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Personality Heterogeneity in Female Adolescent Inpatients with Features of Eating Disorders

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Abstract

Objective—This study examined evidence for personality variability in adolescents with eating disorder features based in light of previous evidence that personality variability in adult women with eating pathology carries important clinical implications.

Method—Millon Adolescent Clinical Inventory personality data from adolescent girls with disturbed eating who were psychiatrically hospitalized were cluster analyzed and resulting groups were compared in terms of eating and comorbid pathology.

Results—Three sub-groups were identified among the 153 patients with eating disorder features: high-functioning, internalizing, and externalizing. The internalizing group was marked by eating-related and mood dysfunction, the externalizing group by elevated eating and mood pathology as well as impulsivity, aggression, and substance use, and the high-functioning group by lower levels of psychopathology and relatively high self-esteem.

Conclusions—These findings converge with previous research using different personality models in adult samples and highlight the clinical utility of considering personality heterogeneity among adolescent and adult women with disturbed eating.

Keywords

Eating Disorder; Personality; Millon Adolescent Clinical Inventory; Body Image

1. Introduction

Women with disturbed eating or eating disorders (EDs) are not homogeneous with regard to clinical (1–4) or personality (4–16) characteristics. This heterogeneity may represent an

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important source of information for understanding and predicting co-occurring psychopathology, etiological factors, and effective treatment planning practices in women with eating pathology. For example, in one study women with EDs who were otherwise high-functioning tended to have relatively good prognoses whereas other ED groups with different patterns of co-occurring pathology also varied in clinical course (12).

Most research that has taken a typological approach to understanding personality heterogeneity among women with eating-related pathology has identified three groups, as shown in Table 1. These groups can generally be characterized as high functioning, internalizing (i.e., anxious, depressed, overcontrolled), and externalizing (i.e., impulsive, dysregulated, stimulus-seeking). Although some other studies have identified more than three groups using other measures, alternative models typically include the groups most commonly identified as well as others (12) or embed the assumption that personality subtypes should not vary in clinical severity in their analyses, and recover the two commonly observed clusters that are not defined by high functioning (10).

Despite the consistency of personality typologies in previous research with adults and the potential clinical importance of personality heterogeneity in EDs, extensions of these models to adolescents have been limited. Indeed, only one study in Table 1 sampled adolescents. In that study, Thompson-Brenner, Eddy, Satir et al. (13) identified similar clusters as had been found in adult samples using the *Shedler-Westen Assessment Procedure* (SWAP; 17). Yet developmental factors associated with personality (18) may lead to different groupings in adolescents and adults. For instance, Thompson-Brenner, Eddy, Satir et al. noted that avoidant/depressed adolescents were more dysphoric and shy than were adults in the corresponding overcontrolled group, justifying a different personality label across age group samples.

Furthermore, the nature of eating pathology may differ as a function of development. Adolescence represents a period of high risk for the development of body image and eating disturbances. Clinical and epidemiological research has found that adolescents often experience the onset of one or two ED symptoms rather than multiple symptoms or diagnoses (19,20). Although “subthreshold” clinical presentations are common in adolescent clinical practice settings (21), these individuals are the most poorly understood because research generally focuses on patients who meet full diagnostic criteria. Nevertheless, “subthreshold” levels of eating and body image disturbances in adolescents are of significant clinical concern as they are associated with risk for full-blown ED and substantial psychiatric and psychosocial problems in adulthood (19,20,22,23).

Although the Thompson-Brenner, Eddy, Satir et al. study suggests the existence of adolescent personality typologies in adolescents that are similar to those found in adults, this research is potentially limited in that the SWAP does not sample patients with EDs directly, but rather asks clinicians to rate the personality characteristics of patients they regard as having eating-related pathology. While the SWAP has demonstrated its utility in a number of studies, it is unclear what differences this method may yield relative to the more conventional method of sampling and assessing patients directly. Furthermore, it remains to be demonstrated that similar personality-based groups can be identified across theoretical models in adolescents with disturbed eating, as has been shown with adults. As such, there is a need to investigate personality heterogeneity in adolescent girls with eating psychopathology using data that were gathered from patients from various theoretical frameworks. Thus, the current study aimed to extend previous research characterizing personality heterogeneity in adult women with eating disturbance to adolescent girls with features of EDs from the perspective of Millon’s model of personality. Briefly, this model accommodates multiple levels of analysis in a framework that is informed by evolutionary theory, descriptive psychiatry, psychoanalytic theory, and perspectives from personality and behavioral psychology. Descriptively, it yields dimensions

that correspond closely to the DSM personality disorders, in part because Millon played an important role in developing DSM-III, Axis II.

