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The Role of Loneliness and Life Events: Comparing Avoidant and Borderline Personality Features and Their Relation to Depression

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Abstract

Personality disorders are theoretically and empirically linked to experiencing high negative affect, such as depression, and individuals with features from some personality disorders, such as borderline (BDL) and avoidant (AVD), are hyper-responsive to rejection. Loneliness has also been established as a vulnerability to the onset of depressive episodes and as an outcome to rejection sensitivity, however the relationship between personality pathology and loneliness is still unclear. The purpose of this study is to compare whether AVD and BDL features might be differentially associated with depression scores by analyzing the interaction with life events and loneliness. We studied a representative, community-based sample (N= 976) of older adults over six months. The main effects of loneliness and the occurrence of a life event independently predicted increased depressive symptoms while controlling for gender, race, baseline depressive scores and personality pathology. The presence of a life event strengthens the relationship between depressive symptoms and personality pathology, specifically AVD and BDL features. This interaction is significant even though individuals with AVD features do not typically experience stressful life events. Male participants with higher scores on BDL symptoms and loneliness are more likely to experience depressive symptoms at follow up, but this effect was not found in females. Participants with higher loneliness and AVD scores together are at higher risk of experiencing subsequent depression. The implications of these findings are discussed further.

TABLE OF CONTENTS

Both avoidant and borderline personality disorders (AVD and BDL) are theoretically and empirically linked to exhibiting high negative affect, such as depression (Alnaes & Torgesen, 1997; Farmer & Nelson-Gray, 1990; Pepper et al., 1995; Skodol, 2005). Exploring the commonalities across these disorders may give insight into the psychological processes that mediate the relationship between personality pathology and depression. AVD and BDL personality disorders are both characterized by interpersonal difficulties and struggles to maintain satisfying relationships (Rodebaugh, Gianoli, Turkheimer, & Oltmanns, 2010; Skodol et al., 2002). Objective and perceived social deficits and stress are known as major risk factors for developing major depression and may partially explain the link between personality and mood. In the current paper we will focus on the extent to which personality pathology predicts depressive symptoms by operation of psychosocial influences, such as loneliness and stressful life events.

Hawkley and Cacioppo (2010) define loneliness as the "distressing feeling that accompanies the perception that one's social needs are not being met by the quantity or especially the quality of one's social relationships" (p. 218). It has been proposed that the desire for relationships and social acceptance is a fundamental human motivation. From an evolutionary perspective, social connections are essential for the reproductive success of human genes. Whereas the function of humans adapting a social lifestyle is to promote gene survival, it has been suggested that feelings of loneliness act as a signal that the need to belong is not being met. There are inherent individual differences, stemming from genetic and/or environmental vulnerabilities, for how much social interaction is sufficient to meet one's personal need. Another way of looking at this is that people

experience feelings of loneliness in response to different amounts of socialization, but perceived lack of connection is understood to be universally upsetting. This would explain why even though there is a great amount of overlap between measures of actual and perceived social contact, they are in fact separate constructs (Green, Richardson, Lago, Schatten-Jones, 2001; Van Baarsen, Snijders, Smit, & Van Duijn, 2001).

Lonely individuals, when compared to less lonely subjects, experience higher levels of sadness, anxiety and anger (Adams, Sanders, & Auth, 2004; Alpass & Neville, 2003; Ernst & Cacioppo, 1999; Fees, Martin, & Poon, 1999; Prince, Harwood, Blizard, Thomas, & Mann, 1997). Though strongly related, loneliness is not simply the equivalent of dysphoria, as studies have shown depression and loneliness to be distinct constructs (Cacioppo et al., 2006; Russell, 1996). Longitudinal cross-lagged and regression analyses have demonstrated that loneliness typically predicts subsequent depressive symptoms (Cacioppo, Hawkley, &Thisted, 2010; Hagerty & Williams, 1999; Heikkinen & Kauppinen, 2004; Wei, Russell, & Zakalik, 2005), but there is also evidence suggesting a reciprocal relationship (Cacioppo, Hughes, Waite, Hawkley, & Thisted, 2006; Hawkley, Preacher, Cacioppo, 2007). This predictive relationship between loneliness and depression remains even after accounting for baseline depressive scores, objective social contact, neuroticism, and stressful life events (Cacioppo et al., 2010). Even though loneliness, AVD and BDL pathology are each correlated with interpersonal deficits and depressed mood, it is unclear whether these variables interact to present an even greater risk for developing depressive symptoms. One reason for proposing an interactive effect between personality pathology and loneliness is their shared sensitivity

to rejection.

