Personality Subtypes of Suicidal Adults

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Abstract: Research into personality factors related to suicidality suggests substantial variability among suicide attempters. A potentially useful approach that accounts for this complexity is personality subtyping. As part of a large sample looking at personality pathology, this study used Q-factor analysis to identify subtypes of 311 adult suicide attempters using Shedler-Westen Assessment Procedure-II personality profiles. Identified subtypes included internalizing, emotionally dysregulated, dependent, hostile-isolated, psychopathic, and anxious somatizing. Subtypes differed in hypothesized ways on criterion variables that address their construct validity, including adaptive functioning, Axis I and II comorbidity, and etiology-related variables (e.g., history of abuse). Furthermore, dimensional ratings of the subtypes predicted adaptive functioning above DSM-based diagnoses and symptoms.

Key Words: Suicide, personality, subtypes, typology.

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The World Health Organization recognizes suicide as one of the world's leading causes of death (DeLeo et al., 2002). In the United States, data from the National Comorbidity Survey indicate 4.6% of individuals have a history of suicide attempts (Nock and Kessler, 2006). Factors associated with suicide are numerous. The Centers for Disease Control and Prevention (CDC, 2006) found that approximately half of individuals who died by suicide in 2004 had at least 1 diagnosed mental illness, the most common being major depression (85.2% of cases), bipolar disorder (7.4%), and schizophrenia (3.3%). Additionally, males are over 4 times as likely to complete suicide (CDC, 2006) whereas females are more likely to attempt suicide (Nock and Kessler, 2006). Questions regarding lethality of method and what actually constitutes a suicide attempt further complicate the challenge to identify prevalence and risk for suicide, although recently there have been efforts to standardize the nomenclature to aid such research (Silverman et al., 2007a; Silverman et al., 2007b). To date, the majority of studies on risk for suicide have focused on Axis I diagnoses and demographics with relatively few focusing on Axis II disorders and personality. Thus, understanding personality as it relates to suicidality will contribute to our knowledge and treatment of suicidal behavior. Specifically, this article focuses on the potential contribution of personality subtyping of suicidal individuals. Before describing the goals of the current study, we briefly review extant relevant personality studies.

PERSONALITY AND SUICIDE

In terms of "normal" personality, personality traits associated with suicidality include a positive association with neuroticism (especially its depressive and anxious facets) and a negative association with extraversion (especially its Assertiveness and Positive emotions facets) (e.g., Chioqueta and Stiles, 2005; Lester, 1987; Velting, 1999). A recent study, not using traditional 5-Factor Model measures, also found relationships between social introversion, irritable temperament, and suicide risk (Pompili et al., 2008). Personality disorders, particularly Cluster B (emotional/erratic) disorders (e.g., Pompili et al., 2004), though, are often more clearly associated with risk for suicide attempts and completion (i.e., general suicidality) because of their more extreme presentations. In particular, some studies suggest hostility, a common trait of Cluster B disorders, is positively related to suicide attempts (Brittlebank et al., 1989; Farmer and Creed, 1989; Weissman et al., 1973). Other studies find small positive correlations exist between antisocial behaviors of psychopathy and suicide (Douglas et al., 2006).

The personality disorder (PD) most highly associated with suicidality, as well as impulsiveness, aggression, depression, and affective dysregulation, is borderline PD (e.g., Critchfield et al., 2004; Soloff et al., 1994). Because suicidal behavior is 1 DSM-IV criterion of borderline PD (APA, 2000), that 60% to 70% of borderline patients have attempted suicide at least once is not surprising (Gunderson, 2001), although these suicidal gestures are often viewed as attempts to elicit responses from others rather than genuine attempts (Kernberg, 2001). Still not all those with borderline personality disorder (BPD) attempt suicide, and within the diagnosis of BPD many varying symptoms patterns exist (Paris, 2007), some of which may theoretically be more related to suicidal behaviors (Oldham, 2006). Taken together, these equivocal findings relating suicidality to depressive, impulsive, psychopathic, and borderline personality characteristics suggest substantive diversity in suicidal populations.

The Utility of Personality Subtyping

To the extent that empirically derived, validated, and clinically meaningful subgroups of persons with suicidal behaviors can be identified, we may be able to develop a better understanding of risk factors and interventions based on different subtypes. Past research has used cluster analyses on a variety of characteristics including self-reported symptoms (Steer et al., 1993), seriousness of attempts (Kurz et al., 1987), and self-reported reasons for attempts (Colson, 1973). These studies illuminate advantages of subtyping suicidal patients but may benefit from supplementation with alternative subtyping strategies.