2. Method

Participants were 286 adolescent (ages 13–18, mean = 15.80, S.D. = 1.42) girls admitted to the adolescent treatment unit of a private, not-for-profit, psychiatric teaching hospital. Two hundred twenty (76.9%) were Caucasian, 33 (11.5%) were Hispanic, 31 (10.8%) were African-American, and 2 (0.7%) reported other ethnicities. This study was approved by a local ethics review panel, and all participants provided informed consent prior to participation.

Participants were admitted due to their need for inpatient-level psychiatric intervention, and no other selection processes were used. Participants were hospitalized for a variety of serious psychiatric problems (i.e., this was not a specialty ED unit). All participants were assessed clinically with respect to their appropriateness for participating in the assessment protocols, and very few were excluded. Exclusions were due to difficulty with reading or language comprehension, active psychosis, or agitation or confusion. The MACI was administered shortly after intake. IRB approval was obtained for chart review of the psychological assessments. At the time of admission, and after complete explanation of the assessment procedures, written informed consent was obtained from all participants. For minors, assent was obtained from participants and consent was obtained from their parents or guardians.

Measures

Assessments were conducted as part of an overall evaluation procedure that was completed within one to four days after admission. We chose specific measures from the assessment battery for this study that would evaluate ED psychopathology, personality functioning, and relevant psychological domains drawn from the literature. The following is a brief description of these measures.

The *Millon Adolescent Clinical Inventory* (MACI; 24) consists of 160 true-false items and was developed and normed in clinical samples. The MACI comprises 27 clinical scales that tap clinical syndromes, expressed concerns, and personality styles and contains validity checks, which all participants included in the current study passed. The MACI, a widely used assessment instrument (25,26), has demonstrated acceptable internal consistency, test-retest reliability, and has been validated against various measures by several different research groups (27–29). In the present study, the MACI was used to determine both personality psychopathology and ED features as described below.

Personality Psychopathology—All 12 MACI personality pattern scales (Introversive, Inhibited, Doleful, Submissive, Dramatizing, Egotistic, Unruly, Forceful, Conforming, Oppositional, Self-Demeaning) were used for the depiction of personality heterogeneity in this sample.

Eating Disorder Psychopathology and Body Image Disturbance—The MACI includes two scales (Eating Dysfunction and Body Disapproval) that assess global constructs related to ED psychopathology. These scales, however, include an admixture of items ranging from ten prototypic items (these are weighted most heavily in the usual scoring; 24) that clearly reflect clinically-meaningful ED-related features to items that are less directly associated with EDs. We selected our ED study group based on the presence of at least three prototypic items from the Eating Dysfunction and the Body Disapproval Scales and generated four specific variables given our interest in specific features of EDs (binge eating, vomiting, and dietary restraint and body image disturbance). The Binge Eating scale consists of three items (e.g., “I go on eating binges a couple times a week”) with scale scores ranging from 0 to 3. Self-induced

vomiting was assessed categorically with a single item (“I sometimes force myself to vomit after eating a lot”). The Restraint scale consists of three items assessing extreme attempts to restrict dietary intake (e.g., “I’m willing to starve myself to be even thinner than I am”) with total scale scores ranging from 0 to 3. The Body Image scale consists of 5 items assessing adolescent’s thoughts and feelings about their body shape and weight and appearance (e.g., “I think I have a good body”) with scale scores ranging from 0 to 5.

The *Beck Depression Inventory* (BDI; 30) is a well-established inventory of the symptoms of depression. It has been utilized extensively within adolescent populations, and has been shown to have excellent psychometric properties in adolescent patients, including good internal consistency and test-retest reliability (31).

