

## Understanding of the eating disorders continuum and diagnosis of eating disorders: Is there any boundary between diagnosed and non-diagnosed individuals?

Mika Omori and Yuji Sasaki (*Institute of Psychology, University of Tsukuba, Tsukuba 305-8572, Japan*)

There has been an argument about whether an eating disorders continuum exists. With an aim of understanding the concept of an eating disorders continuum, this paper reviewed a body of research literature examining pathological eating behaviors and psychological correlates associated with pathological eating behaviors. It was found that most of the previous studies exploring characteristics of eating disorders had compared a clinical population to a nonclinical population. It was argued that such research methods ignore the fact that thresholds of eating disorders are different among revised versions of DSM and are based on how the definition of each symptom is used. Furthermore, this paper discussed problems in discerning an eating disorders continuum in conjunction with existing classification systems employing a categorical approach.

**Key words:** an eating disorders continuum, pathological eating behaviors, psychological correlates, clinical vs nonclinical population, classification.

### *Introduction*

Eating disorders, including Anorexia Nervosa (AN) and Bulimia Nervosa (BN), are characterized by pathological eating behaviors. Individuals with AN are likely to engage in strict food restraint, and to fear gaining weight, whereas those who are diagnosed as BN demonstrate recurrent episodes of binge eating. Common characteristics across these two disorders are the fear of gaining weight, the desire to lose weight, and body dissatisfaction (DSM-IV). Recent studies reported that not only clinic-referred but also a fairly large number of non-clinic-referred individuals were found to engage in certain pathological eating behaviors (Cooper, Waterman, & Fairburn, 1984; Drenowski, Yee, Kurth, & Krahn, 1994; Killen, Hayward, Wilson, Taylor, & Litt et al., 1994; Ledoux, Choquet, & Flament, 1991; Mintz & Betz, 1988; Mukai, Crago, & Shisslak, 1994; Rand & Kuldau, 1991; Toro, Castro, Garcia, Perez, & Cuesta, 1989). For

instance, in a study conducted by Mintz and Betz, 61% of non-clinical subjects engaged in certain forms of pathological eating behaviors such as strict dieting, bingeing, and purging. In their study, only 33% of the subjects studied were categorized as having normal eating habits. Furthermore, longitudinal shifts from dieting to clinically significant symptoms were found (Drenowski, Yee, Kurth, & Krahn, 1994; Herzog, Hopkins, & Burns, 1993). Given this high prevalence of pathological eating behaviors among young females and the shifts among categories of pathological eating behaviors, one can raise questions: Does an eating disorders continuum exist? If it exists, how should we view eating disorders as diagnostic entities?

First conceptualized by Nylander (1971), the eating disorders continuum presumes fundamental similarities between the true eating disorder at one extreme of the continuum and normalcy at another extreme of the continuum (Polivy & Herman, 1987).

This view has been contested by a number of theorists whose argument emphasizes critical differences between true syndromes and milder syndromes in dieters and non-dieters. Such a view assumes the discontinuity model of eating disorders. When viewing eating disorders based on the discontinuity model, the most likely problem which researchers would encounter is the heterogeneity of individuals diagnosed as eating disorders. Currently existing classification systems aim to form homogeneous sets of individuals in order to predict the course of disorders and responsive treatment outcomes (Goodman, 1994). However, they result in drawing unclear boundaries between diagnosed and non-diagnosed individuals because of arbitrariness. Furthermore, Vitousek and Manke (1994) claim that the instability of weight and symptom patterns accounts for the heterogeneity within subgroups. Thus, contradicting to their original intention, classifications conform heterogeneous set of individuals diagnosed as eating disorders. It is considered that this heterogeneity would contaminate research findings concerning the course of eating disorders and treatment outcomes. Alternatively, Shisslack (1994) indicates the importance of examining pathological eating behaviors in the general population in order to better understand the course of the disease as well as effective methods for its treatment and prevention.

This paper aims to review research findings on pathological eating behaviors characteristic of eating disorders and psychological correlates associated with such disordered behaviors, and to discuss problems regarding the classification of eating disorders. To accomplish this, the eating disorders continuum will be conceptualized. Next, research findings related to pathological eating behaviors and psychometrics associated with these behaviors will be provided.