Given the importance of personality as a context for understanding psychopathology (Krueger and Tackett, 2006; Westen et al., 2006a), subtyping patients based on their personalities may be a particularly useful strategy for studying patients exhibiting suicidality. Personality subtyping of Axis I psychopathology has led to useful conceptualizations of a variety of Axis I disorders (e.g., alcoholism, Dush and Keen, 1995; adolescent and adult eating disorders, Thompson-Brenner et al., 2008; Thompson-Brenner and Westen, 2005). One of the most helpful frameworks to understand personality subtypes is the distinction by Krueger and Tackett (Blonigen et al., 2005; Kramer et al., 2008; Krueger and Tackett, 2006) between internalizing and externalizing disorders and presentations. Suicidal individuals clearly span the gamut of internalizing-externalizing presentations, but whether this theoretical model provides enough specificity for subtyping is yet to be tested.

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Using trait vulnerabilities to psychopathology as measured by the Karolinska Scales of Personality (KSP; Schalling et al., 1987), Engström et al. (1996) identified 6 clusters in their Swedish sample of hospitalized suicide attempters. Two of the clusters were "close to normal," but others included "neurotic and introverted," suspicious and guilty neurotic, impulsive with high psychoticism, and the extreme group with high anxiety, aggressiveness, suspiciousness, and impulsiveness (p. 690). Engström et al. (1997) reanalyzed the same data, reduced the number of clusters from 6 to 4, and compared them on biological measures (e.g., cortisol, MAO in platelets). The revised subtypes included 2 close-to-normal subtypes, neurotic and introverted, and the extreme group. Higher serotonin levels were present in 1 close-to-normal group after a dexamethasone test, which the authors interpreted as indicating a biologically based dysfunction, not a temperamental one.

Another pair of studies (Ellis et al., 1996; Rudd et al., 2000) used the Millon Clinical Multiaxial Inventory (MCMI, MCMI-II) to cluster analyze suicidal behaviors. Ellis et al used a sample of young army enlistees who had attempted suicide (60.6%) or had suicide ideation (39.4%) and the MCMI to identify 4 clusters that correspond roughly to schizoid, antisocial, dependent, and histrionic-narcissistic subtypes. The schizoid and dependent subgroups had more comorbid diagnoses, while the dependent subtype had the greatest suicide risk, highest hopelessness, largest problem-solving deficits, and greatest borderline features. Subsequently, Rudd and colleagues, using MCMI-II data from psychiatric patients hospitalized after a suicide attempt, found 3 clusters: negativistic-avoidant with schizoid and borderline features, dependent/self-defeating, and antisocial with borderline features. Again, the dependent group exhibited the most severe symptoms, even though their borderline features were subclinical. These studies suggest personality subtypes of suicidal patients may exist in a variety of samples; however, they are clinically nonintuitive, and replicability is unclear, as has been the case with cluster-analytic studies of many disorders and psychiatric phenomena such as suicide (Blashfield and Morey, 1979).

The Present Study

The present study seeks to expand past research in personality subtyping by identifying subtypes of individuals with a history of attempting suicide. Two primary methodological factors distinguish this study from prior studies in this area. First, we are using data derived from quantified clinician psychometric judgments about patients' personalities. Prior studies have focused exclusively on self-report measures, which may or may not detect important personality features in patients who have limited insight or awareness of their own behaviors and personality patterns. Second, this study presents results based on Q-factor analysis, in place of cluster analysis, to identify the existence of subtypes. Q-factor analysis is mathematically identical to exploratory factor analysis except it groups together similar individual personality profiles, not traits or items (Block, 1978). The advantage is that it does not assume mutually exclusive taxa. Like conventional factor analysis, it identifies dimensions (in this case constellational dimensions; Westen et al., in press). After identifying a potentially meaningful typology, we used correlational analyses to compare subtypes on criterion variables such as Axis I and II comorbidity, etiology-related variables (e.g., history of abuse), and attempt lethality to assess construct validity.

Given the theoretical background and past research described above, we hypothesized 3 broad subtypes: internalizing (i.e., depressive and anxious neurotic), externalizing (i.e., antisocial and substance abusers), and emotionally dysregulated (i.e., borderline psychopathology). Nevertheless, we considered this study exploratory and remained open to the possibility of additional or more specific subtypes.

METHODS

Sample

We contacted a national sample (unstratified) of psychiatrists and psychologists with at least 5-year experience post-training from the membership registers of the American Psychiatric and American Psychological Associations. Participating clinicians received a $200 consulting fee.