The *Rosenberg Self-Esteem Scale* (RSE; 32) is a 10-item measure of global self-esteem. A higher total score reflects greater self-esteem. Studies in adolescents have demonstrated acceptable reliability and validity (33).

The *Hopelessness Scale for Children* (HSC; 34) is a 17-item scale for children and adolescents that measures negative expectations about the future. It has been used widely with adolescents, and has demonstrated acceptable psychometric properties (35).

The *Impulsivity Control Scale* (ICS; 36) is a 15-item measure designed to assess impulsivity that is independent of aggressive behavior. It has been shown to have acceptable internal consistency and concurrent validity in adolescents (37).

The *Suicide Risk Scale* (SRS; 38) is a 15-item measure of present suicidal impulses, past suicidal behavior, and other items that have been shown to be associated with suicide risk. It has demonstrated acceptable psychometric properties in adults and adolescents—including discrimination, in both age groups, between patients who have and who have not made suicide attempts (37,38).

The *Past Feelings and Acts of Violence Scale* (PFAV; 39) is a 12-item scale that inquires about acts of violence against others, use of weapons, arrests, and loss of temper with acceptable psychometric properties in adults and adolescents, and validity for discriminating between violent and non-violent adolescent inpatients (39).

The *Adolescent Alcohol Involvement Scale* (AAIS; 40) is a 14-item screening measure of alcohol abuse for use in adolescent populations. It has demonstrated acceptable psychometric properties, including excellent internal consistency and test-retest reliability, in clinical and community samples of adolescents (41).

The *Drug Abuse Screening Test for Adolescents* (DAST-A; 42) is a 27-item screening measure for drug abuse, adapted from the adult version (43) for use in adolescent populations. It has demonstrated acceptable psychometric properties—including good internal consistency, high test-retest reliability, and good concurrent validity—in adolescent inpatient samples (42).

Analyses

Of the 286 patients, 153 (53%) were characterized as having ED features. Standardized MACI personality pattern scale data for these 153 patients were submitted to Ward’s method of hierarchical cluster analysis in order to identify potential groups. Three, four, and five cluster solutions were compared to test previous models of eating disorder heterogeneity. Because empirical algorithms regarding the number of clusters that are optimal in a sample are controversial, and often amount to cross-validating previous results or comparing the similarity and incremental yield of more complex models (44), the interpretability of cluster solutions in

the context of prior research was the most important criterion in determining the optimal number of groups. One consideration in determining if a cluster represented a valid and natural group in this sample was that it should have a uniquely high score on at least one of the indicators used to define it. Further evidence in favor of parsimony would be suggested if the members of two clusters with similar personality profiles collapsed into a single group with unique characteristics relative to other groups in a more restrictive solution. Each level of classification was further compared for conceptual convergence with groupings from previous research. Once an optimal solution was characterized, groups were compared on both clustering and outcome variables.

3. Results

In both four and five cluster models, at least one group did not have the highest score on any MACI scale, suggesting that it did not stand apart in any meaningful way from other groups. Furthermore, results suggested that these clusters were very similar to another cluster, in that their highest elevations were on the same scales and more restrictive solutions collapsed them into a single group. Thus, we retained three clusters, similar to the previous study using a Millon-based instrument to classify adult women with eating disorders (6) (Table 1).

Table 2 shows the sample sizes and the MACI Base Rate scores for each of these three groups. The first and smallest group had uniquely high scores on Dramatizing, Egotistic, and Conforming scales. This pattern suggests a group of young women who can turn to themselves (Egotistic) or others (Dramatizing) to cope with stress, and who generally do so with propriety and perfectionism (Conforming) (24). This group is also very similar to the high-functioning cluster identified by Espelage et al. (6) in adults: the three highest scales in the Espelage et al. group were Histrionic (analogous to Dramatizing), Compulsive (Conforming), and Narcissistic (Egotistic). This group also had the highest self-esteem and lowest levels of psychopathology, including eating pathology, and related conditions (Table 3), supporting the label “high-functioning”.