### ***The Eating Disorders Continuum***

The prevalence of eating disorders and pathological eating among the general population suggests the need for an examination of disturbed eating behaviors among non-clinic referred individuals. Cooper, Waterman, and Fairburn (1984) conducted a survey of the eating habits and attitudes of young adult women. Of 369 respondents,

20.6% reported eating problems and 6.5% specifically reported using self-induced vomiting as a method of weight control. Ledox, Choquet, and Flament (1991) surveyed the prevalence of eating disorders and their relation to depressive symptoms for the general population between the ages of 12-19 years in France. Of 1729 girls, 1.1% met the DSM-III-R criteria for bulimia. 28.2 % of girls and 13.4 % of boys reported bingeing episodes during the past 12 months. A high prevalence of bulimic symptoms was evidenced by their study. Mukai, Crago, & Shisslak (1993) examined eating disorders tendencies for 197 eleventh grade Japanese girls. Their study revealed that 35% of the subjects fell in the clinical range of the Eating Attitude Test 26, scoring higher than the cutoff score of 20 for the clinical subjects. The evidence of highly prevalent pathological behaviors raises a question of whether or not eating disorders are discrete diagnostic entities.

Nylander (1971) first conceptualized a "continuum" of eating disorders, reporting that a majority of respondents perceived themselves as overweight or fat, and that nearly 10% of the subjects exhibited more than three symptoms of anorexia nervosa. Mintz and Betz (1988) postulated a continuum ranging from no concern with weight and normal eating at one extreme, to anorexia or bulimia on the other. They classified 643 non-anorexic, non-obese subjects into six categories: bulimic, subclinical, binger, purger, chronic dieter, and normals. Variables associated with disturbed eating behaviors, such as low self-esteem or body dissatisfaction, were highest in bulimics and lowest in normal group. In general, the continuity model presumes that individuals who indicate the extreme manifestations of BN would develop BN, while the discontinuity model emphasizes individuals' predisposing characteristics such as depression and impulse control problems (Lowe, Gleaves, DiSimone-Weiss, Furgueson, Gayda, Kolsky et al., 1996). The continuity model refers to a continuum along which eating disorders exist and on which the difference between diagnosed entities and other state is quantitative. On the other hand, the discontinuity model refers to a model which emphasizes qualitative differences between diagnosed individuals and the non-diagnosed

population.

In an extensive study Lowe, Gleaves, DiSimone-Weiss, Furgueson, Gayda, Kolsky, Neal-Walden, Nelson, and McKinney (1996) tested the continuity model of BN through multiple methods involving questionnaires, clinical interviews, and food records. In the Lowe et al. study, restrained eating was distinguished from dieting to lose weight based on previous findings suggesting that a history of dieting and overeating contribute to the vulnerability of restrained eaters to counter-regulatory and emotional eating. In Lowe et al.'s study, 73 women were classified as Bulimic (n=21), Current dieters (n=15), Restrained nondieters (n=14), and Unrestrained nondieters (n=23). Based on subjects' scores on the degree of pathological eating behaviors on questionnaires such as the Eating Behavior Study Questionnaire, the Eating Disorders Examination (EDE), the Eating Disorders Inventory-2 (EDI-2), and Derogatis Symptom Inventory (DSI), factor analysis was performed and three factors were extracted: General Psychopathology, Restraint/Weight Concerns, and Binge Eating. General Psychopathology consisted of subscales of the EDI-2 (Ineffectiveness, Interpersonal distress, and Interoceptive Awareness) and all subscales of the DSI such as Anxiety and Social Alienation. Restraint/Weight Concerns included subscales of the EDE such as Weight Concern and Shape Concern, and subscales of the EDI-2 such as Drive for Thinness and Body Dissatisfaction. Binge Eating involved subscale of the EDE including Eating Concern and Overeating and Binges of food records. These three factors were used as dependent variables for the following trend analysis and regression analysis to evaluate the continuity and discontinuity model.

Trend analyses were conducted in order to examine whether groups differed on the three factors. For the General Psychopathology, Restraint/Weight Concerns, and the Binge Eating factors, the linear trends were significant, which support the continuity model. For the Binge Eating factor, the cubic and quadratic trends were also significant, and can best be explained by the discontinuity model. A large difference in the Binge Eating score was found between the Bulimia group and the other three groups. To provide further evidence of

the continuity/discontinuity model, a series of multiple regression analyses were performed to test both the continuity and discontinuity model. Of three factors, Restraint/Weight Concerns and Psychopathology were entered into the analysis as predictors of binge eating. The hypotheses which the authors drew were: (1) if only Restraint/Weight Concerns would predict binge eating, the continuity model is supported; and (2) if both Restraint/Weight Concerns and Psychopathology would be necessary to predict binge eating, the discontinuity model is supported. An underlying assumption which differentiated the discontinuity model from the continuity model is that some form of psychopathology, such as body dissatisfaction and extreme weight control methods, is a precursor and a contributing factor to the initial manifestation of bulimia. It was revealed that only the unique effect of the Restraint/Weight Concerns was significant in predicting binge eating when General Psychopathology was controlled. Furthermore, the current dieters and the restrained nondieters were compared on three factors. A statistically significant difference was found for the Restraint/Weight Concern factor; the current dieters scored significantly higher than the restraint nondieters. Those three analyses supported the continuity model more strongly than the discontinuity model.