We asked clinicians to describe "an adult patient you are currently treating or evaluating who has enduring patterns of thoughts, feeling, motivation or behavior—that is, personality patterns—that cause distress or dysfunction." To obtain a broad range of personality pathology, we emphasized that patients need not have a DSM-IV PD diagnosis. Patients had to meet the following additional inclusion criteria: ≥18 years of age, not currently psychotic, and known well by the clinician (using the guideline of ≥6 clinical contact hours but ≤2 years). To ensure random selection of patient from clinicians' practiced, we instructed clinicians to consult their calendars to select the last patient they saw during the previous week who met study criteria. In a subsequent follow-up, over 95% of clinicians reported following the procedures as instructed. Each clinician contributed data on 1 patient.

From the larger group of 1201, we used the item "Has the patient ever attempted suicide?" from the Clinical Data Form of the larger questionnaire packet to select only those individuals who had attempted suicide. The clinicians who provided data on 311 patients (25.9% of the larger sample) with a history of suicide attempt(s) were 54.7% female and had an average of 17.7 years of clinical experience postformal training (SD = 7.8). The patients with a history of suicide attempt had a mean age of 40.4 (SD = 11.8) and were 66.9% female. White made up 80.1% of the patient sample, followed by African Americans (8.4%), Hispanics (7.1%), and Asians (1.9%). Socioeconomic status of the patient's family of origin showed some skew with 43.5% being in the poor and working class, 36.5% middle class, and 20.0% upper middle or upper class; accordingly, 64.4% had less than a college degree.

Measures

Clinical Data Form (CDF)

The CDF is a clinician-report form that gathers information on a wide range of demographic, diagnostic, and etiological variables (Westen and Shedler, 1999a; Westen et al., 2003). We used principal components analyses to aggregate variables (i.e., global adaptive functioning, externalizing behavior, victimization, employment, childhood trauma, and childhood psychopathy) for maximum reliability and nonredundant analyses. For the global adaptive functioning variable, for example, we standardized and averaged together each patients' DSM-IV Global Adaptive Functioning score, level of personality disturbance (1 = severe personality disorder to 5 = high functioning), employment stability (1 = unable to keep job to 5 = working to potential), quality of romantic relationships and friendships (both scored from 1 = very poor to 5 = close and/or loving), and number of confidants (0 = none to 4 = many). Also within the CDF, suicide attempt lethality was rated on a 5-point scale with anchors at 1 (symbolic gesture), 3 (medical attention was required), and 5 (life-threatening). Other important criterion variables derived from the CDF included externalizing (history of arrest, violent crime, and abuse perpetration), victimization (frequency of rape and abuse in adulthood), employment (work stability, job loss due to interpersonal reasons), and childhood trauma (physical and sexual abuse frequency and severity) composites.

Shedler-Westen Assessment Procedure-II (SWAP-II)

The SWAP-II is the latest version of the SWAP instrument (Shedler and Westen, 2004a; 2004b; 2007; Westen and Shedler, 1999a; 1999b). The SWAP-II consists of 200 personality-descriptive

statements, each of which may describe a given patient well, somewhat, or not at all. Clinicians sort the statements into 8 categories, from least descriptive of the patient (assigned a value of 0) to most descriptive (assigned a value of 7), according to a fixed distribution (Block, 1978). A web-based version of the instrument can be viewed at www.swapassessment.org. An increasing body of research supports the validity and reliability of the adult SWAP in predicting a wide range of external criteria, such as suicide attempts, history of psychiatric hospitalizations, ratings of adaptive functioning, interview diagnoses, and developmental and family history variables (e.g., Westen and Muderrisoglu, 2003; Westen and Shedler, 1999a; Westen and Weinberger, 2004; Westen et al., 2003).

Axis I and Axis II Checklists

Within the CDF, we assessed Axis I psychopathology by a simple checklist of possible disorders coded as present/absent according to DSM-IV criteria. Because the focus of the larger study was to assess Axis II disorders, we collected more detailed data on PD diagnoses. Clinicians received a randomly ordered checklist of the criteria for all Axis II disorders and checked which criteria the patient met. To generate DSM-IV diagnoses, we applied the DSM-IV diagnostic decision rules. To generate DSM-IV dimensional diagnoses that mirror those widely used in the PD literature, we summed the number of criteria judged present for each disorder. This method tends to produce results that mirror those of structured interviews (Blais and Norman, 1997; Morey, 1988; Westen et al., 2003; Zittel and Westen, 2005).