Downey and Feldman (1996) demonstrated that people who are sensitive to rejection behave as if they expect the threat of rejection to occur. When rejection is deemed possible, defensive emotions such as anxiety or anger typically surface (London, Downey, Bonica, & Paltin, 2007). Individuals who display features of AVD and BDL personalities are especially sensitive to perceptions of abandonment and rejection (Agrawal, Gunderson, Holmes, Lyons-Ruth, 2004; Jovev & Jackson, 2004; Meyer, Ajchenbrenner, Bowles, 2005). For example, AVD and BDL features are associated with rating neutral or ambiguous faces more negatively and potentially rejecting (Meyer, Pilkonis, Beevers, 2004). The interaction of rejection sensitivity and low executive control predict hostile behaviors (Ayduk & Gyurak, 2008) and BDL features (Ayduk et al., 2008). In fact, researchers have suggested that intolerance of aloneness and fear of abandonment is the central feature of BDL personality disorder (Gunderson, 1996; Richman & Sokolove, 1992). While individuals with BDL and AVD features make special efforts to prevent rejection, and the ensuing loneliness, their strategies to counteract rejection differ noticeably.

Individuals with avoidant features are described as taking precautionary measures to avoid negative interpersonal situations before they even occur. This may be explained in part by the relationship between the amygdala and response to angry and contempt faces in socially anxious individuals (Stein et al., 2002), which is known to trigger negative affect and withdrawal (Meyer, 2002). In contrast, individuals with BDL features are more likely to engage in stimulus seeking and disinhibitive behavior

(Herpetz, et al., 2000), typically resulting in intense emotional reactions or suicidal gestures following perceived or actual criticism or abandonment (Brodsky, Groves, Oquendo, Mann, Stanley, 2006). Drastic reactions, such as emotional outbursts or extreme forms of withdrawal, are characteristic of personality disorders and individuals with high rejection sensitivity. Rejection sensitivity may even be considered a characteristic that transcends categorical labels, but differences in personality manifestation emerge when considering how an individual handles this predisposition. With both response types (i.e., avoid vs. aggressively approach), the chances of developing meaningful relationships are paradoxically compromised, fostering such probable outcomes as isolation and loneliness (Downey & Feldman, 1996).

Thus, rejection sensitivity is not only associated with AVD and BDL personalities, but loneliness as well. Loneliness and rejection sensitivity show a reciprocal relationship such that loneliness tends to exacerbate rejection sensitivity, and vice versa. In a cognitive model illustrated by Cacioppo and Hawkley (2009), perceived social isolation has a cascading effect on hypervigilant perceptions of social threats, memory biases, and unfavorable behaviors that elicit and confirm rejection responses and validate feelings of loneliness. A mixture of experimental and correlational studies have shown that lonely individuals are more likely to view their environment as unsafe and threatening (Cacioppo et al., 2000; Downey, Mougios, Ayduk, London, &, Shoda, 2004; Pietrzak, Downey, & Ayduk, 2005), to recall social interactions as more negative compared to when the event actually happened (Duck, Pond, & Leatham, 1994), and to behave in self-defeating and protective manner that essentially undermines their

relationships (Cacioppo & Hawkley, 2005; Downey, Freitas, Michaelis, & Khouri, 1998; Lau & Gruen, 1992; Murray, Bellavia, Rose, & Griffin, 2003; Rotenberg, Gruman, & Ariganello, 2002).

Hypervigilance to rejection appears to be a common denominator in both loneliness and AVD/BDL personalities, however little has been explored regarding the specific relationship between loneliness and personality pathology. There has been some evidence linking loneliness and normal measures of personality even after accounting for depression. More specifically, increased loneliness is associated with higher neuroticism and lower extraversion, agreeableness, and conscientiousness (Cacioppo & Hawkley, 2005). However, it may be beneficial to investigate how maladaptive forms of these traits might be related to perceptions of social isolation, especially when considering they both share strong links with depression. Thus, it may be beneficial to also examine how loneliness may influence the relationship between personality pathology and depression. We expect that individuals with high levels of loneliness will strengthen the relationship between personality pathology and depression.

