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The Overlap Between Personality Disorders and Major Depressive Disorder (MDD)

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Background. ***Research studies have focused attention on the importance of the comorbidity of personality disorders and depression.***
Methods. ***The present review examines seven potential explanations for the overlap to clarify the nature of the relationship, if any, between depression and personality disorder diagnoses.***
Results. ***There may be many explanations for the potential overlap of personality disorders (PD) and major depressive disorder (MDD). For example, the distinction between states and traits may not be as clear and definitive as suggested in the DSM-IV. In some cases, depression may influence personality pathology, and may even lead to personality disorders. In other cases, personality disorders may lead to MDD.***
Conclusion. ***Further research may clarify the nature of the relationship, if any, between depression and personality disorder diagnoses, as well as the relationship between comorbidity and treatment response.***

Keywords: Depression; Personality pathology; Comorbidity.

The relationship between major depressive disorder (MDD) and personality disorders is yet to be fully understood. Both have been well studied individually, and efforts have been made to investigate their co-occurrence. This article discusses the high prevalence rates of these disorders when they occur alone and together, and examines the different explanations for the overlap of MDD and personality disorder diagnoses.

BACKGROUND

MDD ranks as the fourth leading cause of disability worldwide (1), and is one of the most common psychiatric disorders (2). It affects eleven million individuals each year in the United States (3). Personality disorders, though less common than MDD, also appear highly prevalent. In the general population, it is suggested that 10 to 20 percent meet criteria for one or more personality disorders (4). In psychiatric populations, the prevalence may even be greater. Over one-half of those in treated (outpatient and inpatient) psychiatric populations can be expected to have a personality disorder (5). Many individuals, who do not have personality disorders per se, may nevertheless have maladaptive personality traits. Compared to personality disorders, abnormal character traits are even more prevalent; it is estimated that 30% of the general population and 66% of psychiatric outpatients have maladaptive personality traits (4).

In addition to the high prevalence rates of both disorders individually, a large percentage of those diagnosed with a personality disorder apparently meet criteria for an Axis I disorder. In a primary report, Koenigsberg and colleagues (6) reviewed the charts of 2,462 patients evaluated at a major medical center. They found that 36% of the patients had a personality disorder, and that 82% of the patients who met criteria for a personality disorder had a concomitant

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Axis I disorder (6). This finding was further supported by a primary study by Loranger (7) who found that 97% of those who met criteria for a personality disorder had a concomitant Axis I diagnosis.

Reciprocally, a significant percentage of patients seen by mental health providers for depression have personality disorders as well. As reviewed by Zimmerman and colleagues (8), estimates of the prevalence of personality disorders in depressed populations vary widely from 9.3% (9) to 100% (10). Nevertheless, most studies (11–13) indicate high rates of personality disorders in depressed patients. For example, Charney and colleagues (14) found that 61% of unipolar nonmelancholic depressed inpatients met criteria for a personality disorder. Shea and colleagues (15) noted that 74% of 239 outpatients with major depressive disorder met criteria for a personality disorder. Fava and colleagues (16) reported that out of 83 outpatients with major depressive disorder, 93% met criteria for one or more personality disorder diagnoses. In a later study, Fava and colleagues (17) found that 64% of 378 outpatients with MDD met criteria for at least one personality disorder.

The variability in prevalence rates may reflect differences in patient populations (inpatient vs. outpatient), timing of the evaluation (before vs. after treatment of the depression), assessment tools (self-report vs. structured interviews), and diagnostic criteria (11,12,16,18–20). For example, personality disorders from Cluster C (anxious/fearful cluster) appear to be the most common personality disorders seen in outpatients with depression (11,13), while borderline personality disorder (Cluster B) seems to be the most commonly diagnosed in inpatients with depression (14,21). Additionally, it has been suggested that personality disorder diagnoses made during acute treatment of MDD are less stable compared to personality disorder diagnoses made during continuation treatment of MDD (17,22).