Overall, epidemiological studies and empirical findings focusing on the eating disorders continuum have partly supported the continuity model. As the Lowe et al. (1996) study illustrates, researchers' interests have tended toward pathological eating behaviors such as strict food restraints aiming to reduce body weight, casual dieting, and binge eating. These behaviors alone may not constitute psychopathology. More thorough analyses of different eating behaviors and the reciprocal relationship between pathological eating behaviors and emotional states will be needed in both naturalistic settings and laboratories. In the next section, research findings on pathological eating behaviors will be reviewed.

### ***Pathological Eating Behaviors***

According to classification systems such as DSM and ICD, pathological eating behaviors in the context of eating disorders involve avoidance of "fat-

tening food", binge eating, inappropriate compensatory behaviors such as self-induced vomiting, purging, fasting, and the use of diuretics and laxatives. Examination of pathological eating behaviors, particularly binge eating, helps us answer whether diagnosed individuals differ from non-clinical individuals qualitatively or quantitatively. Binge eating and inappropriate compensatory methods are essential features of BN and can be observed in individuals with Binge-Eating/Purging type of AN. Mintz and Betz (1988) found that 20% of their sample fell in the bingers category.

However, in interpreting such findings, the difficulties in assessing binge eating cannot be ignored. Such difficulties are embedded in the definition and assessment tools of binge eating. Mintz and Betz define binging as "eating a large amount of food in a short period of time" (Mintz & Betz, 1988, p.464) based on DSM-III-R. According to diagnostic criteria for BN in DSM-III, binge eating is defined as "rapid consumption of a large amount of food in a discrete period of time" (p.68). In the most recent DSM-IV, the definition of binge is stated as "eating, in a discrete period of time (e.g., within any 2-hour period), an amount of food that is definitely larger than most people would eat during a similar period of time and under similar circumstances" (p.549). Although DSM-IV attempts to make a clear distinction between binge eating and ordinary overeating, the boundary between binge eating and overeating is still ambiguous. This unclear definition inevitably results in the difficulty in assessing binge eating.

Additionally, problems with assessment tools must be mentioned. For both clinical and research purpose, self-report inventories and interview protocols are utilized to examine the frequency and the degree of binge eating. Individuals who are preoccupied with their body weight are likely to report that they eat much larger amount of food than other people. Those individuals tend to be knowledgeable about the calories and nutrition of foods, and to set their own rules such as how many calories and foods they allow themselves to eat. Therefore, they feel that they binge when they break their rules. Consequently, self-reported binge eating behaviors do not always represent "binge eating" defined by classification systems or researchers.

From this point of view, again, binge eating should be considered in relation to dieting or food restraint behaviors.

### ***Psychological Correlates***

Psychopathological characteristics associated with eating disorders were examined by comparing the psychological variables exhibited by individuals with eating disorders to the variables of non-clinical individuals. Whether those psychological characteristics are associated with the degree of pathological eating would provide the evidence for the continuity/discontinuity model. The discontinuity model presumes predisposing psychological characteristics which would develop clinically significant symptoms. Bruch (1973) assumed that psychological correlates would distinguish individuals with eating disorders from the non-clinical population.

Previous studies delineated psychological characteristics of clinical population rather than offering the continuity model. Most research compared groups with eating disorders to non-clinical referred samples, so that psychosocial characteristics associated with pathological eating among non-clinical samples were not well described. In other words, these studies implicitly employed the discontinuity model of eating disorders. Psychological correlates found by precedent studies and their methodologies are as follows.

