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Early maladaptive schemas and body mass index in subgroups of eating disorders: a differential association

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Abstract

Objective: The objectives were (1) to examine whether 3 eating disorder subgroups, as defined by the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (*DSM-IV*) classification system, exhibit a specific profile in terms of early maladaptive schema (EMS) factors, and (2) to investigate the relationship between body mass index (BMI) and EMS factors in each of the individual eating disorder subgroups.

Methods: The presence of EMS was measured by the Young Schema Questionnaire Long Form among patients affected by restrictive anorexia nervosa, binge/purging-type anorexia nervosa, and bulimia nervosa. Principal component factor analysis was used to investigate the factor structure of the EMS across eating disorder subgroups. General linear model analysis was applied to examine the differences of the subgroups in terms of their EMS factors. Differential association between BMI and schema factors was tested by analysis of covariance.

Results: Four EMS factors were extracted, which accounted for approximately 72% of the variance. The 3 eating disorder subgroups differed in terms of their EMS factor profiles. The analysis of covariance resulted in a significant negative relationship between BMI and EMS factor 2 in the bulimia nervosa group ($P < .0099$), indicating that higher severity on defectiveness, failure, dependence, enmeshments, subjugation, approval-seeking (EMS factor 2) was associated with lower values on BMI.

Conclusion: The findings of this study indicate that EMSs based on Young's conceptualization of EMS, as measured by the Young Schema Questionnaire, differ significantly among eating disorder subgroups defined by the phenomenological approach used by the *DSM-IV* diagnoses. These results are consistent with the notion that dysfunctional cognitions may play an important role in the development and maintenance of the symptoms that underlie the *DSM-IV* classification of the eating disorder subtypes.

1. Introduction

Cognitive-behavioral models of eating disorders assume that dysfunctional cognitions that patients sustain play an important role in the development and maintenance of the symptoms that underlie the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (*DSM-IV*) classification of these disorders [1,17]. Some models focus on the group of cognitions that are related to food, weight, and shape, and are specific to patients with eating disorders [1,2]. Some other cognitive-behavioral conceptualization of eating disorders integrates into their models core beliefs that concern beliefs on attachment to others, autonomy, competence, sense of identity, ability to express valid needs and emotions, limit setting capacity, and self-control [3-5]. These types of dysfunctional cognitive contents are not specific to eating disorders and were found in other mental disorders as well [6]. Young [7] identified 19 unconditional schema-level representations that cover the aforementioned topics of self-representations and he labeled them early maladaptive schemas (EMSs). An EMS is a pervasive pattern composed of cognitions regarding oneself and one's relationships with others developed during childhood or adolescence, elaborated throughout one's lifetime and dysfunctional to a significant degree [8]. Young hypothesized that EMS might be at the core of personality disorders, milder characterological problems, and many chronic Axis I disorders [8].

There is research evidence suggesting the presence of EMS in restricting anorexia nervosa (RAN), binging/

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purging anorexia nervosa (BPAN), and bulimia nervosa (BN) [3,4]. Early maladaptive schemas are more strongly held by patients affected by eating disorders than by healthy controls. In different studies, different EMSs were found to effectively differentiate the eating disorder subgroups [3,4]. In nonclinical adolescent girls with high and low symptom severity on eating disorders, as measured by the Eating Attitude Test (EAT), it has been reported that the high-EAT group had significantly higher scores than the low-EAT group on the Young Schema Questionnaire (YSQ) [9]. In addition, strong associations were found between certain EMS and specific cognitions reflecting eating behavior, such as weight and shape [5]. The outcome of group cognitive-behavior therapy for BN on most indices was associated with pretreatment levels of EMSs [10].

Several studies found different personality profiles in the 3 eating disorder groups [11-14]. Restrictive anorexia nervosa was shown to be linked to personality traits such as introversion, conformity, perfectionism, rigidity, and obsessive-compulsive features [14]. The results concerning patients with BN are more mixed; they have often been found to be extroverted, histrionic, and affectively unstable [11]. Individuals with BPAN, or with a history of both anorexia and bulimia, tend to show severe and diffuse pathologies, and to be more impaired than people with either RAN alone or with BN alone [13]. In sum, previous studies suggest that subgroups of eating disorders are characterized with specific schema profiles. In addition to these differences, specific schema profiles were found to be associated with specific personality variables, which in turn have been shown to be related to eating disorders.

The body mass index (BMI) is one of the most important marker of eating disorders, and its relevance has been recognized from a general health perspective as well. In previous studies, it was found that dysfunctional cognitions concerning weight and shape play an important role in the maintenance of low BMI. Studies on YSQ found that EMS are related to the ability of sustaining weight control [5,15].

Despite the associations between eating disorders and cognitive schemas reported in the aforementioned studies, the previous literature has certain shortcomings. The total sample size and the sample in each of the eating disorder subgroups were generally small, which question the robustness and generalizability of the results [3,4]. Furthermore, in some of the studies, a large number of individual measures were tested, which raises the possibility of an increase in type I error (ie, α inflation); in addition, in some studies, the univariate and the multivariate approaches yielded contradictory results [4]. We now conduct a large study with sufficient number of patients within each of the eating disorder subgroups to investigate the above associations further.

Specifically, our study had 2 specific objectives. The first objective was to examine whether the 3 eating disorder subgroups display a specific profile in terms of EMS factors. Based on empirical evidence concerning the relationships between different personality variables and EMS [6,16], we assumed that the 3 eating disorder subgroups would differ in terms of their schema profiles. The second objective of the study was to investigate the relationship between BMI and EMS factors in each of the individual eating disorder subgroups. In light of previous studies, we assumed that there would be a significant relationship between the BMI and the individual schema factors, and that this relationship would be manifested in each of the eating disorder subgroups.

2. Materials and methods

2.1. Sample

The subjects were inpatients in a study of psychopathology of eating disorders. They were referred to an inpatient psychotherapy unit specialized for treating eating disorder at the Department of Psychiatry and Psychotherapy, Faculty of General Medicine, Semmelweis University, Budapest Hungary, and all participated voluntarily after informed consent was obtained. The women participating in the study were white.

The patients were diagnosed by an experienced investigator and clinical psychiatrist specialized in the psychotherapy of eating disorders using the *DSM-IV* [17] criteria. Patients with binge-eating disorder, eating disorder not otherwise specified (NOS), and, because of the small sample size (1 RAN, 1 BPAN), male patients were excluded from the study.

2.2. Measures

The YSQ Long Form (YSQ-L) [16], a 240-item, self-administered questionnaire, was used to assess the presence of EMS. The items are answered on a 6-point scale, with higher item scores (range, 1-6) reflecting a more unhealthy level of maladaptive schemas. The YSQ-L measures 19 cognitive schemas reflecting different broad areas such as unconditional, schema-level cognitions about oneself, others, and the world. The psychometric properties of the YSQ-L have been reported to be acceptable with patients with BN or anorexia of the bulimic subtype and control subjects with no known clinical disorders [18], with an internal consistency reliability (Cronbach α) of .986 and discriminant validity regarding a statistically significant separation between bulimic and control subjects. In our prior studies, the discriminant and convergent validity of the Hungarian YSQ-L was supported by demonstrating an association of the scale with the Temperament and Character Inventory and Symptom Checklist-90 in a normal and a mixed clinical sample with depression and anxiety, and personality and eating disorders [19]. In addition, the Hungarian version of the YSQ-L scale was shown to have an acceptable internal consistency reliability (Cronbach α = .988).