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The Impact of Comorbid Dysthymic Disorder on Outcome in Personality Disorders

David J. Hellerstein, M.D.^{1,2}, Andrew E. Skodol, M.D.^{1,2}, Eva Petkova, Ph.D.^{1,2}, Hui Xie, Ph.D.^{1,2,3}, John C. Markowitz, M.D.^{1,2,4}, Shirley Yen, Ph.D.⁵, John Gunderson, M.D.⁶, Carlos Grilo, Ph.D.⁷, Maria T. Daversa, Ph.D.⁶, and Thomas H. McGlashan, M.D.⁸

¹ New York State Psychiatric Institute, New York, NY

² College of Physicians and Surgeons, Columbia University, New York, NY

³ Department of Epidemiology and Biostatistics, University of Illinois, Chicago, IL

⁴ Weill Medical College of Cornell University, New York, NY

⁵ Brown University Department of Psychiatry and Human Behavior, Providence, RI

⁶ Harvard Medical School and McLean Hospital, Belmont, MA

⁷ Yale-New Haven Psychiatric Hospital, New Haven, CT

⁸ Yale University School of Medicine, New Haven, CT

Abstract

Objective—The goal of our study was to investigate the impact of dysthymic disorder (DD), a form of chronic depression, on naturalistic outcome in individuals with personality disorders (PD).

Method—The Collaborative Longitudinal Personality Disorders Study is a cohort initially including 573 subjects with four targeted PDs (borderline, avoidant, schizotypal and obsessive-compulsive) and 95 subjects with major depression but no PD. At baseline, 115 subjects were diagnosed with coexisting dysthymic disorder (DD), of whom 109 (94.8%) were PD subjects. Regression analyses were performed to predict three classes of broad clinical outcome after two years of prospective follow-up. We hypothesized that DD diagnosis at baseline would be associated with worse outcome on 1) persistence of a PD diagnosis, 2) impairment in psychosocial functioning (as measured by the Longitudinal Interval Follow-up Evaluation [LIFE]), and 3) crisis-related treatment utilization.

Results—Baseline DD diagnosis was associated with persistence of PD diagnosis at 2 years, particularly for borderline and avoidant PDs. It was associated with worse outcome on global social adjustment, life satisfaction, recreation, and friendships, but not employment or relationship with spouse. Contrary to expectation, DD did not increase suicide attempts, emergency room visits, or psychiatric hospitalizations.

Address for Correspondence: David J. Hellerstein, MD, New York State Psychiatric Institute, 1051 Riverside Drive, Unit #51, New York, NY 10032, tel. 212-543-5743, fax. 212-43-5326, hellers@pi.cpmc.columbia.edu.

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Conclusions—Comorbidity of DD is associated with persistence of PD diagnosis, and with worse outcome on many, but not all, measures of psychosocial functioning.

Keywords

dysthymic disorder; chronic depression; personality disorders; remission; comorbidity; psychosocial functioning

Introduction

The co-occurrence of dysthymic disorder (DD), a low-grade chronic depression, has been associated with poorer outcome of other psychiatric disorders, particularly Axis I disorders such as major depression [1,2]. Likewise, personality disorder (PD) comorbidity has been shown to predict poorer outcome for numerous Axis I disorders, particularly major depression [3-7], but also dysthymic disorder [8]. It is unclear, however, whether comorbid dysthymic disorder adversely affects prognosis for individuals diagnosed with personality disorders. A few studies have longitudinally evaluated PD patients with comorbid DD [9,10]. In a sample of 64 patients with borderline personality disorder, Paris and Zweig-Frank [11] found significantly worse outcome in patients with DD than those without DD over a 27-year follow-up. In general, however, little research has investigated whether comorbid DD is a significant risk factor for poor outcome in adults diagnosed with personality disorders.

Studies at different phases of the lifespan suggest that the onset of chronic depression in childhood and adolescence affects psychosocial development, and personality in particular [12]. Chronic depressive symptoms in early years may predispose to the development of personality disorders. Such symptoms might also contribute to the persistence of personality disorder diagnoses in adult life. Recent data have suggested lower diagnostic stability to personality disorder diagnoses than previously expected [13-16], shaking the traditional conception of personality disorders as enduring psychological traits. Personality disorder features generally seem to improve over time. The factors associated with remission or persistence of PD diagnosis are only beginning to emerge. It is thus possible that chronic depression plays a role not only in the onset of personality disorders, but also in their persistence.

The Collaborative Longitudinal Personality Disorders Study (CLPS) offers the opportunity to examine the association between DD at baseline and the course of PD over time in a large, well-defined cohort of subjects with Axis II disorders. The CLPS is a longitudinal, naturalistic study of an initial 573 subjects with four index personality disorders (borderline, avoidant, schizotypal and obsessive-compulsive), and a comparison group of 95 subjects with major depression but no personality disorder [16,17]. In the CLPS cohort, 115 subjects were diagnosed with coexisting dysthymic disorder (DD), of whom 109 (94.8%; 19% of the PD study sample) are personality-disordered subjects.

