	0.00	6.67
Neuroticism	3.72	1.06	0.68	8.18

**Table 2**

Pearson correlations between predictors and outcome variables. Correlations in bold are significant ( $p < .05$ ); Correlations in italics are marginally significant ( $p < .10$ ).

	PA	ST	SZ	AS	BD	HS	NA	AV	DP	OC	Neur	SLE
Paranoid												
Schizotypal	<b>0.22</b>											
Schizoid	<b>0.45</b>	<b>0.47</b>										
Antisocial	<b>0.16</b>	<i>0.05</i>	<b>0.11</b>									
Borderline	<b>0.31</b>	<b>0.15</b>	<b>0.22</b>	<b>0.45</b>								
Histrionic	<b>0.17</b>	<i>-0.08</i>	<b>0.17</b>	<b>0.17</b>	<b>0.25</b>							
Narcissistic	<b>0.27</b>	<b>0.06</b>	<b>0.13</b>	<b>0.25</b>	<b>0.23</b>	<b>0.31</b>						
Avoidant	<b>0.16</b>	<b>0.21</b>	<b>0.15</b>	<b>0.00</b>	<b>0.18</b>	<i>-0.06</i>	<i>-0.05</i>					
Dependent	<b>0.09</b>	0.04	0.04	<b>0.07</b>	<b>0.28</b>	<b>0.15</b>	<b>0.08</b>	<b>0.37</b>				
OC	<b>0.20</b>	<b>0.14</b>	<b>0.12</b>	0.02	<b>0.20</b>	<b>0.16</b>	<b>0.23</b>	<b>0.20</b>	<b>0.15</b>			
Neuroticism	<b>0.23</b>	<b>0.12</b>	<b>0.15</b>	<b>0.12</b>	<b>0.40</b>	<b>0.07</b>	0.03	<b>0.41</b>	<b>0.34</b>	<b>0.19</b>		
Self-Report Life Events (SLE)	<b>0.06</b>	<i>0.05</i>	<b>0.10</b>	<b>0.11</b>	<b>0.27</b>	<b>0.09</b>	<b>0.07</b>	0.04	<b>0.07</b>	<b>0.07</b>	<b>0.19</b>	
Interviewer Adjusted Life Events	0.04	0.03	<i>0.06</i>	0.08	<b>0.23</b>	0.08	0.06	0.02	<i>0.05</i>	0.07	<b>0.17</b>	<b>.80</b>

**Table 3**

All possible events are listed along with the endorsement number and rate with which they are reported by participants (possible N= 1234), the number and rate after adjustment (possible N= 1234), followed by the reasons for any correction (N = number of events judged not to be major events).

	Overall frequency of event		Why events were eliminated by interviewers (percentage of total number of events eliminated)											
	reported by participant		adjusted by interviewer		part of another event		daily hassle		not in time frame		does not remember		other	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Serious illness or injury	167	14%	140*	11%	1	4%	9	32%	13	46%	4	14%	1	4%
Serious illness or injury to close other	260	21%	179^	15%	22	26%	23	27%	12	14%	22	26%	5	6%
Death of a partner, parent or child	53	4%	37*	3%	3	18%	1	6%	7	41%	5	29%	1	6%
Death of a close friend or another relative	276	22%	199	16%	16	21%	22	29%	14	18%	20	26%	5	6%
Separation due to marital difficulties	15	1%	10	1%	1	20%	0	0%	3	60%	0	0%	1	20%
Breaking off a steady relationship	39	3%	27	2%	6	50%	2	17%	1	8%	1	8%	2	17%
Serious problem with a close other	135	11%	67	5%	20	29%	20	29%	4	6%	12	18%	12	18%
Unemployment for more than a month	126	10%	70	6%	19	34%	13	23%	17	30%	2	4%	5	9%
Fired from a job	21	2%	10	1%	0	0%	2	18%	6	55%	1	9%	2	18%
Major financial crisis	135	11%	58	5%	45	58%	23	30%	5	6%	3	4%	1	1%
Problems with police/courts	22	2%	12	1%	3	30%	2	20%	1	10%	2	20%	2	20%
Something valuable was lost/stolen	74	6%	31	3%	15	35%	14	33%	5	12%	8	19%	1	2%
Victim of a serious crime	22	2%	14	1%	4	50%	1	13%	1	13%	2	25%	0	0%
Changes in family responsibilities	127	10%	49	4%	51	65%	11	14%	4	5%	8	10%	4	5%
Other major events	164	13%	39	3%	77	62%	22	18%	2	2%	16	13%	8	6%