Older adults may represent a population that is especially vulnerable to the impact of loneliness on functioning and mood because of risk factors that increase social isolation including widowhood, health problems, and retirement. Loneliness appears to be related to naturally occurring life events associated with aging (Savikko, Routaslo, Tilvis, Strandberg, & Pitkala, 2005). Nolen-Hoeksema and Ahrens (2002) looked at three adult age groups: 25-35, 45-55, and 65-75. In their study, they found that the middle-aged adults reported significantly higher amounts of loneliness compared to both

of the other age groups, even though this group had the highest frequency of being in a committed relationship. Regardless, loneliness was significantly related to elevated depressive scores across all three age groups. It may be the case that transitioning from middle to later life presents challenges with maintaining social connections and this population deserves further attention regarding the onset and effect of loneliness.

It's also possible that lonely older adults are less quipped to handle stressful life events that occur in later life (e.g., death of a relative, promotion, financial problems), due to perceived lack of social support. In addition, maladaptive personality traits may influence how lonely individuals function after experiencing a stressful event. In fact, one study has shown that individuals with high levels of rejection sensitivity are more likely to suffer from depressive symptoms after experiencing a negative social event (e.g., break-up) compared to participants with low concerns about rejection (Ayuduk, Downey, & Kim, 2001). Our current analysis is designed to assess whether individuals who fear rejection (individuals with AVD and BDL features) are vulnerable to experiencing depression in the context of loneliness and a stressful life event.

Individuals with AVD features tend to avoid aversive situations (Meyer et al., 2005), while those with BDL features are considered more interactive with their environment. Thus, comparing the occurrence of stressful life events between AVD and BDL features may give further insight into the relationship between loneliness, personality pathology and depression. A previous report from our lab (Gleason, Powers, & Oltmanns, 2012) considered the influence of personality pathology on the occurrence of stressful life events. The results indicate that BDL features predict a higher occurrence

of stressful life events, while AVD features were negatively related to life events. It was suggested that this effect may be due to withdrawal and low levels of social interaction that are usually necessary to experience those events. We hope to replicate these findings and discuss them in the context of depression and loneliness.

The Present Study

In the present article, we plan to further investigate the relationship between AVD and BDL personality pathology, loneliness, and life events, with depression as an outcome measure, using a survey-based study of late middle-aged adults across two time points. We wanted to investigate three main questions: 1.) Are personality pathology, loneliness and life events uniquely associated with depressive symptoms at six-month follow-up? 2.) How does loneliness influence the relationship between personality pathology and depression? 3.) Do individuals with AVD and BDL features (individuals with high rejection sensitivity) differ in experiencing depressive symptoms in the context of loneliness and a stressful life event? While exploring the answers to these questions, we expected to find the following results: 1.) Loneliness, the occurrence of a life event, AVD and BDL features will independently predict subsequent depressive symptoms 2.) Loneliness will significantly strengthen the positive relationship between personality pathology and depressive symptoms, in both cases of AVD and BDL features 3.) The interaction between loneliness and BDL features will be significantly stronger in the context of a stressful life event (i.e., significant three-way interaction). We do not expect to find a significant relationship between AVD features and life events.

Methods

Participants and Procedure

A community-based sample of adults between the ages of 55 and 64 were recruited to participate in an on-going longitudinal study: The St. Louis Personality and Aging Network (SPAN; see Oltmanns & Gleason, 2011, for a more detailed description of the study methods). The SPAN study was designed to explore the trajectory of personality pathology and related correlates as adults enter the transition into later life. Participants were selected using a screening process using census data to help ensure at least one member of the household was within the target age range. We oversampled specific households to achieve a representative sample of middle-aged individuals living in the St. Louis metropolitan area (Table 1).

The study completed collecting baseline data in early 2011 and continues to collect follow-up data every six months. For the purposes of this study, we will primarily be using data from baseline and the first follow up (FU1). Each participant provided informed, written consent. They were compensated $60 to complete a 3-hour assessment at baseline, which included several questionnaires, semi-structured and structured clinical interviews. At FU1, participants were mailed a short questionnaire battery (30 minutes) and were compensated $20 upon completion. This report focuses on personality pathology data collected at baseline, and life events and depression information collected at FU1.

Loneliness data were added as an addendum to the original protocol and collected

once for each participant at various time points between FU2 and FU8. The loneliness questionnaire was collected at the next available follow-up, so participants who entered the study earliest would have completed the questionnaire at later follow-ups. We included a variable assessing time of completion in our regression analyses and treated it in the same fashion as our other covariates (see *Data Analysis*). Thus, we controlled for time of loneliness data collection. The current analysis focuses on the 851 participants who completed the measures of interest and did not skip more than two questions.