RESULTS

Derivation of Personality Subtypes

Based on descriptive coherence, we retained 6 Q-factors from the 7-factor unweighted least squares extraction that accounted for roughly 44% of the total variance (Table 1). Because these Q-factors are meant as prototypes that patients can match to varying degrees, we chose an oblique rotation, but to minimize intercorrelations among the factors, we used a Promax rotation with the Kappa set at 2, which imposes limits on how oblique the solutions are likely to be (rendering the prototypes similar in some respects to ideal types). Importantly, the interpretation of the factors remained quite similar no matter the rotation chosen. Table 1 displays the top 10 SWAP-II items most descriptive for each subtype. Factor scores are in terms of standard deviations above the average descriptive capacity of other SWAP items for that subtype. We derived the hypothesized subtypes of internalizing (20.4% initial explained variance; 43.6% explained after rotation), emotionally dysregulated (9.2%; 39.4%), and psychopathic (2.2%; 12.1%) as well as 3 additional subtypes, dependent (3.7%; 16.6%), hostile-isolated (2.5%; 13.0%), and anxious-somatizing (1.8%; 10.2%). Correlations among the latent Q-factors ranged from −0.19 to 0.14.

Validation of Subtypes

To validate subtypes, we compared the groups on several external criteria based on variables that should distinguish a valid taxonomic distinction (Livesley and Jackson, 1992; Robins and Guze, 1970; Westen et al., 2006b). Table 2 displays the correlations among the degree of match to each subtype (i.e., Q-correlations) and important criterion variables.

Gender

As would be expected based on prior research on related Axis II disorders, the internalizing and dependent subtypes were more associated with women whereas the hostile-isolated and psychopathic subtypes were more likely men.

DSM Diagnoses/Symptoms

As expected, depression was associated more with internalizing and less with psychopathic; generalized anxiety disorder was correlated positively with anxious-somatizing; and substance use correlated positively with emotionally dysregulated, dependent, and psychopathic. Correlations were strong and in expected directions for Axis II symptoms, providing strong support for interpretation of the subtype descriptions.

Adaptive Functioning

Looking at both a global adaptive functioning variable (using aggregation to increase reliability) as well as more specific adaptive functioning variables (e.g., employment, victimization), the overall correlation pattern suggests the emotionally dysregulated and psychopathic groups were most associated with lower levels of adaptive functioning.

Childhood History Variables

Because traumatic childhood experiences are often suggested as risk factors for development of suicidal behavior, we compared subtypes on a global indicator of childhood trauma, which included the frequency and severity of both physical and sexual abuse. The childhood abuse composite variable was associated negatively with the hostile-isolated, dependent, and anxious-somatizing groups and positively with the emotionally dysregulated group. Lastly, we looked at the relationship between our aggregated variable reflecting childhood psychopathic behaviors. As expected from the subtype description, the psychopathic subtype was highly correlated with this variable (Table 3).

Suicide-Related Variables

Only the negative correlation between anxious-somatizing and lethality was significant. Self-mutilation was correlated positively with internalizing and emotionally dysregulated groups, but the severity of the mutilation was only positively correlated with the emotionally dysregulated subtype.

Incremental Validity

To examine the question of the utility of personality subtyping as compared with related DSM-based Axis I diagnoses and Axis II symptoms, we conducted hierarchical multiple regressions with dimensional measures of the identified subtypes (i.e., Q-correlations). Because it is essential for diagnosis and classification to predict patients' overall functioning, we chose the aggregated adaptive functioning composite as the primary criterion variable. To limit the number of predictors, we included only Axis I disorders most often related to suicidality: Major depressive disorder, bipolar I/II, and substance abuse disorder. For Axis II dimensional diagnoses, we included disorders that correspond closest to the subtypes (i.e., Antisocial, Borderline, Dependent) plus the remaining Cluster B disorders because past research has shown the emotional, dramatic cluster to be most associated with suicide (e.g., Pompili et al., 2004).

Table 4 displays results of the hierarchical regression with Axis I in the first step, Axis II in the second, and the subtypes last. Although both Axis I and II disorders significantly predicted 14.8% of the variability in adaptive functioning, including the personality subtypes accounted for an additional 18.5%. At the final step, only degree of match with internalizing ($\beta = -0.51$), emotionally dysregulated ($\beta = -0.26$), and psychopathic ($\beta = -0.48$) subtypes uniquely predicted variance in adaptive functioning.

As a follow-up analysis to this we also conducted a hierarchical regression with subtypes added first, Axis I second, and Axis II last. Results indicated that subtypes accounted for 31.1% of the variance in adaptive functioning, and neither Axis II ($F_{\text{change}}(5, 297) =$