The main hypothesis of the current research was that DD diagnosis at baseline would be associated with worse outcomes over a 2-year prospective follow-up period [18,19]. McGlashan [20] showed that, at baseline, DD comorbidity was significantly more common among the four PD diagnostic groups than in the non-PD major depression comparison group. We hypothesized that baseline DD would negatively moderate outcome by increasing: 1) persistence of PD diagnosis at two-year follow-up; 2) impairment in psychosocial functioning; and 3) indicators of psychiatric crisis: viz., suicide attempts, psychiatric hospitalization, and emergency room [ER] visits. We predicted 4) that a higher rate of persistent DD would be found in some PD diagnoses (BPD, AVPD) than others

(OCPD, STPD). Finally, we hypothesized that 5) PD patients who consistently and prospectively met criteria for DD would have poorer outcomes than PD patients whose DD diagnosis fluctuated or remitted over time.

If DD at initial assessment were to predict poor outcome in PD subjects (including persistence of PD diagnosis), it might be possible to identify a sub-population of PD patients at elevated risk upon initial presentation for treatment. The prognostic effect of DD might be particularly important for individuals with particular PD diagnoses: for example, borderline personality disorder (BPD) or avoidant personality disorder (AVPD) might be more affectively moderated than schizotypal (STPD) or obsessive compulsive (OCPD) personality disorders. This is because patients with Cluster B personality disorders, such as BPD, and those with Axis I mood disorders, may share an underlying dimension of affective instability [21,22]. PDs within Cluster C, such as AVPD, have been associated with increased odds of mood disorders [22,23]. Individuals who reported early onset of DD (before age 21) might have worse outcome than those with later onset DD, a result of the presence of depressive symptoms during key phases of psychosocial development. Individuals who continually meet criteria for DD when evaluated prospectively might carry particular risk for poor outcome compared with patients whose chronic depression fluctuates or remits. Aggressive treatment of comorbid DD among individuals with PD diagnoses might not only alleviate psychosocial dysfunction but also increase the likelihood of remission of the PD diagnoses. On a theoretical level, DD comorbidity predicting the persistence of PD diagnosis over time would support the hypothesis that chronic depression promotes maintenance of personality disorders in adult life.

Methods

Subjects

The CLPS, a five-site, NIMH-funded study, prospectively follows a cohort of treatment-seeking or treated patients aged 18 to 45 years (see [16,24] for study details). The recruited sample consists of 668 subjects, 573 of whom were diagnosed with one of four personality disorders: STPD (N=86), BPD (N=175), AVPD (N=158), or OCPD (N=154)); and a comparison group of 95 individuals with a diagnosis of major depression at baseline but no personality disorder diagnosis (MD)(N=95). CLPS participants received treatment on a naturalistic basis in a variety of settings. The CLPS study was approved by Investigational Review Boards of respective institutions where it was conducted. Subjects provided informed consent to participate in the CLPS study.

Assessment [24,25]

Subjects were rated at baseline, then followed longitudinally with ratings at 6, 12, and 24 months and annually thereafter. Data from baseline, 6, 12 and 24-month assessments have been used for this paper. Axis I diagnoses, including dysthymic disorder (DD), were assessed at baseline using the Structured Clinical Interview for DSM-IV Axis I Disorders, Patient Edition (SCID-I/P)[26]. At each follow up interview, raters retrospectively made weekly Psychiatric Status Ratings (PSRs) on the Longitudinal Interval Follow-Up Evaluation Adapted for the Personality Disorders Study (LIFE-PS) [27] for each Axis I disorder present, including dysthymic disorder. Axis II diagnoses were assessed by the Diagnostic Interview for DSM-IV Personality Disorders (DIPD-IV) [28] at baseline and at two-year blinded follow up. The LIFE-PS [27] was used to evaluate psychosocial functioning on a monthly basis. Raters were experienced masters or doctoral level individuals trained to adequate levels of diagnostic reliability, and blind to subjects' prior PD diagnoses. Interrater reliability [25] has been previously reported; κ for DD was .76 and for PDs ranged from 0.40 to 0.75.

To qualify for the major depression comparison group, patients had to meet fewer than 15 criteria of the DIPD-IV and could not have features of any personality disorder diagnosis (i.e., stood at least two criteria below PD diagnostic threshold). Hospitalization, ER visits, and suicidality data were obtained from LIFE items for months 0 to 24 of the study. LIFE questions assessed severity of psychiatric illness, including the number and severity of suicidal gestures or attempts; number of emergency room visits; number of psychiatric hospitalizations; and days in hospital. Two year follow up data were available for 473 of the initial 573 subjects.