Measures

Baseline: *Structured Interview for DSM-IV Personality (SIDP-IV; Pfohl, Blum, Zimmerman, 1997).* The SIDP is a semi-structured interview intended to measure the DSM-IV criteria for the ten personality disorders. The instrument is arranged by thematic grouping of symptoms (e.g., work style, interpersonal relationships), rather than by type of disorder, to minimize the focus on pathology. Multiple probes or questions may be used to rate one criterion and are supposed to elicit answers to guide the assessment of the magnitude or presence of personality disorder symptoms. To avoid questions being endorsed mistakenly, interviewers are required to ask for substantive behavioral examples in addition to descriptive character traits. The directions emphasize focusing on usual behavior that predominated over the previous five years. Interviewers rated participant's responses on a scale from 0 (not present) to 3 (strongly present) to measure symptom magnitude. A rating of a 2 or 3 is indicative of meeting criteria threshold. To achieve optimal statistical results, we chose to analyze the data using each

criterion scored on a 4-point dimensional scale. For this article, we examined the specific symptoms of BDL and AVD personality disorders. Because of the high amount of overlap between personality disorders, the other eight personality disorder scales were used as covariates to ensure we analyzed the unique effects of AVD and BDL symptoms. In order to account for differences in number of symptoms assessed per each disorder, we calculated mean scores. Mean scores are scaled so that each disorder was based on the same 0-3 range. All interviews were video-recorded, and independent judges rerated 265 randomly chosen interviews. We calculated the intra-class correlation coefficient (ICC) to represent the degree of agreement between raters. Reliability tests indicate adequate reliability (ICC = 0.67) for all SIDP-IV criteria and are consistent with past reviews on the psychometric properties of the SIDP (Pilkonis et al., 1995; Zimmerman, 1994).

Follow-up: *University of California at Los Angeles Loneliness Scale-Revised (UCLA-R; Russell, 1996).* The UCLA-R is a 20-item questionnaire that is intended to measure subjective feelings of isolation and social network satisfaction. Participants rate each item on a scale of: 1 (Never), 2 (Rarely), 3 (Sometimes), 4 (Always). Representative questions include: *How often do you feel that your relationships with others are not meaningful*, *How often do you feel left out*, and *How often do you feel that there is no one you can turn to*. After reverse scoring appropriate items, total scores were used in the analyses for this article, with larger sums representing more loneliness. The UCLA-R has been extensively tested, and the data indicate strong validity and reliability, including internal consistency from our own sample (α=.94).

List of Threatening Experiences (LTE; Brugha, Bebbington, Tennant, & Hurry,

1985). A modified version of the LTE was administered at FU1 to identify major life events that occurred during the six months following baseline assessments. Valence of these life events may not necessarily be negative or positive, but they can typically be considered stressful. The questionnaire is presented in checklist form and included three additional items for the purposes of this study, for a total of 15 items. Each event was intended to represent a serious stressful experience that leads to long lasting consequences. If at least one item was checked off, a trained interviewer called the participant to assess for more detailed information about the event(s). The average length of time between receiving the questionnaire and contacting the participant was four weeks. Interviewers were blind to the participant's scores on clinical interviews and questionnaires. Interviewers would read off the description of the checked event(s), and inquire about the participant remembering the event occurring. They then asked a series of semi-scripted questions to determine whether the event really occurred, if it happened within the correct time frame, and if it was major and distinct from the other categories. Appropriate adjustments were made if the event fell into one of these categories to increase the validity of the scale. Previous reports from our lab have demonstrated that increased personality pathology is associated with more adjustments to self-reports of threatening events. Following interviews, a significant proportion of reported events were discounted, irrespective of personality status (Gleason et al., 2012). Consequently, the analyses performed for this article used an interviewer-adjusted tally of life events recoded as a dichotomous (present/absent) variable.

Beck Depression Inventory II (BDI-II; Beck, 1996). The BDI-II is a commonly

used self-report inventory used to assess vegetative and nonvegetative depressive symptoms. The scale consists of 21 items rated on a 0 to 3 scale, with higher scores indicating a more severe depression. For participants who skipped one question, a weighted average was used to replace the item.

Data Analysis

We conducted Pearson correlations to determine the relationship among the predictor variables: AVD and BDL features, the occurrence of a life event, and loneliness. Next we conducted two separate multiple regression analyses (i.e., one for each of the personality disorders of interest), to test main effects and higher order interactions in predicting depression. Covariates that we controlled for include gender, race, baseline BDI scores, time of loneliness assessment, and personality pathology other than BDL and AVD features. Prior to running the regressions, we checked whether any of the covariates interacted with the variables of interest. We added any significant covariate interactions in the final models to control for their effects. The final regression included all hypothesis-related interactions, plus the unhypothesized interactions that the covariate tests found. Figures 1 and 2 illustrate the variables entered into the final regression models.

