ORIGINAL ARTICLE

Asceticism, perfectionism and overcontrol in youth with eating disorders

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Abstract

Purpose Personality traits such as perfectionism and asceticism, and combinations of these traits (i.e., overcontrol) have been related to eating disorder (ED) diagnosis, symptoms, and chronicity in adult patients with EDs. However, as limited evidence exists in adolescents, the aim of the present study was to examine these links in a clinical sample of adolescents with EDs.

Method A retrospective chart review was conducted on 178 adolescents (91% females; $M_{age} = 15.73$ years, SD = 1.31) receiving services at a tertiary care pediatric ED program. An examination of variability in mean levels of perfectionism, asceticism, and overcontrol across ED symptom groups (restrictive and binge/purge ED subtypes) was conducted to learn of diagnostic differences, while correlations were used to explore the association of these personality traits with comorbid anxiety and depressive symptoms. Hierarchical linear regression was used to assess whether overcontrol was related to length of stay (LOS) in an inpatient program.

Results Results indicated that adolescents with binge–purge symptoms had higher levels of perfectionism, asceticism and overcontrol compared to those with restrictive symptoms, and that greater levels of perfectionism, asceticism and overcontrol were associated with elevated depression and anxiety symptoms. Additionally, overcontrol predicted greater LOS in the inpatient ED program.

Conclusion Results suggest the importance of assessing, monitoring and targeting overcontrol in treatment for adolescents with EDs given its impact on comorbid symptoms and LOS.

Level of evidence Level III, evidence obtained from case–control analytic studies.

Keywords Overcontrol · Personality · Adolescence · Restrictive profile · Binge/purge profile · Eating disorders

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This article is part of topical collection on Personality and eating and weight disorders.

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Introduction

Eating disorders (EDs) are complex, chronic mental health disorders that have the highest mortality rate of all psychiatric disorders [1], with mean lifetime prevalence rates for women estimated at 1.4% for anorexia nervosa (AN) and 1.9% for bulimia nervosa (BN) [2]. Past research has shown that certain personality traits, or combinations of personality traits, may be related to the development or maintenance of EDs [3]. Overcontrol, often described as the combination of perfectionism and asceticism characteristics [4, 5], is commonly reported in individuals with EDs [5, 6]. Those high in overcontrol pursue perceived perfection (i.e. a low body weight) often through self-denial and suffering [5]. Although very limited research has examined the correlates of overcontrol in clinical samples of adolescents with EDs, existing studies in adult samples suggest that overcontrol may be associated with increased symptom severity, co-morbid

symptoms of anxiety or depression, low motivation for change, and refusal of treatment [5, 7], all of which could contribute to the maintenance of the illness.

Perfectionism and asceticism are two related but distinct traits found in EDs [6, 8]. Perfectionism has long been studied in relation to the onset and maintenance of EDs [8, 9], and is characterized by overdependence of self-evaluation and the tendency to set highly unrealistic personal standards for oneself to achieve [10]. Similar to perfectionism, asceticism in ED patients is related to self-control [11]. Historically, asceticism was understood in the context of spiritual or religious sacrifice whereby individuals engaged in rigorous self-denial in the pursuit of perfection as a virtue [6]. In the context of EDs, asceticism is defined as an individuals' tendency to engage in self-discipline, self-denial, self-sacrifice and the exertion of complete control over one's bodily needs [5]. The overcontrol composite, as measured by the Eating Disorder Instrument-2 and -3 [4, 5], is the mutual contribution of perfectionistic and ascetic traits to ED symptoms. As such, those high in overcontrol demonstrate a perfectionistic desire for personal achievement coupled with self-denial and self-sacrificing behaviours [5]. Those with greater overcontrol display obsessive self-control characterized by self-denial, a high desire for personal achievement, and the belief that experiencing pleasure or receiving care from others is a form of personal weakness [5].

At present, little is known about how overcontrol exhibits in adolescents with EDs, whether it is related to the chronicity of illness in adolescent ED samples, and how it may interact with other comorbid symptoms to maintain the disorder. Past research with adults has shown that overcontrol and asceticism are more commonly reported in those with a binge–purge-type ED compared to those with a restrictive subtype (AN-R) [6, 12–14]; however, it is unclear whether the same pattern of results will emerge in adolescents with EDs where restrictive patterns are more frequently noted. Perfectionism has also been widely recognized as a factor related to the onset and maintenance of EDs, and is associated with lower body weight, greater eating preoccupation, diminished motivation to change, greater severity of eating disorder symptoms, and is a trait that often persists post-treatment [8, 9, 13, 15]. Perfectionistic traits are commonly reported in those with AN or BN [9] displaying high levels of both self-oriented perfectionism [16] and mixed perfectionism (high self-oriented perfectionism and high socially prescribed perfectionism) [17]. Aside from symptom severity, asceticism has also been linked to poorer treatment outcome after 6 months [18]. As key characteristics of overcontrol include behavioral rigidity, engagement in self-sacrificing behaviors, and pursuit of perfectionistic ideals driven by self-criticism, those high in overcontrol may feel shame or weakness in allowing themselves to receive care for their ED [5]. Such feelings could affect treatment