Empirical studies concur that depression and anxiety are the most prominent characteristics in both anorexics and bulimics. Williamson, Kelly, Davis, Ruggiero, and Blouin (1985), for example, compared the psychopathology of bulimics with normal and obese subjects. Their study revealed that bulimics were more depressed, more anxious, and generally more neurotic and impulsive compared to other groups. The findings also revealed that bulimic and obese subjects shared common psychopathologies such as obsessiveness, impulsivity, and guilt. Gleaves and Eberenz (1993) studied psychopathology of anorexia nervosa using factor analysis. Five factors were extracted as psychological characteristics of anorexics: "Fasting and Restrictive Eating," "Depression, Anxiety, and Negative Self-Image," "Bulimic Behaviors," "Fear of Fatness/Body Image Disturbance," and "Impulsive

Behaviors/Post-Traumatic Respond." Furthermore, it was reported that self-esteem and the use of cognitive and behavioral coping strategies are inversely associated with the degree of pathological eating (Mayhew & Edelman, 1989). In their study, the irrational beliefs and use of avoidance coping are directly associated with a non-clinical subject's score on the Eating Disorders Inventory (EDI). Cognitive dysfunction or cognitive distortion has received attention as an important factor in maintaining pathological eating behaviors. Both experimental and questionnaire survey research have examined the role of cognition in bulimics. Questionnaires developed to assess cognitive distortions focused primarily on concerns about food, eating, body shape, and weight (Dritschel, Williams, & Cooper, 1991). Dritschel et al. reported that the degree of selective abstraction relating to these concerns was higher in bingers. Butow, Beumont, & Touyz (1994) investigated the dysfunctional cognition and cognitive styles in anorexic, bulimic, and non-clinical groups. Black and white rules in clinical groups were prominent in clinical groups. Members of the anorexic group reported that they were more likely to think in absolute terms for different aspects of their lives than members of the bulimic group.

As it is illustrated above, findings about relationships between psychological correlates and pathological behaviors were obtained by comparing between clinical samples with non-clinical samples. Examination of whether or not the manifestation of such psychological characteristics contributes to the development of clinical symptomatology requires the use of longitudinal designs as well as cross-sectional designs. The onset of eating disorders is often during adolescence, which is the period when girls go through radical changes in body shape, menarche, and the development of a sense of self. Body shape concern and dieting are quite common among adolescent girls and can be considered a developmental issue. The relationship between the development of pathological eating behaviors and psychological correlates among females in their adolescence was examined by Attie and Brooks-Gunn (1989) in their 2-year longitudinal study. Physical status, body image, psychopathology and personality dimensions, the severity of

eating problems, and family functioning were measured for 193 white females in their middle school years. A concurrent multiple regression analysis for Time 1 revealed that grade, perceived timing of puberty, body image, and psychopathology explained the variance of the degree of problem eating. At Time 2, body image and perfectionism were found to be significant predictors of the severity of problem eating. Furthermore, a longitudinal analysis indicated that the degree of problem eating at Time 1 and body image are significant predictors of the degree of problem eating at Time 2. Attie et al. concluded that "body shape becomes a primary focus... efforts to control weight intensify during the middle-school years" (Attie et al., p. 76). In other words, their study suggests that body image, closely tied to the pubertal change in early adolescence, would be a risk factor for problem eating from a developmental perspective. A similar study conducted by Mukai (1996) investigated relationships among physical development, body dissatisfaction, depressive mood, and pathological eating in young adolescents using a prospective design. The results indicated that depressive mood would be responsible for pathological eating behaviors, and drastic physical development was associated with body dissatisfaction and pathological eating behaviors.

In sum, it has been found that depression, anxiety, and cognitive dysfunction are common psychological correlates of eating disorders. Future research is needed to examine how these correlates are manifested along the continuum. Furthermore, more findings from prospective studies are desired.

### *Classification of Eating Disorders*

In discussing whether or not an eating disorders continuum exists, it is necessary to understand how classification systems define eating disorders and how a continuum can be conceptualized in conjunction with these classification systems. Two widely used classification systems, DSM and ICD systems, define mental disorders in a descriptive and categorical manner. DSM-IV explicitly states that

"DSM-IV is a categorical classification that divides mental disorders into types based on

criteria sets with defining features... . A categorical approach to classification works best when all members of a diagnostic class are homogeneous, when there are clear boundaries between classes, and when the different classes are mutually exclusive. Nonetheless, the limitations of the categorical classification system must be recognized" (p. xxii).

Thus, DSM-IV does not presume that each classification of disorders is a discrete entity distinguished from other mental disorders or the absence of mental disorders. The primary purpose of using such a classification system is to predict the course of patients' disorders and of their responses to treatments (Goodman, 1994). In this sense, classification systems must contribute to better understandings of features shared by disorders in the same category. However, a categorical approach may mislead one to consider diagnosed disorders as a discrete entity although DSM-IV states that "[i]n DSM-IV, there is no assumption that each category of mental disorder is a completely discrete entity with absolute boundaries dividing it from other mental disorders or from no mental disorder" (p. xxii). Two problems in interpreting or understanding eating disorders as clinical entities resulting from this atheoretical and categorical approach must be noted.