Results

Table 1 lists demographic and clinical characteristics of the sample for this paper. The zero-order correlations among the BDI-II, UCLA-R, LTE, and SIDP values are

provided in Table 2. As would be expected, depression scores were significantly and positively correlated with the occurrence of a life event, loneliness, and personality pathology. The relationship between life events and perceived loneliness was significant (r=.11, p=.001). It's noteworthy that loneliness was significantly and positively correlated with both of the personality disorders we are interested in. It is also significant to note that avoidant pathology did not share a significant relationship with the occurrence of a life event.

When analyzing results from the first multiple regression, including interactions with BDL features, each step significantly added variance to the model and accounted for 53% of the variance (Table 3). Table 3 presents the specific variables that significantly predicted depressive symptoms. Results indicated significant main effects for loneliness (B=.16, SE=.03, $p<.001$), and the occurrence of a life event during the previous six months (B=.14, SE=.15 $p<.001$), but not for borderline pathology. BDL pathology did show significant interactions with loneliness and life events: Gender X BDL features X loneliness interaction (B=-.08, SE=.05, $p=.003$) and BDL features X life event (B=.05, SE=.16, $p=.04$). The presence of a life event did not impact the interaction between loneliness and BDL pathology, but gender did. As loneliness increases, the relationship between BDL and depressive symptoms becomes stronger for males (B=.16, SE=.05, $p<.001$), but not females (B=-.01, SE=.04, $p=.80$; Figures 3 and 4).

We performed a second multiple regression to determine whether AVD features interacted with life events and loneliness in the prediction of depression. We did not interpret the last step of the regression, because it did not significantly add variance to the

model (Table 4). The final model accounted for 54% of the variance. Table 4 presents the specific variables that significantly predicted depressive symptoms for the second regression. Similar to the first regression, we found significant main effects for loneliness (B=.16, SE=.03, $p<.001$) and the occurrence of a life event (B=.13, SE=.14, $p<.001$), but not AVD features. There was a significant AVD features X life events interaction (B=.06, SE=.14, $p=.04$) and AVD features X loneliness interaction (B=.11, SE=.03, $p<.001$; Figure 5). Thus, as loneliness increases, the relationship between baseline AVD scores and subsequent depressive symptoms becomes stronger. Not surprisingly, baseline depressive symptoms main effects and interactions accounted for a majority of the variance.

Discussion

We conducted two regression analyses in a population of middle-aged adults transitioning into later life to see whether personality pathology, loneliness, and life events predict depression six months after baseline collection. In both models, loneliness and the occurrence of a life event uniquely predicted depressive symptoms while controlling for gender, race, baseline depressive scores, and personality pathology. Besides the baseline depressive scores, these main effects had the strongest effect sizes and partially supports our first hypothesis. The relationship between loneliness and depression was particularly strong, something that might be important to consider when deciding on a treatment intervention for depressed older adults. Consistent with the rejection sensitivity model presented earlier, evidence suggests that the most successful

intervention for loneliness addresses maladaptive social cognitions (Masi, Chen, Hawkley, & Cacioppo, 2011). Inconsistent with our hypothesis, AVD and BDL main effects did not significantly predict depressive symptoms despite their strong correlation. Further exploration revealed that controlling for baseline depressive scores impacted the predictive ability of these variables. Personality pathology did show significant interactions with loneliness and life events when predicting depression. However, we did not find a significant three-way interaction as we predicted.

Both AVD and BDL features significantly predicted increased depressive symptoms after six months, in the context of a major life event. The AVD features X life event interaction is an interesting finding, considering the nonsignificant relationship between avoidance and the occurrence of life events. One possible interpretation of these results is that because avoidant individuals are behaviorally inhibited, they do not interact with their environment enough to experience a life event. For example, one of the most prevalent life events in our sample was serious illness of a close other, however if avoidant individuals are not engaged in many close relationships, this decreases the likelihood of this event occurring. Reduced experience with handling life events may be associated with a low resilience to stressful events when they do occur, making the event more perceptually salient and likely to trigger the onset of a depressive episode. Another speculation compatible with the social cognition model we described earlier (Cacioppo, & Hawkley, 2009), is that AVD and BDL individuals show a general readiness to react to aversive stimuli (Herpetz, et al., 2000), such as stressful life events, and this may result in symptoms of depression.