TABLE 1. Empirically Derived Personality Subtypes of Suicidal Adult Patients

	Factor Score
Internalizing	
Tends to feel unhappy, depressed, or despondent	2.9
Tends to feel she/he is inadequate, inferior, or a failure	2.9
Tends to feel guilty	2.5
Has a deep sense of inner badness	2.5
Tends to feel ashamed or embarrassed	2.4
Is prone to painful feelings of emptiness	2.3
Tends to feel anxious	2.2
Tends to feel helpless, powerless, or at the mercy of outside forces	2.2
Appears to find little or no pleasure, satisfaction, or enjoyment in life's activities	2.0
Has trouble acknowledging or expressing anger toward others; instead becomes depressed, self-critical, self-punitive, etc.	2.0
Emotionally dysregulated	
Is prone to intense anger, disproportionate to the situation at hand	3.3
Emotions tend to spiral out of control, leading to extremes of anxiety, sadness, rage, etc.	3.2
Tends to have extreme reactions to perceived slights or criticism	2.8
Tends to be angry or hostile	2.8
Tends to become irrational when strong emotions are stirred up	2.6
When upset, has trouble perceiving both positive and negative qualities in the same person at the same time	2.5
Tends to feel misunderstood, mistreated, or victimized	2.4
Emotions tend to change rapidly and unpredictably	2.3
Tends to feel unhappy, depressed, or despondent	2.2
Tends to fear she/he will be rejected or abandoned	2.0
Dependent	
Tends to become attached quickly or intensely; develops feelings, expectations, etc., that are not warranted by the history or context of the relationship	3.4
Tends to be needy or dependent	3.4
Tends to fear she/he will be rejected or abandoned	3.0
Tends to become attached to, or romantically interested in, people who are emotionally unavailable	3.0
Fantasizes about ideal, perfect love	2.5
Appears to fear being alone	2.5
Tends to be ingratiating or submissive	2.3
Seems unable to settle into, or sustain commitment to, identity-defining life roles	2.2
Relationships tend to be unstable, chaotic, and rapidly changing	2.1
Work-life and/or living arrangements tend to be chaotic or unstable	2.1
Hostile-isolated	
Tends to hold grudges; may dwell on insults or slights for long periods	3.4
Lacks close friendships and relationships	2.8
Tends to be critical of others	2.5
Tends to feel like an outcast or outsider	2.0
Is self-critical; sets unrealistically high standards for self and is intolerant of own human defects	2.0
Tends to be competitive with others	2.0
Tends to feel misunderstood, mistreated, or victimized	1.9
Tends to be conscientious and responsible	1.9
Tends to feel unhappy, depressed, or despondent	1.8
Tends to ruminate	1.8
Psychopathic	
Tends to abuse drugs or alcohol	3.6
Tends to be unreliable and irresponsible	2.9
Seems unable to settle into, or sustain commitment to, identity-defining life roles	2.6
Has little psychological insight into own motives, behavior, etc.	2.5
Tends to be deceitful; tends to lie or mislead	2.5
Tends to engage in unlawful or criminal behavior	2.3
Appears impervious to consequences	2.3
Tends to act impulsively	2.3
Experiences little or no remorse for harm or injury caused to others	2.2
Work-life and/or living arrangements tend to be chaotic or unstable	2.2
Anxious-somatizing	
Tends to develop somatic symptoms in response to stress or conflict	4.8
Is hypochondriacal; has exaggerated fears of contracting medical illness	3.2
Tends to feel anxious	3.2
Tends to use psychological or medical problems to avoid work/responsibility	3.2
Has panic attacks	3.1
Tends to be needy or dependent	2.9
Tends to feel listless, fatigued, or lacking in energy	2.5
Tends to "catastrophize"; prone to see problems as disastrous, unsolvable, etc.	2.4
Tends to blame own failures/shortcomings on other people or circumstances	2.0
Tends to feel helpless, powerless, or at the mercy of outside forces	1.9

Factor scores are in terms of standard deviations above the average descriptive capacity of other SWAP items for that subtype.

1.14, $p_{change} > 0.05$, $\Delta r^2 = 0.013$) nor Axis I (F_{change} (3, 294) = 0.24, $p_{change} > 0.05$, $\Delta r^2 = 0.002$) contributed significant additional variance. This finding indicates these personality subtypes contribute not only unique variance but also account for the variance contributed by the current DSM.

Using Subtype Dimensional Scores to Predict History of Suicide Attempt(s)

A final test is to examine the extent to which degree of match to each subtype (dimensional scores) can predict whether an individual has had at least 1 past self-reported suicide attempt. We used a logistic regression to predict negative or positive suicide history by degree of match to all 6 personality subtypes for the entire sample ($N = 1201$). Together the subtypes significantly explained the equivalent of 32% of the variance in suicide attempt history (Table 4; for discussion of pseudo-r^2 indices, see Cohen et al., 2003). The strongest predictors of a suicide attempt history were the emotionally dysregulated subtype dimension (OR = 73.87) followed by the internalizing

TABLE 2. Correlations Between Suicidal Personality Subtypes and Relevant Criterion Variables