First, definitions of symptoms in such categorical classifications are arbitrary. This can be illustrated by comparing diagnostic criteria of DSM-IV and ICD-10.

The criteria for AN in the DSM-IV are:

- A. Refusal to maintain body weight at or above a minimally normal weight for age and height (e.g., weight loss leading to maintenance of body weight less than 85% of that expected; or failure to make expected weight gain during period of growth, leading to body weight less than 85% of that expected).
- B. Intense fear of gaining weight or becoming fat, even though underweight.
- C. Disturbance in the way in which one's body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or denial of the seriousness of the current low body weight.
- D. In postmenarcheal females, amenorrhea, i.e.,

the absence of at least three consecutive menstrual cycles. (A woman is considered to have amenorrhea if her episodes occur only following hormone, e.g., estrogen, administration.) (p. 544-545)

An alternative classification system, ICD-10 determines that AN exists when:

- A. There is weight loss or, in children, a lack of weight gain, leading to a body weight at least 15% below the normal or expected weight for age and height.
- B. The weight loss is self-induced by avoidance of "fattening foods."
- C. There is self-perception of being too fat, with an intrusive dread of fatness, which leads to a self-imposed low weight threshold.
- D. A widespread endocrine disorder involving the hypothalamic-pituitary-gonadotropin axis is manifest in women as amenorrhea and in men as a loss of sexual interest and potency. (An apparent exception is the persistence of vaginal bleeds in anorexic women who are on replacement hormonal therapy, most commonly taken as a contraceptive pill.
- E. The disorder does not meet criteria A and B for bulimia nervosa. (p. 112)

Both systems require amenorrhea and one's weight to be 15% below the normal or expected weight. Although the DSM-IV states that normal weight can be found in publications such as the Metropolitan Life Insurance tables and pediatric growth charts, the reference is not absolute. Furthermore, the DSM-IV claims that "these cutoffs are provided only as suggested guidelines for the clinician" (p. 540). Regarding amenorrhea, these two systems do not agree in the duration. While the DSM-IV claims three consecutive months, the ICD-10 does not have any cutoff for duration. As this criterion illustrates, the DSM-IV seems to be more strict compared to the ICD-10. When comparing diagnostic criteria for BN, the difference is more obvious than that for AN.

According to the DSM-IV, BN is diagnosed when one has:

- A. Recurrent episodes of binge eating. An episode of binge eating is characterized by both of the following:
  - (1) eating, in a discrete period of time (e.g.,

within any 2-hour period), an amount of food that is definitely larger than most people would eat during a similar period of time and under similar circumstances

(2) a sense of lack of control over eating during the episode (e.g., a feeling that one cannot stop eating or control what or how much one is eating)

B. Recurrent inappropriate compensatory behavior in order to prevent weight gain, such as self-induced vomiting; misuse of laxatives, diuretics, enemas, or other medications; fasting; or excessive exercise

C. The binge eating and inappropriate compensatory behaviors both occur, on average, at least twice a week for 3 months.

D. Self-evaluation is unduly influenced by body shape and weight.

E. The disturbance does not occur exclusively during episodes of Anorexia Nervosa. (p. 549-550)

The ICD-10 defines BN as:

A. There are recurrent episodes of overeating (at least twice a week over a period of 3 months) in which large amounts of food are consumed in short periods of time.

B. There is persistent preoccupation with eating, and a strong desire or a sense of compulsion to eat (craving).

C. The patient attempts to counteract the "fattening" effects of food by one or more of the following:

- (1) self-induced vomiting;
- (2) self-induced purging;
- (3) alternating periods of starvation;
- (4) use of drugs such as appetite suppressants, thyroid preparations, or diuretics; when bulimia occurs in diabetic patients they may choose to neglect their insulin treatment.

D. There is self-perception of being too fat, with an intrusive dread of fatness (usually leading to underweight). (p.113)

Whereas the DSM-IV attempts to make a clearer definition of binge eating, the ICD-10 does not distinguish binge eating from overeating in general. Additionally, the duration of purging behavior is not stated in the ICD-10. Thus, classification systems themselves draw lines between diagnosed and

non-diagnosed individuals differently.