Subtypes of DD diagnosis—Dysthymic disorder was multiply defined to test hypotheses, including that longer duration and more persistent depression would be associated with worse outcome. Early-onset dysthymic disorder (DD-1) was defined as DD with onset before age 21. DD-2 was defined as DD with onset at any age. In an effort to operationalize a definition of persistent, prospectively-observed chronic depression, and to assess the impact of ongoing depressive symptoms (as opposed to intermittent symptoms), DD-P (persistent dysthymic disorder) was defined as meeting criteria for DD at baseline evaluation and for $\geq 80\%$ of weekly PSR assessments during the 2-year follow-up period.

Outcome measures

- (1) PD diagnosis at 2 year follow-up was assessed from the DIPD-IV, and included: (i) presence/absence of any PD; (ii) number of definite PDs; (iii) number of probable and definite PDs; and (iv) presence/absence of each of the 4 index PDs (STPD, BPD, APD, OCPD).
- (2) Psychosocial functioning, assessed from the LIFE at year 2, included : (i) employment; (ii) household duties; (iii) student work; relationships with (iv) spouse; (v) children; (vi) parents; (vii) siblings; (viii) other relatives; (ix) friends; (x) global social adjustment; (xi) life satisfaction; and (xii) use of recreation. Ratings on five point scales ranged from 1 (very good) to 5 (very poor). The LIFE was readministered by interviewers at 6, 12, and 24 months. Level of impairment for each functional domain was assessed for the month preceding the 2 year follow up. Treatment variables were the sum of the variable over the follow up period.
- (3) Hospitalization was assessed from the LIFE from baseline to year 2, including: (i) whether the subject was ever hospitalized during the period (yes/no); and (ii) total number of hospitalizations during the 2 years.
- (3) ER visits were assessed from the LIFE were tabulated for the period from baseline to year 2.
- (4) Suicidality was assessed from the LIFE from baseline to year 2 for (i) the presence/absence of suicidal gestures or attempts; and (ii) number of attempts.

Data analysis—Baseline associations between DD diagnosis and presence or absence of PD and between DD and index PD diagnosis were assessed using the χ^2 test. The associations between DD (presence/absence) and the outcome variables (persistence of PD diagnosis at 2 years, psychosocial functioning at 2 years, or psychiatric crisis) among subjects with PD at baseline were assessed conditional on index PD by modeling each outcome as a function of DD (yes/no) and index PD (a factor with 4 levels, on 3 d.f.). For each outcome, the following modeling strategy was used: a) the outcome was first modeled as a function of DD, index PD, and their interaction; b) a significant interaction term (3 d.f. test) was interpreted to mean that the association between DD and the outcome depends on the index PD. Four different associations between DD and the outcome were estimated, one

for each of the 4 index PDs. c) A non-significant interaction term was interpreted to mean that the association between DD and the outcome was equivalent for all index PDs, and inference about this association was based on a second model containing only main effects of DD and index PD. Depending on the type of outcome, linear regression (for continuous outcome), logistic regression (for binary outcome), or Poisson regression (for count outcome) was used. PROC GENMOD in SAS[®] was used to fit the models.

Everywhere significance was judged at level $\alpha=0.05$. Tests for presence of association between a given outcome and DD diagnosis for each of the four index PDs were performed only after a global test for index PD by DD interaction term (test on 3 d.f.) was found statistically significant. The associated p-values are reported unadjusted for multiple testing.

Results

DD and PD diagnosis at baseline

At baseline evaluation, 84 (14.7%) of 573 PD subjects met the diagnosis of early-onset dysthymic disorder (DD-1). Using a broader definition (DD-2, early- or late-onset), 19% of the PD sample (N=109) met criteria for DD. A significantly lower proportion of subjects in the comparison MD group were diagnosed with comorbid DD than the PD sample: only 5.3% of comparison subjects had early-onset DD (N=5; $\chi^2=6.23$, df=1, $p<0.03$), and 6.3% had early-or-late-onset DD (N=6; $\chi^2=9.23$, df=1, $p<0.01$) (See Table 1.)

A diagnosis of DD at baseline was not associated with a particular PD diagnosis (see Table 1). Among subjects with schizotypal PD, 17.4% had comorbid early-onset DD, versus 16.0% of borderline PD, 12.0% of avoidant PD, and 14.3% of obsessive compulsive PD subjects ($\chi^2 = 1.68$, df=3, $p=0.62$). Baseline diagnosis of early-or-late-onset DD showed similar results ($p=0.68$).

DD and PD outcomes at 24 months

DD at baseline and persistence of personality disorder diagnosis at 2 years follow-up—Logistic regression analysis revealed an association between DD diagnosis at baseline and the persistence of at least one definite PD diagnosis at the blinded 24-month follow-up among subjects with PD at baseline (see Table 2). Diagnosis of comorbid early-onset dysthymic disorder (DD-1) at baseline increased the odds of continuing to meet criteria for personality disorder at follow-up by a factor of approximately 1.75 (95% confidence limits based on Wald's test CI = 1.07-2.86, $p=0.04$). That is, PD subjects with early-onset DD (DD-1) at baseline were significantly more likely to retain a definite PD diagnosis two years later than those without early-onset DD. This association did not reach statistical significance when subjects with early- or late-onset DD diagnosis (DD-2) at baseline were compared to those without ($p=0.09$), although the odds ratio of 1.55 followed the same direction.