Furthermore, Fava and colleagues (16) directly compared a self-report measure to a clinical interview measure. Using the Personality Disorder Questionnaire-Revised (PDQ-R), they assessed 83 outpatients with major depression. Of these, 63 (76%) met criteria for cluster A diagnoses, 56 (67%) were found to have a cluster B diagnosis, and 56 (67%) met criteria for cluster C diagnoses at baseline. Those with a cluster B diagnosis were then assessed with the Structured Clinical Interview for DSM (SCID-II). All subjects diagnosed with a personality disorder by the SCID-II had indeed met criteria for a personality disorder by the PDQ-R. However, not all subjects met criteria for a PD diagnosis based on the SCID, even though they had met criteria based on the PDQ-R. Clinician-rated, structured interviews likely result in less frequent diagnoses, while subject-rated questionnaires may be more sensitive but less specific.

In summary, despite variability of estimates, a significant percentage of patients who meet criteria for MDD also meet criteria for a personality disorder. The converse is also true; a large percentage of patients who meet criteria for a personality disorder will also meet criteria for MDD (23,24). Due to the apparent overlap between personality pathology and depression, and the potential impact of the overlap on treatment response, efforts have been put forth to clarify their interrelationship.

Potential Reasons for the Overlap

1) *The distinction between Axis I and Axis II introduced by the Diagnostic and Statistical Manual of Mental Disorders III (DSM-III) may lead to artifactual over-diagnosis of mood and personality disorders.*

The placement of personality disorders on Axis II, starting with DSM-III may directly result in the potential overlap (10,25–27). This has been illustrated in primary studies by Loranger and colleagues (7,26). Loranger (7) examined diagnoses given to hospitalized patients in one of the largest university-affiliated psychiatric hospitals in the United States. Loranger (7) compared 10,914 diagnoses given to hospitalized patients during the last 5 years of the DSM-II time period and the first 5 years of the DSM-III time period. Loranger (7) found that one of the major consequences resulting from the change from DSM-II to DSM-III was a marked increase in the diagnosis of personality disorders, from 19.1% to 49.2%. The placement of personality disorders on a separate diagnostic axis from mood disorders by the DSM-III was suggested to result in an over-diagnosis of personality disorders.

Furthermore, in some instances, limitation of our current nosology may lead to artifactual overdiagnosis. For example, mood instability and irritable interpersonal relations may suggest borderline PD but may also be features of depression. A depressed patient's social withdrawal may suggest avoidant personality disorder, but may also be a symptom of depression. Widiger and Shea (27) suggest that there are four pairs of personality disorders and Axis I disorders that have been difficult to differentiate: schizotypal PD versus schizophrenia, borderline PD versus mood disorders, antisocial PD versus substance abuse, and avoidant PD versus social phobia.

On a different note, the psychobiological perspective may provide an explanation of the possible overlap between MDD and personality disorders. Siever and Davis (28) proposed a psychobiological perspective of personality disorders based on the inclusion of the following dimensions: cognitive/perceptual organization, impulsivity/aggression, affective instability, and anxiety/inhibition. They purported that there is phenomenological, genetic, and biological evidence that these dimensions span both Axis I and Axis II disorders, again drawing a similarity between the two axes (28). Certain characteristic symptoms, traits, and defenses may be associated with each of these dimensions (28). Early

on, Hirschfeld and Klerman (29) suggested that personality traits may represent a subclinical expression of depression: "certain personality features and certain psychiatric disorders may be manifestations of the same underlying process, be they genetic, developmental, familial, or other."

2) *Reliance upon the trait versus state distinction may generate redundant diagnoses for conditions that have both chronic and episodic presentations.*

Research suggests that major depressive disorder is related to a "state" and a personality disorder is related to a "trait" (27,30). While the concept of trait typically implies stability and persistence, states are understood as being more transient. Based on the duration distinction between traits and states, personality disorders and major depressive disorders are understood as separate phenomena. However, there is disagreement regarding whether trait and state symptoms are truly separate, or are part of the same disorder. In particular, it is difficult to distinguish between where a trait ends and a state begins. For example, in a recent article, Shea and Yen (31) discussed how the concept of temporal stability has conceptually distinguished Axis I and Axis II conditions, but that its utility may be limited. They reviewed three naturalistic longitudinal studies and found that personality disorders had a higher remission rate than anxiety disorders. Personality disorders appear to be less stable than conceptualized in the DSM-III. In an earlier study, Shea and colleagues (32) examined the stability of four personality disorders (schizotypal, borderline, avoidant, and obsessive compulsive) and found a decrease in the number of individuals meeting personality disorder criteria over time (1 year follow up), though individual differences in personality disorder features seemed to remain highly stable.