engagement and success, ultimately contributing to treatment refusal, longer lengths of stays and chronicity of the illness.

Additionally, co-morbid anxiety and depressive symptoms are also known to contribute to the chronicity of the illness [19, 20], with some adult studies confirming that co-morbid symptoms of anxiety and depression may be related to aspects of overcontrol that act to maintain the disorder [7, 21]. While directionality and pathways that best explain how these relationships operate have yet to be performed in adolescent samples, there is existing evidence that anxiety and depression act as mediators between perfectionism and eating disorder symptoms, and that eating disorder symptoms sometimes act as a mediator between perfectionism and anxiety/depression [18], suggesting that a complicated pathway likely exists. How perfectionism and asceticism act together in the form of overcontrol within this relationship has not yet been tested. Other preliminary evidence ($n = 88$) has shown that asceticism and perfectionism are higher in female adolescents with an ED who also have comorbidities versus a group of females who do not struggle with comorbidities [22], providing further early evidence that a relationship exists between these constructs. Exploring whether some of these relationships are similar in adolescents with EDs is the aim of the current study.

Past research on personality characteristics in adult samples suggests that perfectionism, asceticism, and overcontrol are commonly reported in those with EDs, and may be associated with symptom severity, co-morbid symptoms of depression or anxiety, and could be an important contributing factor in the maintenance of EDs. Although informative, past research on overcontrol in EDs has been exclusively conducted in adult samples, which raises questions about generalizability of findings to youth with EDs. The objectives of the present study were: (1) To examine whether symptoms of asceticism, perfectionism and overcontrol are reported more in those with a binge–purge ED versus those with a restrictive symptom profile; (2) To determine if a positive relationship between perfectionism, asceticism, overcontrol and symptoms of anxiety and depression exists; and (3) To examine whether overcontrol predicts longer length of stays (LOS) in inpatient services while controlling for symptom profile group.

Methods

Participants

Participants were 178 adolescents (91% females; $M_{age} = 15.73$ years, SD $= 1.32$, range 12.2–17.9 years) who sequentially received an intake assessment at a tertiary-level pediatric Eating Disorder Program (EDP) between January

2008 and May 2016. Patients were included if they had complete information regarding diagnosis (either AN, BN, or Eating Disorder not Otherwise Specified/Otherwise Specified Feeding and Eating Disorder).

A sub-sample of patients who were admitted to the intensive inpatient program at our tertiary care EDP ($n = 72$) within the aforementioned date range were further analyzed to examine the third objective of whether overcontrol predicts LOS. Participants in this subsample were on average 15.51 years of age (SD = 1.39; range 12.3–17.9 years) and were all female.

Procedure

This retrospective secondary analysis of clinical data consists of examining data from a cohort of youth who underwent an initial intake assessment at the regional EDP, located in Ottawa, Canada. At assessment, youth and their families underwent a full-day multidisciplinary assessment, including the completion of psychometric measures. ED diagnosis was based on consensus diagnosis by an adolescent health physician and a psychiatrist or psychologist using information from the clinical interviews, medical and dietetic assessments, and validated diagnostic measures (e.g. Eating Disorder Diagnostic Questionnaire for Adolescents) [5, 23]. Clinical characteristics at initial assessment were collected via retrospective chart review of clinical charts. This study was approved by the hospital's Research Ethics Board.

Measures

Symptom profile

Patients who were assessed prior to May 2013 were diagnosed according to DSM-IV criteria, and patients assessed after May 2013 were diagnosed according to DSM-5 criteria. Based on diagnosis and self-reported ED symptoms obtained at the time of the initial intake assessment, youth were classified into one of the two symptom profile categories: (1) those with restrictive EDs and (2) those with an ED who reported binge–purge symptomatology within the last month.