Other measures of persistence of PD generally confirmed this association. Both DD-1 and DD-2 subjects had a greater number of definite PD diagnoses at follow-up, with an average of 0.6 more PD diagnoses (see Table 2); they also had a greater number of definite or probable PD diagnoses, with an average of 1 more PD diagnosis. Considering specific PD diagnoses, individuals with DD-2 at baseline were more likely to meet DIPD-IV criteria for AVPD and for STPD at 24-month follow-up. Those with early-onset DD were more likely to meet criteria for AVPD and for BPD at follow-up.

DD at baseline and psychosocial functioning at 24 months—Individuals with PD diagnoses by definition show psychosocial impairment. In this sample, comorbid baseline

DD was associated with additional impairment in several aspects of psychosocial functioning at follow-up assessed by the LIFE (Table 3). DD-1 diagnosis at baseline was associated with greater impairment in three areas: global social adjustment, life satisfaction, use of recreation, and relationship with spouse/mate compared to individuals without DD-1 diagnosis at baseline. DD-2 diagnosis at baseline was associated with greater impairment in those three areas as well as in friendships and relationships with siblings and parents. Effect sizes for these differences were in the medium to small range. There was no interaction effect between baseline DD and index PD on any of the 12 functioning outcome measures of the LIFE; that is, the effect of DD was the same regardless of index PD diagnosis.

DD at baseline and psychiatric crises at 24 months—Contrary to predictions, baseline diagnosis of DD was not associated with a significantly higher proportion of suicide attempters (N=15 [17.9%] among 84 subjects with DD-1, versus N=76 [15.5%] among 489 non-DD-1 subjects) ($\chi^2=0.29$, $df=1$, $p=0.6$). Nor did the proportion of subjects making emergency room visits differ: N=14 (18.7%) for 75 DD-1 subjects versus 87 (20.8%) for 419 subjects without DD-1 ($\chi^2=0.17$, $df=1$, $p=0.68$); nor did mean number of ER visits (0.59 ± 2.01 for DD-1 subjects vs. 0.52 ± 1.41 for non-DD-1 subjects ($t=0.37$, $df=493$, $p(2\text{-tailed})=0.71$). Psychiatric hospitalization occurred in 20% (15/75) of DD-1 subjects, versus 22% (92/420) of subjects without DD-1 ($\chi^2=0.14$, $df=1$, $p=0.71$). In contrast, PD diagnosis influenced suicide attempts ($\chi^2=19.62$, $df=3$, $p<.0001$), with BPD subjects making the most suicide attempts (N= 60/175; 34.3 %), followed by AVPD (N= 18/158; 11.4 %), STPD (N=8/86; 9.3 %), and OCPD (N= 5/154; 3.3 %). Similarly, specific PD diagnosis affected ER visits ($\chi^2=18.25$, $df=3$, $p<.0001$), with more BPD subjects having ER visits (N= 62/151; 41.1 %), followed by STPD (N= 15/78; 19.2%), AVPD (N=17/129; 13.2 %), and OCPD (N= 9/136; 6.7%). PD diagnosis also moderated hospitalizations, with differences by specific PD ($\chi^2=17.42$, $df=3$, $p<.0001$), with the greatest percentage of BPD subjects being hospitalized (N= 62/151; 41.1%), followed by STPD (N= 13/78; 16.7%), AVPD (N=18/130; 13.8%), and OCPD (N=14/136; 10.3 %) subjects. The effect of baseline DD comorbidity did not differ between specific index PD diagnoses.

Persistent vs. intermittent DD and PD diagnosis and functioning

Two year prospective data were available for 97 subjects initially diagnosed with early- or late-onset dysthymic disorder (DD-2). Of these, 44 individuals had “persistent DD” (DD-P) —defined *a priori* as meeting DD criteria on at least 80% of the assessment weeks during the 24 month follow-up period, and 53 individuals had intermittent DD (DD-Non-P) (see Tables 4 and 5). Somewhat at odds with our initial hypothesis #4, DD symptoms were more likely to persist in STPD (15.1% of original sample) and BPD (8.5%) subjects than AVPD (6.3%) or OCPD (3.8%) subjects or MD controls (1.1%). Contrary to hypothesis #5, persistent DD (DD-P) was not associated with more emergency room visits, hospitalizations, or suicidal behavior than intermittent DD (see Table 5). The persistently dysthymic subsample showed worse functioning on the global social adjustment, life satisfaction and relationships with parents domains of the LIFE when compared to dysthymics whose depressive symptoms fluctuated (see Table 5).