The difficulty of using stability over time as the basis for a personality disorder diagnosis is exemplified by the challenge of drawing valid distinctions between chronic, early onset depressive disorders including dysthymia or chronic major depression, and a depressive personality disorder, as proposed by Phillips, Gunderson, Hirschfeld, and Smith (33). Furthermore, a consensus of experts determines the criteria for psychiatric diagnoses, and sometimes a reclassification will occur. As a heterogeneous construct, MDD may be subject to reclassification.

There seems to be an intermediate stage wherein a PD may become a mood disorder (or vice versa), and there may be no clear boundaries between these two groups (27,34–37). There may be potential for what is being called a trait to be a state characteristic, possibly contributing to a co-occurrence.

3) *Certain personality pathology may increase vulnerability to MDD.*

Patients with personality pathology may actually be at greater risk for developing MDD, accounting for the overlap (38–41). There are two well-cited prospective studies (37,39) that gathered personality histories prior to the onset of the major depressive disorder. In the first study, Nystrom and Lindegard (37) used the Mark Nyman Temperament Scale (MNTS) to assess the personalities of 3,019 males who had registered as private car owners. Ten years later, they reviewed the records at the psychiatric hospitals and clinics in the geographic area. They found that 114 males had received treatment for a psychiatric illness, and out of these, 35 had experienced a major depressive episode. Results indicated that depressed males had scored lower on the validity scale of the MNTS; this suggested a tendency to ruminate, to be shy, and to lack endurance (37).

In the second study, which had a large sample (N = 6,315), Angst and Clayton (39) used the Freiburg Personality Inventory to assess the personalities of individuals in the Swiss Army in 1971. Twelve years later, 185 of these individuals had been treated as inpatients or outpatients in psychiatric care settings. Individuals who developed a major depressive disorder had scored high on the aggression factor, which represented "spontaneous aggression" (39). Angst and Clayton (39) concluded that individuals with selected pathological personality traits, such as aggression, tend to be at greater risk for developing depression.

The phenomenon suggested in these two prospective studies is referred to as the predisposition theory (19), and has been supported by other non-prospective studies. For example, Eysenck and Eysenck (42) and Kessler (43) suggested that patients with certain personality pathology, such as experiencing negative affective states and/or avoiding interactions with others (both potential symptoms of personality pathology), might be at greater risk for the onset of MDD. Murphy and others (44) indicated that psychological symptoms, such as feelings of personal inadequacy and self-disparagement, are important predictors of MDD, and these types of symptoms are also potential symptoms of personality pathology.

It has also been suggested that personality pathology may predispose patients to more adverse interpersonal life events which have been causally linked to depressive episodes (25,45,46). By definition, personality disorders engender "clinically significant distress" (25), and are associated with very high levels of negative cognition about oneself, the world, and the future (47). Kessler (43) reviewed the literature on the relationship between stressful life events and depression, and found that stressful life events can lead to the onset of and/or recurrence of major depression. Patients with personality disorders may have more stress in their lives, less adaptive coping mechanisms, as well as other risk factors for depression (14). If so, personality disorders may be precursors of depression in some, placing an individual at risk for developing depression (48).

4) *The expression and/or reporting of depression or personality disorders may be amplified by virtue of having both conditions.*

The overlap may occur as a result of personality traits, as well as personality disorders, influencing the clinical

expression of depression (38,49,50). For example, the patient with an obsessive-compulsive personality disorder, who is overwhelmed by fear of loss of control, may present as incapacitated, agitated and indecisive; contributing to an impression of marked depression. In comparison, a patient with a histrionic personality disorder, who is demanding and seductive, may nevertheless appear less depressed than s/he actually is. Certain personality pathologies may thus change the presentation of depression by modifying the depressive symptoms.