As predicted, we also found that AVD features X loneliness significantly predicted depression symptoms. Thus, as loneliness increases, the individuals with AVD pathology are more likely to experience depressive symptoms within a short period of time. This finding is consistent with previous research that demonstrates loneliness accounts for the relationship between various correlates of AVD pathology, such as withdrawal, shyness, and low social support, and subsequent depression (Joiner, 1997).

Two unhypothesized findings stand out among our analyses and deserve further interpretation. First, the presence of a life event did not impact the interaction between loneliness X BDL features when predicting depression as we hypothesized. Instead, we found a three-way interaction between gender X loneliness X BDL features, suggesting that the relationship between BDL features and depression varies depending on amount of loneliness and gender. Graphing the significant interaction revealed that as loneliness increases, the relationship between BDL and depressive symptoms becomes stronger for males, but not for females. In other words, for males who were rated higher on BDL features, those who experience more loneliness, compared to less, are significantly more likely to experience depressive symptoms. This interaction is consistent with previous research that individuals with BDL features experience intense affective responses when faced with interpersonal loss (Schmahl et al., 2004) and that a characteristic of depression in borderline patients is loneliness (Westen et al., 1992). While sex differences in the association between loneliness and depressive symptoms are not usually found in survey studies, it may be the case that men are more lonely than women, but women are more likely to admit their loneliness compared to males. One possible reason for this

misrepresentation is that people are more likely to reject lonely males compared to lonely females (Borys & Perlman, 1985).

Second, AVD features significantly predict future depressive symptoms in females, but not in males. While we could not find previous support for this finding in avoidant individuals, drawing conclusions from social anxiety research may give further insight into our results. A recent study by Xu and colleagues (2012) found that socially anxious women were much more likely than men to have experienced an episode of major depression (40 vs. 25%). However, their results did not show a significant gender X social anxiety interaction when predicting the occurrence of depression, which is inconsistent with our results.

One major limitation of this study is that loneliness data was not collected at a uniform time point. However, we addressed this concern by including time of assessment as a covariate. While previous reports have demonstrated the strong relationship between rejection sensitivity with BDL and AVD personality disorders, we did not actually measure these constructs in the current report and acknowledge this as a limitation of the analyses. It is important to note that the present findings were based on an aging epidemiological sample. As expected, most of our sample did not present with severe levels of psychopathology. Even though our study does not focus exclusively on clinical populations, the rate of personality disorders in our sample is comparable to other community samples (9.5 vs. 9.1%; Lenzenweger, Lane, Loranger, & Kessler, 2007). Current personality frameworks have been gaining support for adopting dimensional measurements of personality pathology. This approach allows researchers to analyze the

impact of subthreshold cases on functioning by increasing variability in the data and allowed us to capitalize on the full range of personality present in our sample.

Our results suggest that the ramifications of personality pathology, loneliness and stressful events remain clinically important in later life. Loneliness in older adults has been a noteworthy topic primarily due to its relationship with physical health (Hawkley & Cacioppo, 2010), and the cumulative effects of loneliness across the lifespan (Caspi, Harrington, Moffitt, Milne, & Poulton, 2006). Relatedly, our lab has demonstrated personality pathology as a risk factor for long-term health consequences in later life (Powers & Oltmanns, 2012). One worthwhile direction to pursue is exploring the relationship between personality pathology, health and loneliness in this population.

In sum, our research suggests that manifestations of personality pathology play a significant role in the relationship between loneliness, life events and depression. BDL features are more strongly related to depressive symptoms with increasing levels of loneliness in males and individuals with AVD features are more likely to experience depressive symptoms in the context of a major life event and loneliness. This interaction is significant despite the lack of relationship between the occurrence of a life event and avoidance. Future research is needed to determine the extent to which personality pathology perpetuates the experience of loneliness and negative affect across the life span.

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Table 1
Demographic and Clinical Characteristics of Participants (N=851)

Characteristics	N (%) / *M (SD)*
Age	59.53 (2.75)
Female	467 (54.9)
Race	
White	580 (68.2)
Black	251 (29.5)
Other	20 (2.4)
Education	
Less than High School	15 (1.8)
High School Graduate	379 (44.5)
College Graduate or Higher	456 (53.6)
Marital Status	
Married	416 (48.9)
Widowed	58 (6.8)
Separated/Divorced	265 (31.1)
Never Married	112 (13.2)
BDI-II	5.19 (6.40)
No. LTE	438 (51.5)
UCLA-R	35.68 (10.25)
AVD Pathology	.16 (.33)
BDL Pathology	.11 (.19)

Table 2
Zero-Order Correlations: Avoidant & Borderline Personality Pathology, Loneliness, Life Event, and BDI-II scores