The second and largest group had uniquely high scores on Introversive, Inhibited, Doleful, and Self-demeaning scales. These scores suggest a group of individuals who are glum, pessimistic, unable to experience pleasure (Introversive, Inhibited, and Doleful; 24) and who may in fact prefer emotional pain to pleasure (Self-demeaning). Again, marked convergence is noted with the Espelage et al. (6) study, in which their overcontrolled/avoidant group had highest scores on Dependent (Doleful), Avoidant (Inhibited), Self-defeating (Self-demeaning), and Schizoid (Introversive). In prior studies this group had the highest scores on phenomena such as depression, hopelessness, and suicidality (Table 2), suggesting the label “internalizing” (45). In the current study, however, the internalizing and externalizing groups did not differ on these three scores (See Table 3). This suggests the personality heterogeneity found in eating disordered groups is not solely accounted for by divergent co-occurring disorders (e.g. depression in one group vs. substance use in another group).

The third group had the highest scores on MACI Unruly, Forceful, Oppositional, and Borderline scales, suggesting individuals who are antisocial, sadistic, aggressive, and dysregulated. Although this group varied somewhat with Espelage et al.’s (6) under-controlled/dysregulated group, there was also a fair degree of correspondence. That group had highest scores on Passive-aggressive, Self-defeating, Borderline, and Histrionic scales. This group was labeled “externalizing” because of its greater levels of violence/aggression, substance use, and impulsivity (45) in the current sample. The internalizing and externalizing groups did not significantly differ with regard to the severity of eating pathology.

4. Discussion

Although early research suggested specific relations between personality and eating disorders, this may have been a consequence of the failure to adequately sample and consider a full range of personality variables (8,9). Although empirical research has cast some doubt on the common clinical assumption that personality disorders predict the course of eating disorders in prospective long-term outcome studies (46), recent research suggests that personality heterogeneity may affect the pathological expression, optimal treatment, and comorbidity patterning of EDs (10,12). As in several past studies with adults and one study using different assessment methods with adolescents, three personality subtypes were identified in this inpatient adolescent eating disordered sample: *high-functioning perfectionistic* girls in the current sample had the fewest problems across several domains, *internalizing* girls had an increased likelihood of eating disorder symptoms, mood disorder, disturbed cognition, and suicidality, and *externalizing* girls had similar problems with eating disorder symptoms, mood, and suicidality in addition to an increased likelihood of impulsivity, aggression, and substance use.

The existence of maladaptive types of personality pathology that have now been validated across samples that vary in demography and clinical severity as well as measurement approaches suggest important targets for assessment and treatment intervention in women with disturbed eating. For example, in a recent study with adults (12), members of the avoidant/insecure (i.e., internalizing) group were found to have the poorest longitudinal outcomes for eating disorder recovery, suggesting that personality characteristics of this subgroup may represent a key target for clinical interventions in adolescent girls. The behaviorally dysregulated (i.e., externalizing) subtype identified in this recent study and in the current study had significant comorbidity with substance use disorders. Thus, a targeted treatment for this subgroup may need to address the regulation of addictive behaviors (47) in order to promote long term recovery. The results of this study suggest that these clinical observations and potential implications likely extend to adolescents, although treatment research with adolescent EDs is generally lacking and remains a major need in order to address these clinical questions (48)

Despite descriptive consistency with regard to cluster solutions as demonstrated with multiple instruments and across adolescent and adult samples ranging in ED diagnoses, the nature of the personality-ED relationship has not yet been clearly articulated. Westen and Harnden-Fischer (15) proposed three theoretical models that could explain the personality heterogeneity identified in adult women with eating-related pathology that are also applicable to adolescents, given the consistency of findings demonstrated here. The first model involves *chance co-occurrence* of these disorders. However, given that the independent base rates of eating and personality disorder diagnoses in the population differs dramatically from the actual probability of diagnostic co-occurrence observed in empirical data (8), the random diagnostic co-occurrence of these disorders is highly unlikely. The second model involves the possibility that ED symptoms are *linear expressions* of problematic personality characteristics. For example, some authors have suggested that bulimia nervosa is related to DSM-IV “cluster B” PDs and anorexia nervosa to “cluster C” PDs (49). Although there is some support for associations between PDs and EDs, overall the nature of the co-occurrences appears to be more complex than this model would suggest (8,9). Furthermore, Westen and Harnden-Fischer pointed out a strong severity effect, such that patients with more severe ED or both anorexia nervosa and bulimia nervosa generally tend to have more severe personality pathology than patients with less severe EDs. Both this severity effect and inconsistencies in the empirical literature relating PDs to EDs argues against a linear relationship model.