Patients may over-report or overestimate their degree of personality psychopathology while depressed, which would inflate the diagnosis of a personality disorder. Consistent with this state effect hypothesis, we have previously shown that a number of personality disorder diagnoses are no longer present among depressed outpatients successfully treated with antidepressants (17). Personality disorder diagnoses changed significantly across an acute phase of antidepressant treatment (8 weeks, fluoxetine 20 mg/day) (17), supporting a state effect, but were generally stable across longer-term continuation treatment (22). Our finding that personality disorder diagnoses in outpatients with remitted depression are relatively stable (22) supports the argument that a personality disorder diagnosis is apt to be unstable when made during a major depressive episode, and until the depression remits, it is likely that MDD exacerbates personality traits, or at least influences one's self-report of behaviors and feelings. If making a diagnosis of PD in the context of MDD, it seems imperative to garner a detailed history of the patient, which indicates personality pathology outside the context of MDD. Establishing diagnoses of chronic disorders can be made easier by a good patient history.

In some cases, the instability in the diagnosis of personality disorders may be accounted for by the effect of a depressive state, suggesting an inaccurate diagnosis of a personality disorder. In other cases, however, the treatment for depressed individuals may directly influence behaviors and attitudes contributing to the diagnosis of personality disorders. Several studies (34,51–60) have indicated an impact of acute treatment for depression on personality pathology. In this scenario, the instability in the diagnosis does not necessarily mean that the diagnosis was incorrectly made, but that depressive symptoms and certain personality pathology are simultaneously treated by treatment for the acute depression.

Some studies (16,51,52,54,56–58,61,62) indicate that depressed patients' personality pathologies benefit specifically from treatment with fluoxetine (63). For example, in a study that was distinguished by a placebo control arm, Salzman and colleagues (58) found that fluoxetine reduced anger in patients diagnosed with borderline personality disorder, independent of change in severity of depression. They suggested that there might be a role for serotonin dysfunction in mediating excessive or unmanageable anger (58). As mentioned, Fava and colleagues (17) found that treatment with fluoxetine was accompanied by significant changes in behaviors and attitudes that are part of personality disorder diagnoses that in some cases were independent from changes in depression severity. It appears that fluoxetine may have a direct effect on certain types of personality pathology.

5) *Depressive states may lead to a permanent change in personality traits*.

While personality pathology may alter risk for and the presentation of depression, the converse may also be true (29,38,64–67). For example, in a well-cited primary study with a large sample (N = 10,200), Rohde and colleagues (68) investigated whether an episode of depression results in residual effects that did not exist before the episode. Results indicated that those patients who experienced a depressive episode after the baseline visit had significantly higher levels of internalizing behavior and emotional reliance at follow-up (68). Internalizing behavior and emotional reliance are both personality characteristics that can sometimes be part of a personality disorder. These authors suggested that in certain cases, depression may produce long-term changes in personality.

Results from a prospective study by Hirschfeld and colleagues (64) support this suggestion. They administered a battery of personality questionnaires to 438 relatives of subjects that were enrolled in a study on the psychobiology of depression. These relatives did not have a history of MDD. After a six-year period, 29 of the relatives suffered from MDD. These 29 relatives scored higher on neuroticism and lower on emotional stability and objectivity (which relates to emotional strength), from pre- to post-assessment. Hirschfeld and colleagues (64) concluded in this prospective study that patients who had recovered from MDD were less healthy than relatives of the patients and control subjects. They suggested that after recovering from an episode of MDD, patients tend to be more vulnerable to stress, insecure and sensitive, more obsessional, and have less energy and less of an ability to handle social situations than individuals who have not experienced an episode of MDD (64).

It appears that depression may result in changes in personality pathology. This explanation is referred to as the "scar" hypothesis. The scar hypothesis suggests that depression may leave a deficit, which may place a patient at risk of developing a personality disorder (66,68). In some situations, experiencing MDD may change personality characteristics to some extent, leading at times to an increased likelihood of a diagnosis of a personality disorder.

