Impulsivity in women with bulimia nervosa

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◆ Background

Impulsivity has been implicated in the development and typology of bulimia. There is empirical evidence suggesting that individuals with bulimia nervosa (BN) vary considerably in comorbid impulsivity in terms of type or number of different types of purging behaviors. In this study, we employed latent class analysis (LCA) to examine the patterns of eating behavioral symptoms on comorbid impulse control behaviors within individuals in optimally homogeneous classes.

◆ Methods

Participants were 180 adult women meeting the diagnostic criteria in the DSM-IV-TR for BN. All participants completed a series of self-report inventories of impulsive control behaviors, eating-related psychopathology, general psychological functioning, as well as demographic details. Akaike's Information Criterion (AIC) was applied to determine the optimal number of classes; lower AIC values indicate improvement of the model compared to the model with one class less. LCA was conducted using measures of eating disorder symptoms and impulse-control behaviors with binary (yes/no) response, as well as number of different types of purging methods, which is grouped into 3 categories (≤ 1, 2, and 3).

◆ Results

Three clusters of bulimic women were identified: an impulsive multi-purger class, a non-purger/uni-purger class, and a non-impulsive multi-purger class as shown in Table 1. The impulsive subgroup of BN is characterized by their lower educational level and earlier onset of eating disorder symptoms (Table 2). The LCA groups were compared with each other on eating-related measures (Table 3). Sub-analyses on six items of the BITE Severity subscale revealed no statistically significant differences of binge-eating and fasting frequency among 3 groups, but higher purging frequency (diet pills use, diuretics use, laxatives use, and self-induced vomiting) in multi-purger classes was found (data not shown). Differences for the general psychopathology among 3 groups were pronounced on somatization, obsession, interpersonal sensitivity, hostility, psychoticism, and General Severity Index (Table 4).

◆ Conclusion

Impulse control behaviors co-occur with higher rates of each purging behavior and use of multiple purging methods in women with BN. Our study demonstrated impulsive dysregulation as a subphenotypic variation of BN and this impulsive subgroup reported comparable degrees of severity on binge-eating and other eating-related psychopathology but more general psychopathology to the other two subgroups.

Table 1 Comparisons across 3 latent classes of BN on eating disorder symptoms and impulse control symptoms

	LC1	LC2	LC3	Total
	(n = 20)	(n = 75)	(n = 85)	(n = 180)
	% (N)	% (N)	% (N)	% (N)
Dieting	100 (20)	96.0 (72)	95.3 (81)	96.1 (173)
Exercise	60 (12)	68.0 (51)	54.1 (46)	63.4 (118)
Binge-eating	100 (20)	100 (75)	100 (85)	100 (180)
Vomiting***	100 (20)	53.3 (40)	85.9 (73)	73.9 (133)
Chewing and spitting***	30 (6)	6.7 (5)	37.7 (32)	23.9 (43)
Laxative use***	65 (13)	10.7 (8)	64.7 (55)	42.2 (76)
Diet drug use***	65 (13)	8.0 (6)	63.5 (54)	40.6 (73)
Number of purging method***				
≤ 1	0 (0)	100 (75)	0 (0)	41.7 (75)
2	55 (11)	0 (0)	57.7 (49)	33.3 (65)
≥ 3	45 (9)	0 (0)	42.4 (36)	25.0 (45)
Illicit drug abuse***	15 (3)	1.3 (1)	0 (0)	2.2 (4)
Alcohol abuse***	30 (6)	4.0 (3)	5.9 (5)	7.5 (14)
Suicide***	100 (20)	12.0 (9)	8.2 (7)	19.9 (37)
Deliberate self-harm***	90 (18)	29.3 (22)	23.5 (20)	32.8 (61)
Stealing	30 (6)	26.7 (20)	27.1 (23)	26.9 (50)
Sexual promiscuity***	25 (5)	2.7 (2)	3.5 (3)	5.4 (10)
Excessive buying	55 (11)	32.0 (24)	41.2 (35)	38.7 (72)

***: $P < 0.001$ between 3 latent classes

Table 2 Comparison of demographic and clinical characteristics across 3 latent classes