	Internalizing	Dysregulated	Dependent	Isolated	Psychopathic	Anxious
Gender (0 = female; 1 = male)	−0.19*	−0.08	−0.14**	0.12*	0.33***	−0.01
Axis I diagnoses						
Major depression	0.21***	0.03	0.10	0.05	−0.25***	−0.03
Bipolar	−0.12**	0.14**	0.05	−0.24***	0.09	−0.06
Generalized anxiety	0.09	−0.08	0.02	−0.00	−0.12**	0.18*
Substance use	−0.06	0.13**	0.13**	−0.30***	0.27***	−0.08
Axis II symptoms						
Schizoid	0.30***	−0.07	−0.27***	0.36***	0.17*	0.06
Antisocial	−0.49***	0.36***	0.02	−0.40***	0.69***	−0.29***
Borderline	−0.05	0.61***	0.16*	−0.45***	0.04	−0.25***
Histrionic	−0.40***	0.32***	0.24***	−0.37***	0.15*	−0.11
Narcissistic	−0.63***	0.37***	−0.14**	−0.05	0.45***	−0.13**
Avoidant	0.56***	−0.13**	0.05	0.28***	−0.30***	0.15*
Dependent	0.21***	0.05	0.48***	−0.22***	−0.18*	0.22***
Adaptive functioning						
Aggregated/Global[a]	−0.07	−0.31***	−0.07	0.09	−0.35***	0.06
Externalizing behavior	−0.37***	0.19*	−0.19*	−0.13**	0.52***	−0.14**
Victimization[c]	0.03	0.18*	0.10	−0.30***	0.04	−0.02
Employment[d]	0.15*	−0.34***	−0.13**	0.26***	−0.40***	0.01
Developmental variables						
Childhood trauma[e]	−0.03	0.19*	−0.13**	−0.32***	0.10	−0.14**
Child psychopathy[f]	−0.29***	0.13**	−0.13**	−0.16*	0.47***	−0.18*
Suicide-specific variables						
Attempt lethality	0.05	0.08	−0.03	−0.10	0.02	−0.17*
Self-mutilation	0.19*	0.19*	0.05	−0.28***	−0.14**	−0.15*
Mutilation severity	0.05	0.25*	−0.15	−0.23*	0.11	−0.17

Unabbreviated subtype names are: internalizing, emotionally dysregulated, dependent, hostile-isolated, psychopathic, and anxious-somatizing. We chose to compare PD symptoms that were particularly relevant to my subtypes or that might have some conceptual overlap.

[a]Adaptive functioning is composed of GAF, level of personality functioning, quality of romantic and general relationships, employment stability, and number of confidants.

[b]Externalizing is a composite of history of arrest (last 5 yr), violent crime (last 5 yr), and being a perpetrator of abuse.

[c]Victimization is a composite of presence and frequency of being raped and/or abused in adulthood.

[d]Employment is a composite of work stability and job loss due to interpersonal reasons (last 5 yr).

[e]Childhood trauma is a composite of the presence of physical and sexual abuse frequency and severity.

[f]Childhood psychopathy is a composite of presence of fire setting, animal torture, peer violence, school conduct problems.

*$p < 0.01$.

**$p < 0.05$.

***$p < 0.001$ (all 2-tailed).

(OR = 35.99). The hostile-isolated (OR = 0.02) and anxious-somatizing (OR = 0.13) subtypes were negatively predictive of past suicide attempt(s) after holding constant the other dimensions. These results show that the 2 largest subtypes are predictive of a suicide attempt history, but the less common subtypes do not add substantially to prediction, with 2 important exceptions. The hostile-isolated and anxious-somatizing subtypes seem to be more commonly negatively associated with suicide attempts.

DISCUSSION

Because of variability in risk factors and personality characteristics associated with suicide, subtyping can provide greater specificity and organization of findings than simple comparisons of suicidal to nonsuicidal individuals. In this study, Q-factor analysis identified 6 personality subtypes of individuals with a suicide attempt history. As hypothesized, we identified subtypes reflecting the continuum of internalizing to externalizing personality styles found in many other classification systems for both Axis I symptoms and personality variables (Krueger and Tackett, 2006). First, we found an Internalizing subtype (the largest group in our sample) that reflected chronically depressed, anhedonic, and passive personality features. Externalizers were well represented in the psychopathic subtype, displaying substance abuse problems, criminality, imperviousness to consequences, and lack of remorse. In addition, difficulty with emotion regulation emerged central to one of the subtypes. The emotionally dysregulated subtype, seemingly a close relative of borderline PD, mixes elements of internalizing spectrum symptoms with externalizing characteristics.