Discussion

Comorbid dysthymic disorder appears to worsen outcomes among adults diagnosed with personality disorders. In this study, individuals with comorbid DD had lower remission rates of personality disorder diagnosis and greater impairment in several domains of psychosocial functioning than subjects without comorbid DD. The data supported most but not all of our hypotheses.

Our findings suggest that comorbid dysthymic disorder has a clinically meaningful negative moderating effect on personality-disordered individuals during adulthood. These findings allow us to sketch the impact of chronic depression on personality across the lifespan. Early-onset DD (before age 21) appears to heighten the risk of developing PD [12]. Kovacs et al. [29] found that only 7% of children recover from dysthymic disorder at 2-year naturalistic follow-up, compared to 86% recovery for major depression. Research by Cohen and colleagues suggests that depression in adolescence predicts adult PDs [30], and conversely, that PDs in adolescence predict adult Axis I disorders [31]. Among dysthymic adults, Garyfallos et al. [32] found early-onset DD to be associated with particularly high PD comorbidity. Whereas single episodes of major depression may not produce lasting personality change [33], recurrent or chronic depression evidently correlates with PDs [6,34]. In contrast, among elderly dysthymic patients [35,36], PD prevalence is only elevated among those with early-onset DD, suggesting that personality is well-established by late life.

Baseline prevalence of DD

In the CLPS study sample, dysthymic disorder was significantly more prevalent among the PD diagnosed subjects than among the non-personality-disordered MD comparison group. Although one might interpret this as suggesting that DD is an aspect of personality disorder rather than a mood disorder, a wealth of pharmacological, genetic, imaging, and other studies indicate that DD is indeed a mood disorder [37-39]. Indeed, the CLPS PD subsamples had high rates of current (61.3%) and lifetime (92.6%) mood disorders at baseline assessment [14]. Major depression was present at baseline in 38.7% of the PD sample, co-occurring most highly with AVPD and BPD [17]. Overall, the low rate of DD at baseline in the MD comparison group, compared to the PD samples, suggests that patients presenting clinically with “double depression” (concurrent major depression and dysthymic disorder) are likely to have a co-occurring personality disorder; this, however, has not been commonly assessed in depression studies such as the Collaborative Depression Study [40].

Interrelationships between DD and PDs

These and other findings yield the compelling interpretation that an interrelationship exists between chronic depression and personality disorders. This may occur in at least three ways: 1) an interaction model (chronic depression and personality disorders may be two discrete conditions that have negative interactive effects); 2) a severity model (comorbid DD may appear among more severely ill PD subjects, or the reverse); and 3) a common factor model (PD and DD may result from a single underlying etiology) [9,41,42].

In the current study, DD comorbidity rates did not differ among the four PD diagnoses. Does this suggest that DD is a nonspecific comorbidity among personality disordered individuals, and that chronic depression does not result in one particular type of PD pathology? Other PD diagnoses—such as schizoid PD or histrionic PD—might show different prevalence of DD than the four index PDs studied in the CLPS. In his review of CLPS baseline data for all 13 PD diagnoses determined by DIPD-IV, Skodol [17] found that DD comorbidity varied significantly by PD diagnosis, ranging from 2.6% in histrionic PD to 21% in avoidant PD. Our analyses uncovered some PD-specific findings as well. For example, late-onset DD appeared more frequently in AVPD (14/34, or 44% of DD subjects) than the other three PDs (10/75, or 13.3%).

Non-remission of personality disorder diagnosis

PD comorbidity has generally been demonstrated [43,44] to negatively moderate remission of mood disorders. Our findings suggest that the reverse may also be true. Followed longitudinally, the CLPS sample has yielded higher-than-expected remission rates of

personality disorder diagnoses [13,14]. At 12-month follow-up [13], only 56% of the PD sample continued to meet criteria for the index PD. At 24-month follow-up [14], 50% (AVPD) to 61% (STPD) of subjects fell below diagnostic thresholds. A non-CLPS cohort of patients with PD and comorbid mood disorders [45] found general improvement in Cluster A and B (but not Cluster C) traits over ten year follow-up. Overall, many individuals with PD diagnoses report decreases in personality disorder features over time.

Although it is not entirely clear what factors predict diagnostic stability of PDs over time, comorbid dysthymic disorder may be one factor. In this study, at 24 month follow-up, about one third of individuals with PDs but without comorbid DD no longer met criteria for *any* PD diagnosis, compared with less than one-fourth of those with comorbid DD. Subjects with baseline DD were more likely to meet criteria for various particular PDs at follow-up, especially AVPD, BPD and STPD. They were also likely to meet criteria for a larger *number* of PD diagnoses at follow-up, whether definitive or probable diagnoses. In contrast, in the same CLPS cohort, Gunderson et al. [46] found that co-occurring MDD at baseline evaluation did not affect the rate of remission of BPD.