Overcontrol: perfectionism and asceticism

The Eating Disorder Inventory-3 (EDI-3) is a self-report assessment tool consisting of 91 items organized into 12 scales that capture eating attitudes and cognitions [5]. The Asceticism (seven items) and Perfectionism (six items) subscales, as well as the Overcontrol Composite (calculated by summing the t-scores for the Perfectionism and Asceticism scales to create the raw score, and then converting that to a t-score and percentile score) were used in the present study. Responses were rated on a 6-point Likert scale ranging from 1 (never) to 6 (always), with higher scores indicating a greater score on each subscale. The EDI-3 has been validated in both adult and adolescent ED populations, and has shown excellent reliability in ED samples (Cronbachs $\alpha = 0.90–0.97$) [5, 24].

Depressive symptoms

The Child Depression Inventory (CDI) [25] is a 27-item self-report questionnaire used to assess elevated depressive symptoms in children aged 7–17 years. Questions are rated on a three-point scale from 0 (absence of symptom) to 2 (presence of symptom) with higher total scores indicating greater depressive symptomatology. The CDI has demonstrated good reliability and validity in adolescents with EDs ($\alpha = 0.93$) [26].

Anxiety symptoms

The Multidimensional Anxiety Scale for Children (MASC) [27] is a 39-item self-report questionnaire designed to assess anxiety in children and adolescents. Responses are provided on a four-point Likert scale ranging from 0 (never true about me) to 3 (often true about me), with higher scores indicating greater symptoms of anxiety. The MASC has been validated in adolescent populations, and has demonstrated excellent reliability ($\alpha = 0.92$) [27, 28].

Length of stay

LOS was defined by the number of days a youth spent in an inpatient ED bed.

Statistical analyses

Independent sample t-tests were run to examine differences in asceticism, perfectionism, overcontrol, depressive symptoms, and anxiety symptoms scores across the symptom profile groups. Effect sizes (Cohen's d) were also calculated for independent samples t-tests, where $d = 0.2$ represents a small effect, $d = 0.5$ represents a medium effect and $d = 0.8$ represents a large effect [29]. Pearson's correlations (r) were used to examine the relationship between overcontrol, perfectionism, and asceticism with depressed mood and anxiety symptoms.

A sub-sample of patients who were admitted to the intensive inpatient program at our tertiary care EDP who had information on LOS ($n = 72$) were analyzed to examine whether overcontrol predicted LOS while controlling for symptom profile group. All conducted tests were two-sided with alpha set to 0.05.

Table 1 Descriptive and comparative analyses across symptom profile groups reported as M (SD) or n (%)

	Restrictive profile	Binge/purge profile	t	df	95% CI	d
N	98	80				
Age	15.44 (1.44)	16.09 (1.04)				
BMI	16.94 (2.19)	21.06 (4.29)				
Gender						
Female	84 (86.6%)	79 (98.8%)				
Male	13 (13.4%)	1 (1.3%)				
Perfectionism	10.21 (6.23)	12.34 (6.11)	− 0.28*	176	− 3.96, − 0.286	0.34
Asceticism	8.01 (6.15)	13.10 (6.63)	− 5.23***	171	− 7.01, − 3.17	0.79
Overcontrol	91.02 (17.13)	102.77 (17.28)	− 4.45***	170	− 16.95, − 6.53	0.68
Depressive symptoms	60.77 (16.65)	73.65 (16.93)	− 5.08***	175	− 17.88, − 7.88	0.76
Anxiety symptoms	58.41 (11.51)	59.81 (10.90)	− 0.82	173	− 4.77, 1.98	0.12
LOS in days ($n=72$)	50.86 (21.04)	35.61 (25.28)	2.63*	70	3.70, 26.79	0.65

LOS length of stay, *d* Cohen's d

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Results

Sample characteristics

Table 1 shows the breakdown of participants by symptom profile group. A slight majority of the sample (55%) was comprised of participants who reported a restrictive profile ($n = 98$), while 45% reported a binge–purge profile ($n = 80$). For those who were admitted to the inpatient program ($N = 72$), 51 (70.83%) had a restrictive profile, while 21 (29.16%) had a binge–purge profile. The average LOS of 45.17 days (SD = 22.53). Participants with a restrictive profile had on average longer length of stays ($M = 50.86$ days, SD = 21.04 days, $p = 0.01$).

Personality traits and comorbidities across symptom profile groups

As shown in Table 1, results of independent samples t-tests revealed significant differences across groups, with those with a restrictive profile reporting lower scores of overcontrol, asceticism, perfectionism and depressed mood than those with a binge–purge profile (all p's < 0.02). Anxiety symptoms were similar across both groups ($p = 0.41$). As shown in Table 2, results showed moderate positive correlations between asceticism, perfectionism, overcontrol, anxiety, and depressive symptoms.