Variable	FU1 BDI	Loneliness	Life Event
FU1 BDI			
Loneliness	.48**		
Life Event	.25**	.11*	
Avoidant Pathology	.26**	.32**	.01
Borderline Pathology	.34**	.31**	.20**

*p<.05
**p<.001

Table 3

Significant Variables From Multiple Regression of Borderline Pathology, Loneliness, and Life Event Predicting Depressive Symptoms at Follow-up

Model Step	R^2	R^2 Change	Sig. Change		Unstandardized Coefficients		Standardized	Sig.
					B	Std. Error	Beta	
1. Covariates	.47	.47	.000	Race	.38	.15	.07	.01
				Gender	.49	.15	.09	.001
				Baseline BDI	.29	.02	.61	.000
2. Main Effects	.51	.04	.000	UCLA	.16	.03	.16	.000
				LTE	.76	.15	.14	.000
3. Two Way Interactions	.53	.02	.000	BDL X UCLA	.07	.03	.07	.02
				BDL X LTE	.33	.16	.05	.04
				Baseline BDI X UCLA	-.01	.01	-.11	.003
4. Three Way Interactions	.53	.01	.006	Gender X BDL X UCLA	-.16	.05	-.08	.003

BDI=Beck Depression Inventory; UCLA=University of California at Los Angeles Loneliness Scale; LTE= Occurrence of at least one life event measured by the List of Threatening Experiences; BDL=Borderline Pathology

Table 4

Significant Variables From Multiple Regression of Avoidant Pathology, Loneliness, and Life Event Predicting Depressive Symptoms at Follow-up

Model Step	R^2	R^2 Change	Sig. Change		Unstandardized Coefficients		Standardized	Sig.
					B	Std. Error	Beta	
1. Covariates	.47	.47	.000	Race	.31	.15	.05	.04
				Gender	.36	.14	.07	.01
				Baseline BDI	.29	.02	.61	.000
2. Main Effects	.51	.04	.000	UCLA	.16	.03	.16	.000
				LTE	.74	.14	.13	.000
3. Two Way Interactions	.54	.03	.000	AVD X UCLA	.10	.03	.11	.000
				AVD X LTE	.29	.14	.06	.04
				Gender X AVD	.31	.13	.06	.02
				Baseline BDI X AVD	-.04	.01	-.14	.000
				Baseline BDI X UCLA	-.01	.01	-.09	.02
				Basline BDI X LTE	-.06	.03	-.07	.03

BDI=Beck Depression Inventory; UCLA=University of California at Los Angeles Loneliness Scale; LTE= Occurrence of at least one life event measured by the List of Threatening Experiences; AVD=Avoidant Pathology

Figure 1
Variables and Covariates Entered into the Final Regression Model including Borderline Personality Pathology as a Predictor

Covariates	• *Race* • *Gender* • *Time Loneliness was assessed*	• *Baseline BDI* • *Other Personality Pathology*
Main Effects	• **Borderline Features** • **Loneliness** • **Life Event**	
2-way Interactions	• **Borderline X Loneliness** • **Borderline X Life Event** • **Loneliness X Life Event** • *Gender X Borderline*	• *Gender X Loneliness* • *Baseline BDI X Loneliness* • *Baseline BDI X Life Event* • *Baseline BDI X Borderline*
3-way Interactions	• **Borderline X Loneliness X Life Event** • *Gender X Borderline X Loneliness*	
Dependent Variable	• FU1 BDI	

BDI=Beck Depression Inventory, Life Event=Occurrence of at least one life event measured by the List of Threatening Experiences, FU1=6 month follow-up
Note: Variables of interest are in bold font; Covariates are italicized

Figure 2
Variables and Covariates Entered into the Final Regression Model including Avoidant Personality Pathology as a Predictor

Covariates	• *Race* • *Gender* • *Time Loneliness was assessed*	• *Baseline BDI* • *Other Personality Pathology*
Main Effects	• Avoidant Features • Loneliness • Life Event	
2-way Interactions	• Avoidant **X** Loneliness • Avoidant **X** Life Event • Loneliness **X** Life Event • *Avoidant X Gender*	• *Avoidant X Race* • *Baseline BDI X Avoidant* • *Baseline BDI X Life Event* • *Baseline BDI X Loneliness*
3-way Interactions	• Avoidant **X** Loneliness **X** Life Event • *Baseline BDI X Loneliness X Life Event*	
Dependent Variable	• FU1 BDI	