Three additional subtypes, albeit not entirely without precedence in past suicide research, described individuals who do not easily fit into the internalizing-externalizing distinction. First, the dependent subtype contained individuals who fantasize about ideal love, often become attached too quickly, and fear rejection. Conversely, a hostile-isolated subtype contained social outsiders who lack relationships, are critical towards others, and are competitive. Finally, an anxious-somatizing subtype captures a hypochondriacal patient who uses their mental and medical problems to avoid responsibility. Unsurprisingly, they often catastrophize and develop somatic complaints when under stress. These last 2 subtypes shared the distinction of being more commonly associated with less likelihood of having a suicide attempt history.

TABLE 3. Incremental Validity of Personality Subtype Q-Correlations Predicting Aggregated Adaptive Functioning Above Relevant DSM-IV Diagnoses and Symptoms

	r^2	Δr^2	$df_{1, 2}$	F_{change}	p_{change}
Model 1 (Axis I)	0.033	0.033	3, 305	3.48	0.016
Model 2 (Axis II)	0.141	0.108	5, 300	7.53	<0.001
Model 3 (subtypes)	0.325	0.185	6, 295	13.41	<0.001

	b	*SE*	β	*t*	*p*	$r_{zero\text{-}order}$	Tolerance
Model 1							
Major depression	0.01	0.07	0.01	0.14	0.889	0.02	0.97
Bipolar disorder	−0.07	0.09	−0.05	−0.80	0.426	−0.07	0.96
Substance use disorder	−0.23	0.08	−0.17	−3.00	0.003	−0.18	0.99
Model 2							
Major depression	−0.02	0.07	−0.02	−0.31	0.761	0.02	0.91
Bipolar disorder	−0.03	0.08	−0.02	−0.35	0.724	−0.07	0.93
Substance use disorder	−0.11	0.07	−0.08	−1.43	0.154	−0.18	0.92
Antisocial symptoms	−0.10	0.02	−0.32	−4.56	0.000	−0.30	0.58
Borderline symptoms	−0.04	0.02	−0.15	−2.35	0.020	−0.21	0.71
Histrionic symptoms	0.07	0.03	0.22	2.82	0.005	−0.06	0.48
Narcissistic symptoms	−0.00	0.02	−0.02	−0.26	0.796	−0.11	0.56
Dependent symptoms	−0.03	0.02	−0.10	−1.69	0.093	−0.10	0.82
Model 3							
Major depression	0.00	0.06	0.00	0.06	0.956	0.02	0.86
Bipolar disorder	−0.05	0.08	−0.04	−0.70	0.487	−0.07	0.87
Substance use disorder	−0.03	0.07	−0.02	−0.45	0.655	−0.18	0.81
Antisocial symptoms	−0.03	0.03	−0.09	−0.97	0.333	−0.30	0.30
Borderline symptoms	0.00	0.02	0.01	0.08	0.937	−0.21	0.37
Histrionic symptoms	−0.01	0.03	−0.03	−0.35	0.731	−0.06	0.38
Narcissistic symptoms	−0.01	0.02	−0.05	−0.69	0.494	−0.11	0.36
Dependent symptoms	−0.02	0.02	−0.06	−0.88	0.379	−0.10	0.57
Internalizing	−1.27	0.19	−0.51	−6.55	0.000	−0.07	0.39
Emotionally dysregulated	−0.73	0.20	−0.26	−3.72	0.000	−0.31	0.48
Dependent	−0.06	0.21	−0.02	−0.26	0.794	−0.07	0.65
Hostile-isolated	−0.19	0.23	−0.05	−0.80	0.425	0.09	0.54
Psychopathic	−1.51	0.26	−0.48	−5.71	0.000	−0.35	0.32
Anxious-somatizing	0.13	0.23	0.03	0.58	0.565	0.06	0.76

Adaptive functioning is a composite of GAF, Kernberg functioning scale, quality of both romantic and general relationships, employment stability, and number of confidants. All dimensional predictors (i.e. Axis II symptoms and Q-correlations) are centered at their respective means.

TABLE 4. Logistic Regression With Match to Personality Subtypes Predicting Presence/Absence of Suicide Attempt History

	χ^2	*df*	*p*	Nagelkerke r^2
Model	297.7	6	<0.001	0.322

	B	*SE*	Wald χ^2	*p*	Odds Ratio (OR)	Point-Biserial $r_{zero\text{-}order}$
Internalizing	3.58	0.42	71.41	<0.001	35.99	0.16
Emotionally dysregulated	4.30	0.40	113.68	<0.001	73.87	0.34
Dependent	−0.91	0.51	3.15	0.076	0.40	0.13
Hostile-isolated	−3.71	0.53	49.55	<0.001	0.02	−0.26
Psychopathic	−0.06	0.49	0.01	0.908	0.95	0.01
Anxious-somatizing	−2.02	0.55	13.41	<0.001	0.13	−0.07