The third model proposed by Westen and Harnden-Fischer implicates *common etiological pathways* to different personality/eating pathology groupings. Using the SWAP, Westen and Harnden-Fischer identified three q-factors (which can be used to yield typologies) similar to clusters identified in previous research. They further articulated eating-personality links consistent with this third model. Specifically, they suggested that women with a mild ED and limited co-occurring pathology may fall into a high-functioning/perfectionistic group who use eating to attempt to regulate emotional difficulties. Conversely, they reasoned that women with more severe anorexia are likely to be constricted/overcontrolled and have a general propensity to constrict behavior in several domains beyond eating, including friendships, sexuality, and self-reflection. Finally, Westen and Harnden-Fischer argued that those with more severe bulimia or mixed bulimia/anorexia are likely to be emotionally dysregulated and undercontrolled in that they have difficulties manage their emotions effectively. Again, they regarded eating pathology as one of many potential examples of such dysregulation.

Notably, in both of the latter models proposed by Westen and Harnden-Fischer, eating pathology was regarded as a behavioral consequence of personality. Other models are less restrictive with regard to the primacy of personality or psychopathology. For example, in *pathoplastic* models (50), severity (e.g., of eating pathology) and style (e.g., of personality characteristics) would be expected to have mostly separate developmental pathways, but to be mutually influential on each other and on clinical outcomes (51). Thus, unlike the models proposed by Westen and Harnden-Fischer, pathoplasticity does not understand personality as causal of psychopathology, but rather views psychopathology and personality as dynamically related and as representing independent influences on functioning. Consistent with the pathoplastic framework, previous research using multiple instruments and investigating several non-eating diagnoses (52–54) have found similar personality typologies in other diagnostic groups to those identified for EDs, implying that pathoplasticity may represent a viable model for the integration of personality and psychopathology generally rather than one that specifically implicates certain personality-based groupings of people with ED.

It may also be the case that some personality factors (e.g., emotional constriction or behavioral dysregulation) are directly linked to certain ED features, as proposed by Westen and Harnden-Fischer, whereas others (e.g., interpersonal style; 10, 51) are pathoplastic, suggesting the need to explicitly separate these domains in future research designed to test differences between these theoretical representations of the personality-ED link. Behavior genetic and longitudinal methodologies are likely to be particularly fruitful for testing differential assumptions about the etiological connection and dynamic interplay between personality and ED.

Several study limitations also suggest the need for further investigations of personality heterogeneity in adolescents with EDs. For instance, it remains unclear how well these results would generalize to other clinical samples of ED patients (e.g., outpatients, ED specialty clinics). Our study relied on self-report measures that may be susceptible to various biases although, conversely, they may also facilitate disclosure in adolescents about sensitive information. Future research should employ other sampling methods and multi-modal assessments to replicate and extend our findings. We note that the general consistency across the SWAP rating method (made by clinicians about their patients) and self-report studies such as this one is notable and adds confidence regarding the reliability of the findings. Our participants were characterized with diverse ED features and “subthreshold” manifestations of ED rather than formal DSM-based ED diagnoses. This strategy follows previous studies on this topic and is supported by previous research demonstrating that such “subthreshold” eating pathology is clinically important, particularly for this developmental era. Nonetheless, future research should consider alternative ED groups for study. Like most ED research, our study did not include men and this represents an area for further investigation. Overall, targeted research with more sophisticated (e.g., longitudinal, experimental) methods in more diverse

samples is clearly needed to more fully understand personality heterogeneity in people with eating pathology.