Why might chronic depression (DD) rather than acute depression [46] be associated with non-remission of PD diagnoses? In the interaction model, chronic depression might be a moderating factor in maintaining PD diagnosis by reinforcing maladaptive behaviors and/or thought patterns. For example, individuals with chronically low mood and BPD may act impulsively and self-destructively in attempts to alleviate chronic dysphoria. Or the low mood and pessimism of DD might increase the likelihood that individuals with AVPD continue to limit their social interactions. In the common factor model or severity model, comorbid DD might indicate a more severe or pervasive underlying diathesis, which might be more likely to persist. Gunderson et al. [47] found that various Axis I comorbidities (such as PTSD) were associated with worse outcome in BPD; DD might be an additional factor reflecting greater severity of PDs such as BPD.

Treating chronic depression may increase the chance of PD remission [48]. Treating patients with chronic major depression and double depression with imipramine or sertraline, Hirschfeld et al. [41,49] found that successful pharmacotherapy was associated with “recovery” from personality disorders in 62% of 77 subjects, with recovery rates of 29% in Cluster A, 71% in Cluster C, and 83% in Cluster B over a period of 28 weeks. The benefits of treating dysthymic disorder, a less severe form of chronic depression, in PD subjects, remain to be explored. Such a relationship may be complex. In an analysis of MDD in the CLPS sample, Shea et al. [22] found that remission of MDD was associated with remission of BPD. Gunderson et al. [46], however, found that improvements in BPD were often followed by improvements in MDD, but improvements in MDD were not followed by improvements in BPD.

Impact of DD (and persistent DD) on psychosocial functioning and psychiatric crisis

In this study, comorbid DD was associated with poorer psychosocial functioning. We expected that this finding would emerge with various definitions of DD, whether among early-onset DD subjects, or among those subjects with onset at any age. We also expected worse outcome among those dysthymics with persistent (as opposed to intermittent) depressive symptoms when assessed prospectively. On the LIFE, PD subjects with comorbid DD-1 (early-onset) had worse global social adjustment, global satisfaction, and use of recreation. Those with DD-2 (early-or-late-onset) also had more impaired relationships with friends and parents. These differences had small to medium effect sizes. Sample size of late-onset DD (N=25) was too small to make meaningful comparisons between early and late onset dysthymics. Among other LIFE items that did not statistically differ between DD and non-DD subjects, some absences of difference may reflect small N's (several items had p's

approximating 0.10). Alternatively, some domains may not differ significantly. Contrary to expectation [18,19], we did not find anticipated effects on suicidal behavior, emergency room visits, or psychiatric hospitalizations. While there was a strong effect of PD diagnosis on these factors [50], DD comorbidity at baseline did not independently increase risk. Contrary to predictions, patients who *persistently* met criteria for DD over 2 years did not differ in reported suicidal behavior, psychiatric hospitalizations, or emergency room visits compared to dysthymics whose diagnosis fluctuated. They did, however, show additional impairment on some LIFE domains, suggesting that prospectively-assessed persistent dysthymic symptoms confer an additional negative impact.

Clinical Implications

Klein et al. [19] have stated that “Although patients with dysthymic disorder tend to show mild to moderate symptoms, from a longitudinal perspective, the condition is severe,” with higher psychiatric morbidity and almost inevitable progression to major depression. There are potential clinical benefits to identifying patients with PDs who have comorbid DD. Such patients appear at risk for worse outcome than individuals with PDs without comorbid DD, and therefore might benefit from more aggressive treatment, including combined psychotherapy and psychopharmacology. Clinical goals would include preventing progression of DD to major depression (using psychopharmacology and/or targeted antidepressant psychotherapies such as interpersonal psychotherapy), and attempting to alleviate personality disorder traits with focused, empirically supported psychotherapy approaches such as dialectical behavioral psychotherapy, schema-focused therapy, or transference-based psychotherapy.

Persistent dysthymic disorder and Axis II diagnosis

Somewhat surprisingly, subjects with the highest frequency of persistent DD when followed over time had principal Axis II diagnoses of STPD and BPD. Individuals with AVPD and OCPD may have greater mood fluctuations than those with STPD or BPD, which tend to be more severe disorders. Like DD diagnosed at baseline evaluation, persistent DD also appeared relatively rarely among MD subjects without PDs. This again suggests that, in the absence of a personality disorder, depression tends to resolve. Indeed, the presence of PD could be important in maintaining dysthymic disorder.

Limitations and future directions

Study limitations include the use of a self-referred cohort rather than a community sample, its limitation to four index PD diagnoses, and a relatively short follow-up period. The major depression comparison group in this study excluded individuals with definite PD diagnoses, which may have contributed to the low prevalence of DD among that sample. It is possible that subjects (100 of 573) lost to two year follow-up included more severely impaired individuals, which could lead to under-reporting of negative outcomes (such as suicide attempts, psychiatric hospitalization) and an overly positive view of psychosocial functioning. Future directions include explorations of the possible impact of treating DD on PD outcome (and the reverse), and more systematic exploration of persistent DD among PD populations over a longer duration.