The second problem concerns the revision of diagnostic criteria. A review by Lancelot, Brooks-Gunn, Warren, and Newman (1991) found lower incidence rates for BN with DSM-III-R than with DSM-III. The authors speculate that the inclusion of a minimum frequency of binge behavior, and the fact that self-induced vomiting, the use of laxatives or diuretics, strict dieting or fasting, or vigorous dieting to prevent weight gain were responsible for this difference. Furthermore, changes between DSM-III-R and DSM-IV indicate difficulties in conceptualizing AN and BN as separate clinical entities. Binge eating and purging that occur exclusively during AN are now subsumed under AN in DSM-IV, which no longer lead to a separate diagnosis of BN as stated in DSM-III-R. The subtypes of AN distinguish between the presence of binge eating and purging and the presence of food-restricting behavior. Given the subtypes for AN, the diagnosis of BN cannot be given if the behavior occurs exclusively during AN. Subtypes make a distinction between purging and nonpurging types.

It is obvious that the revision of a diagnostic manual results in changes in classification. Whether or not these subtypes constitute qualitatively or quantitatively different clinical entities has been studied using clinically significant populations. Nakajima, Nakano, Tsuboi, and Tsutsui (1994) compared courses of eating disorders among inpatients with AN, BN, and Eating Disorders Not Otherwise Specified (NOS) based on DSM-III-R. In their prospective design, inpatients were categorized into improved or non-improved group. The results indicated no significant differences among these three. Additionally, Nakajima et al. examined relationships between symptoms and courses of eating disorders. Among symptoms such as distorted body image, purging, overconcern with body weight and shape, and binge eating, overconcern with body weight was related to drop out. This implies that, in understanding eating disorders, rather than relying on descriptive classification system, it is necessary to focus on each behavioral and psychological characteristic.

Changes over time in eating disorder symptomatology were empirically confirmed by Ash and Piazza (1995). Ash and Piazza investigated

changes in demography and symptomatology of individuals diagnosed as eating disorders over the last three decades by examining medical records. The results indicated that the number of diagnosed with BN and/or atypical eating disorders had significantly increased over 30 years. Furthermore, it was found that more patients with eating disorders were receiving secondary Axis I and II diagnoses of DSM classification systems in recent years. According to Ash et al. more than half of 1980 and 1990 groups examined in their study received Axis I and II diagnoses while less than 10% of 1970 group received such diagnoses. This implies more heterogeneity among individuals diagnosed as eating disorders in this decade.

It is concluded that existing classification systems function to distinguish individuals who meet the full syndrome of eating disorders. However, since the classification is atheoretical and involves arbitrary criteria, the diagnostic criteria may not necessarily classify those with the full syndrome of eating disorders as extreme. Consequently, empirical studies designed to contrast groups of individuals who meet the full syndrome of AN and BN to those who do not meet such criteria may contain contaminated data sets. That is, what is called a non-clinical group may include individuals who exhibit disorder-specific psychopathology and problematic eating behaviors to a degree that cannot be ignored.

### ***Discussion and Conclusion***

Overall, an eating disorders continuum has received empirical support which it is speculated may have a significant effect on classification, treatment, and prevention. First, the evidence of an eating disorders continuum would lead researchers and clinicians to reconceptualize the meaning of classification systems. According to Russell (1988), the diagnostic assessment in general aims to "provide the most useful and illuminating summary of current medical knowledge, thus enabling clinicians to communicate to each other what they have deduced about their patients" (Russell, p. 4). Therefore, the clinical entities have to possess "a coherence of presentation and a knowledge of the underlying causes" (Russell, p.4). Admitting that our knowledge of the etiology and the course of

disease is confined to a descriptive, exploratory level, Russell emphasizes that the precision of a clinical entity is influenced by our understanding of such disease courses. One purpose of classification is to form homogeneous clinical groups which lead clinicians and researchers to establish effective treatment plans. However, given evidence about the eating disorders continuum, one should be aware that a number of individuals do not meet diagnostic criteria but have a great degree of pathological eating behaviors. Only referring to the criteria would lead clinicians to underestimate the severity of the pathology. From this point, the validity of the diagnostic criteria needs continuous testing and refinement.