Comparing current findings to past efforts at personality subtyping provides clues to how replicable these groups are. The internalizing subtype embodies general negative affect present in many subtypes in previous studies (e.g., guilty neurotic, neurotic introverts; Engström et al., 1996). Likewise, the emotionally dysregulated subtype has appeared most often in the form of borderline PD symptoms (Ellis et al., 1996; Engström et al., 1996; Rudd et al., 2000). The dependent subtype also had clear counterparts in both

Ellis et al. and Rudd et al. Additionally, the psychopathic subtype overlaps with Ellis et al.'s antisocial subtype, although our psychopathic group appeared less impulsive and aggressive and more classically nonchalant and uncaring towards harming others.

Two subtypes matched less clearly with earlier findings. Nevertheless, some of their characteristics are evident in past research. First, the hostile-isolated subtype had some overlap with Ellis et al.'s schizoid group in their social isolation and angry/resentful attitude and with Rudd et al.'s antisocial subtype in their competitiveness, criticality, and self-reliance. Further research may clarify distinctions, if any, among these groups. The anxious-somatizing subtype only shared similarities with the anxiety of the neurotic and introverted subtype (Engström et al., 1997; Engström et al., 1996). Somatization itself, though, has not been found in past subtyping efforts, possibly due to differences in measures or samples. Of the subtypes found previously, only one did not have a counterpart in the present study: the histrionic-narcissistic subtype (Ellis et al., 1996). Overall, though, these subtypes show relatively strong convergence with past personality subtypes of suicidal adults.

Subtypes differed in meaningful and predictable ways on multiple measures not used in their derivation, including Axis I and II diagnoses, adaptive functioning, and childhood experiences. Furthermore, hierarchical regressions showed their dimensional form ability to predict adaptive functioning outperforms categorical Axis I and dimensional Axis II disorders, an impressive feature for these empirically derived personality subtypes. Thus, these subtypes gain the most utility when viewed as a set of dimensional prototypes to which any individual can match to varying degrees, resulting in an MMPI-like profile of elevations.

Limitations and Future Directions

This study has several methodological limitations. First, this study was cross-sectional of suicide attempters. Second, details about suicide attempts were quite limited in that no information about attempt frequency and time of the last attempt was available. Third, patients included in this study were in treatment and may not represent the entire population of suicide attempters. Nevertheless, because this sample has a wide variety of clinical settings represented, the sample should include most kinds of suicidal patients seen in treatment settings. Fourth, 1 informant provided all data. Ideally, patients would have been diagnosed by 1 observer and assessed using the SWAP-II by another. However, most published PD studies also rely on a single informant—the patient (e.g., via self-report questionnaires or responses to structured interview questions). The quantified observations of experienced psychiatrists and clinical psychologists (with an average of 17.7 years practice experience) are no less credible than self-descriptions of patients with personality pathology. SWAP data are also unrelated to theoretical orientation or other aspects of professional training (Betan et al., 2005; Bradley et al., 2005). If clinician biases exist, they appear to account for little variance in SWAP ratings. Finally, absence of psychosis and problems with personality were criteria for inclusion in the overarching study and may have affected the heterogeneity of the sample. The possibility of a psychotic subtype and/or a relatively healthy subtype exists. Future research in this area may illuminate the actual effects of these limitations.

This study of personality and suicidality has opened up several avenues of future research. One important area of future investigation is the exploration of additional, sex-specific subtypes, considering recent research has found different risk factors for suicidal acts in males and females (e.g., Oquendo et al., 2007). Another possibility is that different personality subtypes exist in diverse ethnic groups. Although our sample had diverse ethnic representation, more diversity could lead to additional findings. Finding similarities and differences by sex and ethnicity will increase the much-needed specificity in identifying individuals at risk for suicide.

CONCLUSIONS

In sum, this study showed that personality subtypes of suicidal individuals do exist and are somewhat replicated in previous research. Subtypes differed on applicable variables and provided more predictive capabilities of adaptive functioning than DSM-based diagnoses. Two subtypes appeared especially related to suicide attempt history in clinical populations. Key clinical features for the internalizing subtype included greater likelihood of being female, depressed, and avoidant whereas the emotionally dysregulated subtype was associated more with externalizing behaviors, less overall adaptive functioning, a traumatic childhood, and borderline PD symptoms. Importantly, both subtypes were associated with a history of self-mutilation. Future research and experience will demonstrate the clinical utility in attending to personality subtypes in the assessment of suicidality, but if these findings are any indication, one may gain much over a simple list of one-size-fits-all risk factors.

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