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Table 1

Prevalence of DD at baseline according to baseline PD diagnosis.

Baseline PD diagnosis	Baseline DD Type			
	Early-onset DD, N=84		Early-or-late-onset DD, N=109	
	N	%	N	%
Major depression sample (no PD diagnosis) (N=95)	5 *	5.3	6 [#]	6.3
PD diagnosis (N=573)	84	14.7	109	19.0
STPD (N=86)	15	17.4	18	20.9
BPD (N=175)	28	16.0	31	17.7
AVPD (N=158)	19	12.0	34	21.5
OCPD (N=154)	22	14.3	26	16.9

PD samples: All p's are NS (χ^2)

PDs vs. major depression sample:

* DD-1: $\chi^2=6.23$, df=1, p=.013[#] DD-2: $\chi^2=9.23$, df=1, p=.020

Table 2

Prevalence of PD diagnosis at 2 years follow-up as a function of baseline diagnosis of DD. (Only subjects with PD at baseline are considered)

Outcome at 2 years for subjects with PD at baseline N = 473 ¹ with assessments at 2 years	DD Type at Baseline					
	Early-onset DD			Early-or-late-onset DD		
	Yes N = 73	No N=400	p ²	Yes N = 92	No N=381	p ²
Presence of any PD (%)	76.7	64.6	0.04	73.9	64.6	0.09
Presence of STPD (%)	12.3	6.3	0.06	12.0	6.0	0.05
Presence of BPD (%)	34.3	23.4	0.05	31.5	23.5	0.11
Presence of AVPD (%)	46.6	32.0	0.02	46.7	31.2	0.005
Presence of OCPD (%)	31.5	22.8	0.11	28.3	23.1	0.30
# definitive PD diagnoses (mean)	1.89	1.22	0.002	1.78	1.22	0.004
# definitive or probable PD diagnoses (mean)	2.81	1.84	<.001	2.62	1.83	<.001

¹ Of the total 573 subjects with PD at baseline, 100 did not have year 2 assessment

² p-value for likelihood ratio test for significant effect of DD at baseline on 24 months outcomes, adjusting for baseline PD

Effects of baseline dysthymic disorder diagnosis on psychosocial functioning at 24 months, as measured by the LIFE, among 495 personality disordered subjects with early onset dysthymic disorder (DD-1), and early-or-late-onset dysthymic disorder (DD-2)

Table 3

LIFE factor	DD-1		Non-DD-1		F ¹	df ¹	p	Effect Size (d)		DD-2		Non-DD-2		F ¹	df ¹	p	Effect Size (d)	
	N	Mean (SD)	N	Mean (SD)				N	Mean (SD)	N	Mean (SD)	N	Mean (SD)				N	Mean (SD)
Employment ⁴	53	2.2 (1.3)	284	2.1 (1.2)	.8	332	.38	.08	.30	69	2.3 (1.3)	268	2.1 (1.2)	1.1	334	.30	.16	.16
Global social adjustment ^{2,3,4}	75	3.6 (0.9)	420	3.2 (1.1)	9.4	492	.002	.40	.40	97	3.6 (1.1)	398	3.1 (1.1)	17.0	492	<.0001	.46	.46
Satisfaction ^{2,3,4}	74	3.1 (1.0)	420	2.8 (1.0)	4.2	491	.04	.30	.30	96	3.1 (1.0)	398	2.8 (1.0)	8.7	491	.003	.30	.30
Recreation ^{2,3,4}	75	2.8 (1.1)	420	2.5 (1.2)	5.2	492	.03	.26	.26	97	2.8 (1.2)	398	2.4 (1.2)	6.8	492	.01	.33	.33
Friends ^{3,4}	75	2.8 (1.3)	420	2.6 (1.1)	3.3	492	.10	.17	.17	97	2.9 (1.2)	398	2.5 (1.1)	9.2	492	.003	.35	.35
Other relatives	20	2.2 (0.9)	156	1.9 (0.9)	1.4	173	.25	.33	.33	30	2.1 (0.8)	146	1.9 (0.9)	1.3	173	.26	.24	.24
Children	13	2.3 (1.3)	129	2.1 (1.2)	.5	139	.50	.16	.16	25	2.2 (1.1)	117	2.1 (1.2)	1.3	139	.26	.09	.09
Spouse/mate	21	2.7 (1.1)	120	2.2 (1.1)	3.9	138	.05	.46	.46	30	2.5 (1.3)	111	2.2 (1.1)	2.1	138	.15	.25	.25
Siblings ^{3,4}	47	2.9 (1.2)	268	2.6 (1.2)	2.2	312	.10	.26	.26	59	3.0 (1.2)	256	2.6 (1.2)	5.6	312	.02	.33	.33
Parents ^{3,4}	57	2.9 (1.1)	301	2.5 (1.2)	2.9	355	.06	.35	.35	73	2.9 (1.2)	285	2.5 (1.2)	4.5	355	.03	.33	.33
Student work ⁴	21	2.2 (1.2)	93	2.3 (1.3)	.04	111	.90	-.08	-.08	21	2.2 (1.2)	93	2.3 (1.3)	.04	111	.90	-.08	-.08
Household duties ⁴	72	2.6 (1.2)	410	2.4 (1.1)	1.8	479	.18	.17	.17	94	2.6 (1.2)	388	2.4 (1.4)	1.8	479	.20	.15	.15