\* One event was recategorized into this event during interviews;

^ Three events were recategorized into this event during interviews

**Table 4**

The coefficients of interest for Hypothesis 1 and 3. Paranoid, borderline, avoidant, and neuroticism at baseline predicted both self-reported and interview adjusted major life events at follow-up.

	Reported Life Events			Adjusted Life Events				
	Coefficient	SE	$\chi^2$	p <	Coefficient	SE	$\chi^2$	p <
Intercept	<b>0.26</b>	<b>0.03</b>	<b>94.89</b>	<b>0.00</b>	<b>-0.28</b>	<b>0.04</b>	<b>62.46</b>	<b>0.00</b>
Paranoid	<b>-0.13</b>	<b>0.04</b>	<b>12.54</b>	<b>0.00</b>	<b>-0.10</b>	<b>0.05</b>	<b>4.83</b>	<b>0.03</b>
Schizotypal	<i>0.10</i>	<i>0.06</i>	<i>3.13</i>	<i>0.08</i>	0.02	0.08	0.08	ns
Schizoid	-0.04	0.03	1.29	ns	-0.04	0.05	0.75	ns
Antisocial	-0.02	0.05	0.26	ns	-0.03	0.06	0.20	ns
Borderline	<b>0.15</b>	<b>0.04</b>	<b>16.97</b>	<b>0.00</b>	<b>0.16</b>	<b>0.05</b>	<b>10.46</b>	<b>0.00</b>
Histrionic	0.05	0.04	1.92	ns	0.05	0.05	1.21	ns
Narcissistic	0.04	0.03	1.77	ns	0.04	0.04	1.13	ns
Avoidant	<b>-0.07</b>	<b>0.03</b>	<b>6.47</b>	<b>0.01</b>	<b>-0.07</b>	<b>0.04</b>	<b>3.74</b>	<b>0.05</b>
Dependent	-0.04	0.05	0.75	ns	-0.06	0.07	0.78	ns
OC	0.03	0.02	1.54	ns	0.04	0.03	1.87	ns
Neuroticism	<b>0.08</b>	<b>0.03</b>	<b>7.41</b>	<b>0.01</b>	<b>0.09</b>	<b>0.04</b>	<b>5.57</b>	<b>0.02</b>

**Table 5**

The coefficients of interest for Hypothesis 4. Paranoid, schizotypal, and borderline personality disorder significantly predicted adjustment in life events.

	Change in Life Events after Adjustment			
	Coefficient	SE	$\chi^2$	p <
Intercept	<b>-0.61</b>	<b>0.04</b>	<b>213.41</b>	<b>0.01</b>
Paranoid	<b>-0.16</b>	<b>0.05</b>	<b>8.45</b>	<b>0.01</b>
Schizotypal	<b>0.19</b>	<b>0.08</b>	<b>5.88</b>	<b>0.02</b>
Schizoid	-0.04	0.05	0.59	ns
Antisocial	-0.02	0.07	0.09	ns
Borderline	<b>0.14</b>	<b>0.06</b>	<b>6.47</b>	<b>0.01</b>
Histrionic	0.05	0.06	0.65	ns
Narcissistic	0.04	0.05	0.64	ns
Avoidant	<i>-0.06</i>	<i>0.04</i>	<i>2.70</i>	<i>0.10</i>
Dependent	-0.02	0.08	0.09	ns
OC	0.01	0.04	0.11	ns
Neuroticism	0.07	0.05	2.21	ns