By this same line, repeated episodes of depression may exaggerate premorbid personality traits (19,20,69). "Complication" refers to the development or exaggeration of personality traits as a consequence of protracted or recurrent

episodes of major depression (19,70). As an example, in a primary study, Alpert and colleagues (69) noted that recurrent depression characterized by feelings of inferiority and by a loss of interest in social interactions will potentially contribute to the development of avoidant personality disorder. They explained that if a person continues to experience depressive symptoms such as these, it may change the way in which the person perceives and interacts with the world. Schrader (71) suggested that some aspects of chronic depression may be related to personality rather than the affective disorder. Others (19,29) have supported the interpretation that depression may produce long-term changes in personality. In some situations, it appears that acute, chronic, current, and/or a past history of depression may affect personality patterns.

6) *There is a possibility that common neurobiology and/or shared risk factors of MDD and PD account for the co-occurrence.*

In some cases, depression and personality pathology might be somewhat different expressions of a shared diathesis. This is supported in part by the efficacy of certain antidepressants for features of PDs (e.g., SSRIs in borderline, MAOIs in avoidant) and by more preclinical neurobiological work such as Coccaro's (52,61) work on 5HT dysregulation in borderlines. Deakin (72) has also examined impaired 5HT functioning in antisocial personality disorder and depression. If there is a shared underlying neurobiological substrate, it may be that MDD and PD are somehow different phenotypes for an underlying diathesis.

There is also a possibility that personality disorders and MDD are related due to a direct relationship to a shared third factor. For example, substance abuse, adversity, and/or trauma may predispose individuals to both personality pathology and depression. For example, Bunce and Coccaro (73) examined factors that could differentiate between individuals with personality disorders and individuals with personality disorders and MDD. They found that early environmental stress might be a factor which places an individual at risk for both MDD and personality disorders.

7) *Even though there may be an overlap, a relative independence may exist between depression and personality disorders*.

"Coaggregation" refers to separate vulnerabilities being simultaneously expressed in a patient (19). For instance, according to the DSM-IV, a personality disorder and a major depressive disorder may occur simultaneously and yet be independent of one another (25). The DSM-IV makes a conceptual distinction between MDD and personality disorders and does not suggest a particular relationship between the disorders. It allows clinicians to code both disorders separately on Axis I and Axis II. In this schema, personality disorders are understood as independent of MDD (25).

In some cases, it may be that personality disorders are not a direct concomitant of depression, and that changes in depression do not influence changes in personality (26,70). Sometimes it appears that the overlap of these disorders may occur randomly, so that the disorders remain independent of one another.

The apparent overlap may also be an instance of Berkson's bias (74), which suggests that comorbid conditions are likely to be over-represented in clinical cohorts. Individuals with comorbid conditions have a greater likelihood to seek treatment than those with only one disorder (75). The co-occurrence may be largely coincidental due to high prevalence of the two disorders but they seem linked since they are more likely to come to clinical attention when they both afflict a patient.

CONCLUSION

Studies suggest that a significant percentage of patients who meet criteria for MDD also meet criteria for a personality disorder. The opposite is also true; a large percentage of patients who meet criteria for a personality disorder will also meet criteria for MDD. Research studies have focused attention on the importance of the comorbidity of personality disorders and depression. In general, to characterize one's personality, an individual must possess insight into his/her own behavior and the effect of that behavior on others (20). This insight might be directly hindered by the personality disorder itself, and when depression is present, this insight may further be hindered by the depression. It is also likely that clinicians, as well as family members, are likely to perceive personality traits differently in patients during a depressive episode.

In summary, there appear to be many explanations for the potential overlap of personality disorders and MDD. The distinction between states and traits may not be as clear and definitive as suggested in the DSM-IV (25). In some cases, depression may influence personality pathology, and may even lead to personality disorders. In other cases, personality disorders may lead to MDD. Sometimes, the two disorders may be relatively independent of one another, or there may be a third factor contributing to the co-occurrence. Further research may clarify the nature of the relationship, if any, between depression and personality disorder diagnoses, as well as the relationship between comorbidity and treatment response (76,77). Some initial guidelines would include diagnosing personality disorders, when possible, after the comorbid depression remits. In cases of refractoriness of depression, it might be helpful to re-assess the patient's history to determine whether a premorbid personality disorder existed and whether it needs to be more actively addressed. Lastly, advances in neuroimaging and genetics may contribute to unraveling the interrelationship between MDD and PD.

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