Note: LIFE scores are generally calculated in a range from 1 to 5, where higher scores indicate worse functioning. For instance, ratings on Satisfaction and Global Social Adjustment range from 1 (very good), to 2 (good), 3 (fair), 4 (poor), and 5 (very poor).

¹ F-test with 1 df for the numerator and df for the denominator given in the column “df”

² significant effects for DD-1 subjects

³ significant effects for DD-2 subjects

⁴ significant effects for PD diagnosed subjects by PD diagnosis

No DD X PD diagnosis interaction effects were present

Prospective assessment of the presence and persistence of dysthymic disorder diagnosis among CLPS subjects over 24 months

Table 4

Personality disorder diagnosis at baseline	Dysthymic disorder features during 24 month f/u		Persistent DD (DD-P) [/]	
	N	%	N	% of DD Subjects With DD-P
PD samples:	127	22.2	44	34.6
Schizotypal PD (N=86)	22	25.6	13	59.1
Borderline PD (N=175)	39	22.3	15	38.5
Avoidant PD (N=158)	39	24.7	10	25.6
Obsessive-compulsive PD (N=154)	27	17.5	6	22.2
Major depression, no PD (N=95)	11	11.6	1	9.1

Dysthymic disorder features: subjects met criteria for dysthymic disorder except for minimal duration requirement (2 years)

Persistent DD (DD-P) is defined as meeting criteria for DD during ≥ 80% of 24 month follow-up period (>83 of 104 weeks)

[/] Test comparing the prevalence of persistent DD (DD-P) among the five diagnostic groups; ($\chi^2=12.99$, df = 4, p = 0.01)

Table 5

Effects of DD-P on emergency room visits, suicides and psychiatric hospitalizations, and on psychosocial functioning at 24 months as measured by the LIFE among 97 personality disordered subjects with early-or-late-onset dysthymic disorder (DD-2), who have persistent (DD-P) vs. nonpersistent (DD-Non-P) dysthymic disorder.

Outcome	DD-P N	DD-P Mean (SD)	DD-Non-P N	DD-Non-P Mean (SD)	F	df	p
Clinical outcome							
Emergency Room visits	44	0.32(0.9)	52	0.63(2.3)			0.39
Hospitalizations	44	0.5(1.1)	53	0.5(1.4)			0.91
Suicidal behavior	44	0.16(0.4)	53	0.15(0.4)			0.96
LIFE factor							
Employment	27	2.7 (1.4)	42	1.9 (1.2)	2.3	45	.14
Global social adjustment	44	4.0 (0.8)	53	3.3 (1.0)	9.8	91	.002
Satisfaction	44	3.5 (0.9)	53	2.8 (1.0)	10.1	91	.002
Recreation	44	3.0 (1.2)	53	2.7 (1.2)	0.8	91	.46
Friends	44	3.3 (1.3)	53	2.6 (1.1)	3.4	91	.07
Other relatives	12	2.3 (0.9)	18	2.0 (0.8)	0.1	11	.82
Children	18	2.2 (1.1)	14	2.1 (0.9)	.3	22	.57
Spouse/mate	14	2.6 (1.3)	16	2.4 (1.3)	0.5	22	.51
Siblings	39	3.1 (1.2)	48	2.5 (0.9)	1.7	79	.20
Parents	40	3.1 (1.2)	50	2.4 (0.9)	0.7	83	.04
Student work	4	3.0 (1.6)	17	2.0 (1.0)	0.00	9	.97
Household duties	42	2.7 (1.3)	52	2.4 (1.2)	1.3	88	.27

Note: DD-P is defined as meeting criteria for DD on 80% or more of assessments over a 2 year prospective follow up period

DD-Non-P is defined as meeting criteria for DD for fewer than 80% of assessments during 2 year follow up period

LIFE scores are generally calculated in a range from 1 to 5, where higher scores indicate worse functioning. For instance, ratings on Satisfaction and Global Social Adjustment range from 1 (very good), to 2 (good), 3 (fair), 4 (poor), and 5 (very poor). The effect was adjusted by the baseline LIFE scores and PD diagnosis. The regression model used is: LIFE at 24 month= LIFE at baseline + DD-P + PD diagnostics. No interaction effects were found present.