BDI=Beck Depression Inventory, Life Event=Occurrence of at least one life event measured by the List of Threatening Experiences, FU1=6 month follow-up
Note: Variables of interest are in bold font; Covariates are italicized

Figure 3
Interaction of Borderline Pathology and Loneliness Predicting Follow-up Depressive Scores in Males

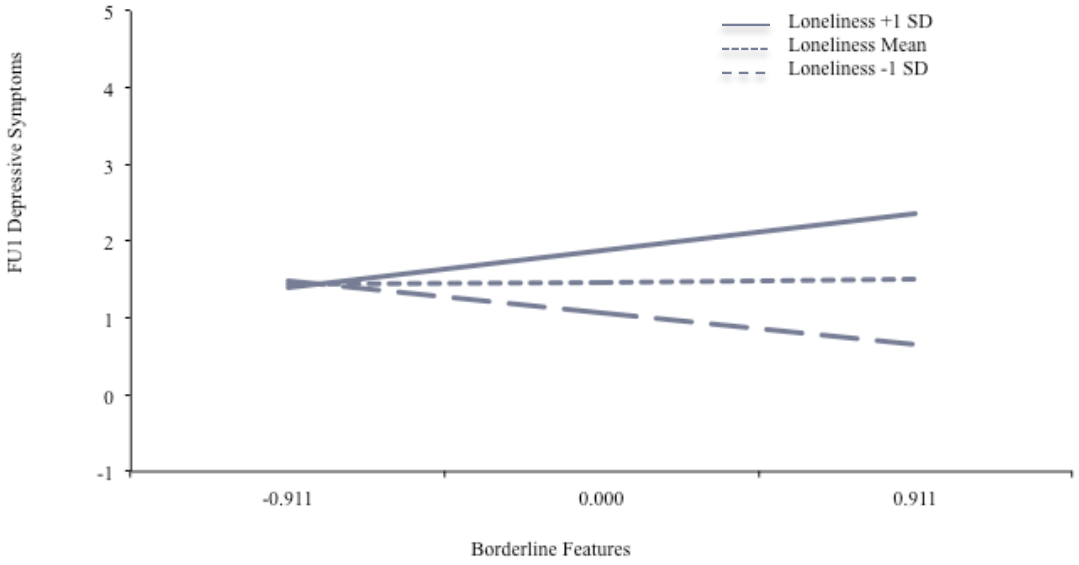

Figure 4

Interaction of Borderline Pathology and Loneliness Predicting Follow-up Depressive Scores in Females

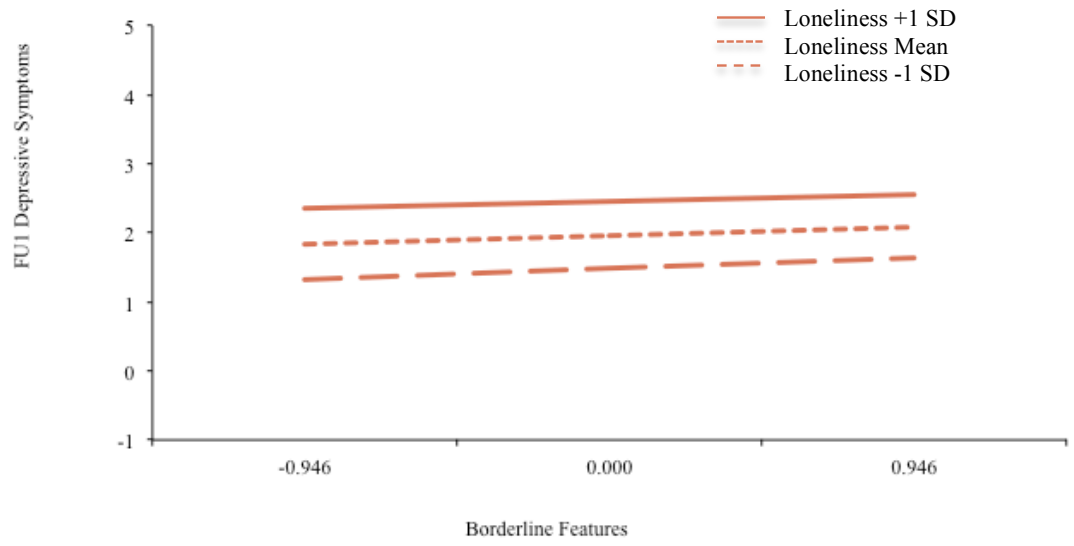

Figure 5

Interaction of Avoidant Pathology and Loneliness Predicting Follow-up Depressive Scores