5. Conclusion

Overall, results from this study build on the emerging literature demonstrating personality heterogeneity among women with eating disturbances, regardless of the developmental or diagnostic characteristics of the samples or the measurement models used to assess personality. Clinicians should regard this literature as suggesting that all patients with ED psychopathology should not be treated similarly, and that personality and personality pathology may represent important domains to consider when formulating and planning treatment. Given the potential importance of these findings and remaining questions regarding the optimal theoretical account of observed heterogeneity, ongoing research should continue to investigate this issue to further inform etiological theories of and clinical practice with patients with ED psychopathology.

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Table 1

Personality typologies of eating disordered women.

Lead Author (Year)	High-Functioning	Internalizing	Externalizing
Espelage (2002)	High-Functioning	Overcontrolled/Avoidant	Undercontrolled/Dysregulated
Goldner (1999)	Mild	Rigid	Severe
Hopwood (2007) *		Cold-Submissive	Cold-Dominant
Strober (1983)	High-Functioning	Anxious	Impulsive
Thompson-Brenner (2008) *	High-Functioning	Avoidant/Insecure	Behaviorally Dysregulated
Thompson-Brenner+ (2008)	High-Functioning/Perfectionistic	Avoidant/Depressed	Dysregulated
Thompson-Brenner (2005)	High-Functioning	Constricted	Dysregulated
Westen (2001)	High-Functioning/Perfectionistic	Constricted/Overcontrolled	Emotionally Dysregulated/Undercontrolled
Wonderlich (2007)	Low Personality Pathology	Interpersonal/Emotional	Stimulus-seeking/Hostile

* These studies identified further subtypes that were not explored here. +Adolescent sample adolescent sample.

Table 2

MACI scale scores across adolescents with eating pathology who vary in personality characteristics.

MACI scale	High-Functioning N = 27	Internalizing N = 73	Externalizing N = 53
Introversive	33.11 (14.39)	71.93 (16.91)	51.75 (11.69)
Inhibited	41.48 (16.55)	73.15 (13.88)	43.83 (13.14)
Doleful	40.56 (17.52)	81.00 (9.82)	72.87 (14.78)
Submissive	57.41 (13.97)	58.37 (14.41)	38.96 (12.68)
Dramatizing	70.37 (13.19)	34.03 (19.93)	59.64 (10.71)
Egotistic	55.26 (16.06)	21.59 (14.38)	36.40 (14.98)
Unruly	61.07 (22.92)	49.97 (19.47)	84.51 (15.19)
Forceful	37.22 (22.39)	32.60 (22.07)	68.70 (13.05)
Conforming	54.59 (11.48)	38.26 (17.16)	27.25 (12.40)
Oppositional	48.96 (17.54)	73.59 (10.18)	82.23 (9.88)
Self-demeaning	52.85 (18.04)	74.22 (8.33)	69.53 (10.67)
Borderline	35.89 (15.59)	65.33 (20.65)	75.60 (21.52)

Note. Bold values were significantly higher than non-bold values according to Tukey's post-hoc test.

Table 3

Levels of psychopathology and related phenomena across adolescents with eating pathology who vary in personality characteristics.

Outcome Variable	High Functioning N = 27	Internalizing N = 73	Externalizing N = 53
Bingeing	0.80 (0.15)	1.07 (1.10)	1.17 (1.07)
Body Image	2.89 (1.99)	4.62 (0.81)	4.00 (1.44)
Restraint	1.74 (0.90)	1.90 (1.06)	1.92 (1.03)
Self-esteem	29.15 (5.27)	20.96 (5.30)	22.73 (5.15)
Depression	10.37 (6.34)	25.74 (12.44)	24.96 (11.53)
Hopelessness	3.41 (2.39)	8.62 (4.15)	7.72 (4.11)
Impulsivity	18.12 (6.15)	19.89 (5.53)	23.52 (5.97)
Suicide Risk	5.27 (2.36)	8.61 (2.96)	8.87 (2.82)
Violence	6.15 (3.55)	8.00 (5.20)	12.56 (6.42)
Alcohol Use	2.11 (0.70)	2.10 (0.79)	2.70 (.87)
Drug Use	5.07 (5.26)	5.04 (5.47)	8.23 (7.13)

Note. All F-values were statistically significant ($p < .05$). Bold values significantly higher ($p < .05$) than non-bold values according to Tukey's post-hoc test.