In the case of the eating disorders diagnostic criteria, the most recent DSM attempts to make every effort to establish discrete clinical entities, AN and BN. However, as the definitions of binge eating exemplify, diagnostic criteria are arbitrary. This may reflect the fact that the criteria have been established based on reports from clinical settings. Therefore, when researchers attempt to examine the course of disorders, while focusing on different aspects of pathological behaviors and psychological correlates, the inclusion of non-diagnosed individuals should be addressed. In relation to the debate regarding whether an eating disorders continuum exists, the relationship between BN and AN must be discussed. As both the ICD-10 and the DSM-IV indicate, there is much overlap between AN and BN. A number of patients with BN experience episodes more characteristic to AN at an early stage of their lives. It is noted that diagnostic criteria as described in the ICD-10 and the DSM-IV only refer to individuals' states at a certain time. As Drenowski, Yee, Kurth, and Krahn (1994) reported, shifts of pathological behaviors on a continuum are commonly observed among individuals experiencing eating disorders or eating disorder symptoms.

For future research, it is important to recognize individuals with a partial syndrome of eating disorders. Providing a finding from Dancyger and Garfinkel, Garfinkel, Kennedy, and Kaplan (1995) suggest that individuals with partial syndrome tend to be vulnerable to different conditions. Dancyger et al. found that a partial syndrome group ex-

hibited moderately high levels of depression on Beck Depression Index (BDI). Garfinkel et al. suggest that the relationship between partial and full syndromes should be focused. In order to obtain psychometric and behavioral properties of individuals with partial syndrome, assessment tools such as interview protocols and self-report scales need to be developed. Although questionnaires have been developed to assess psychological disturbances and disturbed behaviors of people with eating disorders, such instruments have been validated with groups of individuals diagnosed as AN and/or BN based on a certain version of classification systems. For example, the Eating Disorder Inventory (EDI) (Garner, Olmsted, & Garfinkel, 1983) was designed to measure pathology and traits which are related to eating disorders and was validated with diagnosed individuals. Therefore, it is assumed that the application of these instrument to a partial syndrome group may not appropriately assess disordered eating behaviors and psychopathology. The development of instruments designed to evaluate different dimensions constituting eating disorders is necessary in the future.

Understanding the eating disorders continuum concerns the prevention of eating disorders. Shisslak, Crago, Neal, and Swain (1987) state that preventive efforts will benefit females who show self-destructive attitude and eating behaviors but do not meet the diagnostic criteria. Also, Shisslak et al. point out that little documentation regarding prevention has been done. It is presumed that examining the relationship between partial syndrome and full syndrome and shifts of the states along the eating disorders continuum would provide significant information about risk factors and individuals who are vulnerable to eating disorders. In conclusion, viewing eating disorders as a continuum rather than discrete entities will suggest the necessity of prevention for populations at risk such as high school and college students.

## References

- American Psychiatric Association. 1994 *Diagnostic and statistical manual of mental disorders, fourth edition*. Washington DC: Author.
- Ash, J. B., & Piazza, E. 1995 Changing symptomatology in eating disorders. *International Journal of Eating Disorders*, **18**, 27-38.
- Attie, I., & Brooks-Gunn, J. 1989 Development of Eating problems in adolescent girls: A longitudinal study. *Developmental Psychology*, **25**, 70-79.
- Butow, P., Beumont, P., & Touyz, S. 1993 Cognitive processes in dieting disorders. *International Journal of Eating Disorders*, **14**, 319-329.
- Bruch, H. 1973 *Eating Disorders*. New York: Basic Books; 1973.
- Cooper, P. J., Waterman, G. C., & Fairburn, C. 1984 Women with eating problems: A community Survey. *British Journal of Clinical Psychology*, **23**, 45-52.
- Drenowski, A., Yee, D. K., Kurth, C. L., & Krahn, D. D. 1994 Eating Pathology and DSM-III-R Bulimia Nervosa: A continuum of behavior. *American Journal of Psychiatry*, **151**, 1217-1219.
- Dritschel, B. H., Williams, K., & Cooper, P. J. 1991 Cognitive distortions amongst women experiencing bulimic episode. *International Journal of Eating Disorders*, **10**, 547-555.
- Garfinkel, P. E., Kennedy, S., & Kaplan, A. S. 1995 Views on classification and diagnosis of eating disorders. *Canadian Journal of Psychiatry*, **40**, 445-456.
- Garner, D. M., Olmsted, M. P., & Polivy, J. 1983 Development and validation of a multi-dimensional eating disorder inventory for anorexia nervosa and bulimia. *International Journal of Eating Disorders*, **2**, 15-34.
- Goodman, A. 1994 Pragmatic assessment and multitheoretical classification: Addictive disorder as a case example. In J. Z. Sadler, O. P. Wiggins, & M. A. Schwartz (Eds.) *Philosophical Perspectives on Psychiatric Diagnostic Classification*. Baltimore, MD: The Johns Hopkins University Press.
- Gleaves, D., & Eberenz, K. 1993 The psychopathology of anorexia nervosa: A factor analytic investigation. *Journal of Psychopathology and Behavioral Assessment*, **15**, 141-152.
- Herzog, D. B., Hopkins, J. D., & Burns, C. D. 1993 A follow-up study of 33 subdiagnostic eating disordered women. *International Journal of Eating Disorders*, **14**, 261-267.
- Killen, J. D., Hayward, C., Wilson, D. M., Taylor, C. B., Litt, I., Simmonds, B., & Haydel, F. 1994