	LC1	LC2	LC3
	(n = 20)	(n = 75)	(n = 85)
Age	23.6 ± 7.0	22.0 ± 3.0	23.3 ± 5.5
Education (yr) ***	$12.7 \pm 2.1_a$	$14.6 \pm 2.1_b$	$14.0 \pm 2.3_{ab}$
Highest parental education (yrs)**	$13.0 \pm 4.1_{ab}$	$14.0 \pm 3.7_a$	$11.9 \pm 3.9_b$
Height	158.8 ± 6.7	160.3 ± 5.7	161.2 ± 5.1
Weight	51.8 ± 7.8	53.0 ± 8.0	53.4 ± 6.8
BMI (kg/cm^2)	20.5 ± 2.8	20.6 ± 2.7	20.5 ± 2.4
Highest weight	59.3 ± 13.1	58.2 ± 10.5	60.5 ± 7.8
Lowest weight	43.9 ± 10.4	46.0 ± 6.2	46.2 ± 5.9
Expected weight	45.5 ± 5.1	46.4 ± 5.4	47.4 ± 4.2
BN, purging type (N, %)***	$20 (100)_a$	$49 (65.0)_b$	$80 (94.1)_a$
Onset of first eating symptom (yrs)*	15.5 ± 3.1	17.7 ± 2.6	17.5 ± 4.2
Onset of eating disorders (yrs)	18.4 ± 4.6	19.4 ± 2.7	20.1 ± 5.3

***: $P < 0.001$; **: $P < 0.01$; *: $P < 0.05$ between 3 latent classes
Different lower case letters indicates significant differences between classes ($P < 0.016$)

Table 3 Comparisons of eating-related measures across 3 latent classes

	LC1	LC2	LC3
	(n = 20)	(n = 75)	(n = 85)
EDI*	106.0 ± 28.2	87.5 ± 31.3	98.2 ± 27.4
Drive for thinness	14.5 ± 3.4	12.3 ± 5.1	12.8 ± 4.5
Bulimia*	15.4 ± 5.5	13.3 ± 5.8	15.5 ± 4.7
Body dissatisfaction	19.1 ± 8.1	17.4 ± 7.2	18.3 ± 6.5
Ineffectiveness*	15.0 ± 6.6	12.0 ± 7.6	14.8 ± 7.0
Perfectionism	9.6 ± 3.3	7.4 ± 4.5	8.3 ± 4.5
Interpersonal distrust	5.5 ± 3.7	4.0 ± 3.1	5.2 ± 3.5
Interoceptive awareness*	17.0 ± 6.4	12.4 ± 7.0	14.1 ± 6.7
Maturity fear	10.1 ± 5.3	8.8 ± 5.2	9.1 ± 5.2
BITE**	$38.8 \pm 10.0_{ab}$	$34.1 \pm 7.0_a$	$37.8 \pm 6.1_b$
Symptom subscale	23.4 ± 5.1	24.6 ± 3.9	24.5 ± 3.5
Severity subscale***	$15.4 \pm 7.1_a$	$9.4 \pm 4.5_b$	$13.3 \pm 4.4_a$
BSQ	148.4 ± 41.7	131.8 ± 37.9	134.3 ± 31.9

***: $P < 0.001$; *: $P < 0.05$ between 3 latent classes
Different lower case letters indicates significant differences between classes ($P < 0.016$)

Table 4 Comparisons of general psychological functioning across 3 latent classes

	LC1	LC2	LC3
	(n = 20)	(n = 75)	(n = 85)
Brief Symptom Rating Scale			
Somatization***	$2.0 \pm 1.0_a$	$1.1 \pm 0.9_b$	$1.3 \pm 0.9_b$
Obsession*	$2.5 \pm 0.9_a$	$1.8 \pm 0.9_b$	$2.0 \pm 0.8_{a,b}$
Sensitivity*	2.7 ± 0.9	2.0 ± 1.1	2.1 ± 1.1
Depression	2.6 ± 1.0	2.0 ± 1.0	2.2 ± 1.0
Anxiety	2.3 ± 1.1	1.8 ± 1.1	2.0 ± 1.0
Hostility*	2.1 ± 1.0	1.5 ± 1.0	1.5 ± 0.9
Phobia	1.5 ± 1.0	1.3 ± 1.0	1.3 ± 1.0
Paranoid	1.9 ± 0.9	1.5 ± 0.9	1.5 ± 1.0
Psychoticism**	$2.3 \pm 1.2_a$	$1.5 \pm 1.1_b$	$1.5 \pm 1.0_b$
General Severity Index*	$2.2 \pm 0.8_a$	$1.6 \pm 0.9_b$	$1.7 \pm 0.8_{a,b}$

***: $P < 0.001$; *: $P < 0.05$ between 3 latent classes
Different lower case letters indicates significant differences between classes ($P < 0.016$)