The association between overcontrol and LOS

There was a non-significant ($p = 0.22$) 2-way interaction between overcontrol and ED symptom profile on LOS; as such, a main effect model is reported. As shown in Table 3, hierarchical regression analyses revealed that

Table 2 Correlation matrix of personality traits and co-morbid total scores ($N = 178$)

	1	2	3	4	5
1. Perfectionism	–				
2. Asceticism	0.56**	–			
3. Overcontrol	0.87**	0.88**	–		
4. Depressive symptoms	0.46**	0.69**	0.66**	–	
5. Anxiety symptoms	0.30**	0.50**	0.46**	0.54**	–

*Correlation is significant at the 0.01 level (2-tailed)

Table 3 Hierarchical regression analysis of the predictive ability of symptom profile and overcontrol on LOS in days ($n = 69$)

Predictor	Step 1		Step 2	
	B (SE)	t	B (SE)	t
Constant	50.47 (3.01)	16.75***	19.98 (13.12)	1.52
Symptom profile	− 18.27 (5.60)	− 3.26**	− 21.87 (5.61)	3.89***
Overcontrol			0.33 (0.14)	2.38*
F	10.66**		8.54**	
R^2	0.14		0.21	
R^2 Change	0.14**		0.07*	

Symptom profile (0 = restrictive subtype, 1 = binge/purge subtype). *df* for step 1 = 1, 67, *df* for step 2 = 2, 66

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

overcontrol significantly predicted increased LOS on the inpatient unit ($B = 0.33$, SE = 0.14, $t = 2.38$, $p = 0.02$) after adjustment for ED symptom profile group. Overcontrol accounted for 7% of the variance in LOS.

Discussion

The present study aimed to examine whether overcontrol in adolescents exhibited in the same manner as it does with adults with EDs. Consistent with our hypotheses, overcontrol varied across symptom profile groups where those with binge/purge symptoms reported higher levels of overcontrol, perfectionism and asceticism compared to those with a restrictive profile. Additionally, overcontrol was positively correlated with symptoms of depression and anxiety, and in support of our final hypothesis, overcontrol was found to significantly predict greater LOS on an inpatient unit.

Tests of differences in perfectionism, asceticism and overcontrol across symptom profiles revealed that, as predicted, those with binge/purge symptoms reported higher scores of overcontrol and asceticism compared to those with a restrictive profile. These findings are consistent with previous work whicg suggests that overcontrol and asceticism are more commonly reported in those with EDs with a binge–purge component compared to restrictive EDs, and that this may be related to severity of purging behaviors [6, 12–14, 30]. Past research has also shown that although those high in asceticism or overcontrol exert self-control over bodily needs through restriction, they may interpret breaking a fast or engaging in a binge as equivalent to failure [14, 15]. This, in turn, leads to low mood and feelings of guilt and increased anxiety to regain 'control', and is likely the contributing factor to the engagement in ensuing compensatory behaviours [6].

Tests of co-morbid symptoms of depression and anxiety across symptom profile groups revealed that those with a binge/purge profile reported significantly greater depressive symptoms than those with restrictive EDs. These findings are in line with past research that suggests those with AN-BP and BN report more depressive symptoms than those with AN-R [12, 19, 31]. As bingeing and purging are often related to feelings of shame and guilt when one fails to maintain a restrictive diet, having a binge/purge component to ones ED may make them more susceptible to anxiety and depressive symptoms. Lastly, both symptom profiles reported comparable levels of anxiety, which is consistent with previous research in adults that has found similar levels of anxiety across all diagnostic groups [32].

The present study also found significant positive relationships between overcontrol, asceticism and perfectionism, with depressive and anxiety symptoms, which is consistent with past research that has reported a 67% prevalence rate for co-morbid depression and 40% for co-morbid generalized anxiety in a sample of adolescents presenting for treatment for an ED [16]. Present findings linking overcontrol, depressive symptoms and anxiety symptoms are consistent with previous research that has identified links between perfectionism, depression and anxiety in youth with EDs [21], as well as links between asceticism and mood disorders, where adult women with BN who were high in asceticism were more likely to report experiencing a depressive episode at 5-year follow-up [7]. The current study adds to this evidence base by confirming these results in a large clinical sample of adolescents with EDS, and adds further some early understanding of how overcontrol influences some of these relationships, by recognizing that those who are high on perfectionism, asceticism and overcontrol may set unrealistically high standards for themselves, and may experience symptoms of anxiety or depression when they fail to meet these expectations. As past research on chronicity in EDs has suggested that co-morbid anxiety and depression may act to maintain the ED [20], be a mediator in the relationship [22] and is implicated in the need for longer course of treatment in adolescents [19], future studies should consider examining various mechanisms in which these constructs operate, including examining mediated and potential bidirectional pathways.