- Factors associated with eating disorder symptoms in a community sample of 6th and 7th grade girls. *International Journal of Eating Disorders*, **15**, 357-367.
- Lancelot, C., Brooks-Gunn, J., Warren, M. P., & Newman, D. L. 1991 Comparison of DSM-III and DSM-III-R bulimia nervosa classifications for psychopathology and other eating behaviors. *International Journal of Eating Disorders*, **10**, 57-66.
- Ledoux, S., Choquet, M., & Flament, M. 1991 Eating disorders among adolescents in an unselected French population. *International Journal of Eating Disorders*, **10**, 81-89.
- Lowe, M. R., Gleaves, D. H., DiSimone-Weiss, R. T., Furgueson, C., Gayda, C. A., Kolsky, P. A., Neal-Walden, T., Nelson, L. A., & McKinney, S. 1996 Restraint, dieting, and the continuum model of bulimia nervosa. *Journal of Abnormal Psychology*, **105**, 508-517.
- Mayhew, R., & Edelman, R. J. 1989 Self-esteem, irrational beliefs and coping strategies in relation to eating problems in a non-clinical population. *Personality and Individual Differences*, **10**, 581-584.
- Mintz, L. B., & Betz, N. E. 1988 Prevalence and correlates of eating disordered behaviors among undergraduate women. *Journal of Counseling Psychology*, **35**, 463-471.
- Mukai, T. 1996 Body dissatisfaction, depressive affect and eating problems among young adolescent girls: A prospective study. *Japanese Journal of Counseling Science*, **29**, 37-43.
- Mukai, T., Crago, M., & Shisslak, C. M. 1994 Eating attitudes and weight preoccupation among female high school students in Japan. *Journal of Child Psychology and Psychiatry*, **35**, 677-688.
- Nakajima, H., Nakano, K., Tsuboi, K., & Tsutsui, S. 1994 Sessyoku syougai no shindan ni kansuru kenkyu: Sabutaipu to tenki. *Shinshin Igaku*, **34**, 542-547.
- Nylander, J. 1971 The feeling of being fat and dieting in a school population: Epidemiologic interview investigation. *Acta Sociomedica Scandinavica*, **3**, 17-26.
- Polivy, J., & Herman, C. P. 1987 Diagnosis and treatment of normal eating. *Journal of Consulting and Clinical Psychology*, **55**, 635-644.
- Rand, C. S., & Kuldau, J. M. 1991 Restrained eating (weight concerns) in the general population and among students. *International Journal of Eating Disorders*, **10**, 699-708.
- Russell, G. F. M. 1988 The diagnostic formulation in bulimia nervosa. In D. M. Garner, & P. E. Garfinkel. (Eds.), *Diagnostic issues in anorexia nervosa and bulimia nervosa*. New York, NY: Brunner/Mazel, Inc.
- Shisslak, C. M., Crago, M., & Estes, L. S. 1995 The spectrum of eating disturbances. *International Journal of Eating Disorders*, **18**, 209-219.
- Shisslak, C. M., Crago, M., Neal, M., & Swain, B. 1987 Primary prevention of eating disorders. *Journal of Consulting and Clinical Psychology*, **55**, 660-667.
- Toro, J., Castro, J., Garcia, M., Perez, P., & Cuesta, L. 1989 Eating attitudes, sociodemographic factors and body shape evaluation in adolescence. *British Journal of Medical Psychology*, **62**, 61-70.
- Vitousek, J., & Manke, F. 1994 Personality variables and disorders in anorexia nervosa and bulimia nervosa. *Journal of Abnormal Psychology*, **103**, 137-147.
- Williamson, D. A., Kelly, M. L., Davis, D. C., Ruggiero, L., & Blouin, D. C. 1985 Psychopathology of eating disorders: A controlled comparison of bulimic, obese, and normal subjects. *Journal of Consulting and Clinical Psychology*, **53**, 161-166.
- World Health Organization. 1993 *The ICD-10 classification of mental and behavioral disorders: diagnostic criteria for research*. Geneva: Author.