Finally, in line with our final hypothesis, results of the present study showed that overcontrol positively predicted greater LOS (defined by number of inpatient days), while controlling for symptom profile group. This finding supports past research which suggests that those high in overcontrol possess characteristics that may impede treatment [5]. For instance, the aspects of self-denial, self-control and pursuit of perfectionism associated with overcontrol may contribute to feelings of shame associated with accepting treatment. In addition, self-sacrificing may lead an individual to believe they deserve to be suffering from an ED, and thus may also interfere with the ability to accept treatment. Past research has also shown that in adults, perfectionism and asceticism may be related to behavioural rigidity, diminished motivation to change, increased severity of symptoms, failure to benefit from therapy, and treatment drop-out [6, 8, 13, 15, 18], all of which could contribute to the maintenance of an ED. As such, the findings of the present study provide some first evidence that adolescents high in overcontrol may possess characteristics that could contribute to greater resistance to treatment, consequently leading to greater LOS in an inpatient program. Further work examining how overcontrol traits affect treatment duration and maintenance of the illness is needed.

Strengths and limitations

Strengths of the present study include examining symptom profile groups rather than classic diagnostic categories. This approach recognizes that diagnostic flux in EDs is common [33], and creates more homogeneous groupings, which

ultimately allows for greater generalizability of study findings. Other strengths of the study include the use of well-validated self-report measures and a relatively large sample size, when compared to other studies examining clinical samples in adolescents. Finally, despite the use of a cross-sectional design, the present study adds to the limited literature on asceticism and overcontrol in adolescent EDs by providing preliminary evidence that could serve as a basis for further research in this area.

Despite the study's many strengths, the present study was not without limitations. One limitation was the cross-sectional design that does not allow for causal interpretation. Future studies should consider examining the relationship between overcontrol, psychological co-morbidities, and LOS in adolescent EDs using a longitudinal design. Additionally, LOS was measured as the number of days a youth remained in inpatient care at a tertiary care facility and did not take into account time spent in outpatient care after inpatient discharge. Future studies should examine LOS from service initiation to full service discharge to obtain a more accurate representation of how overcontrol might influence treatment resistance and/or chronicity of EDs throughout the various stages of treatment. It is also possible that other comorbidities (i.e., type 1 diabetes, obsessive–compulsive disorder, etc.) not controlled for in the current study could also be influencing LOS. Lastly, given the retrospective nature of the present study, the sample was limited to those patients who received treatment at our EDP during a certain time period, with only a smaller subsample who attended the intensive inpatient program during this time ($n = 72$) available for analysis of LOS. While this limited our power to conduct any further analyses examining possible mechanistic pathways of these relationships, it provided some preliminary data confirming the presence of these relationships in adolescents with EDs. Future research should endeavour to utilize larger sample sizes to examine the potential complex and bidirectional nature of these relationships.

Conclusion

The present study is the first to examine overcontrol in adolescents presenting for an assessment of an ED at a tertiary care hospital. Results show that youth with binge/purge symptoms have higher levels of overcontrol, asceticism, and perfectionism compared to those with restrictive EDs, and that these traits are positively correlated with symptoms of anxiety and depression. Overcontrol predicts greater LOS in an ED inpatient bed, supporting the hypothesis that overcontrol is related to chronicity of EDs during adolescence, although further work to best understand the mechanism at play is needed. Given these novel findings, clinicians should routinely assess overcontrol, perfectionism, and asceticism in youth presenting with ED symptomatology. Reductions in these traits through targeted treatments may lead to reductions in LOS, ED symptom severity, and exacerbation of psychological co-morbidities. As such, future research should aim to gain a stronger understanding of adolescent personality traits in relation to ED maintenance and recovery, and how strategies related to reducing overcontrol symptoms can aid treatment outcomes.

What is already known on this subject?

Perfectionism, asceticism and overcontrol are personality traits known to affect adults with EDs; however, little is known of this relationship in adolescents with EDs.

What does this study add?

The present study provides some early evidence of the relationship of overcontrol in a large clinical sample of adolescents with eating disorders.

Compliance with ethical standards

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