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Concerns Related to Eating, Weight, and Shape: Typologies and Transitions in Men during the College Years

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Abstract

How to best classify concerns related to eating, weight, and shape (CREWS) in men remains an open question. Research on men considering CREWS during different developmental periods could be particularly informative. Focusing on one potentially dynamic developmental period, the current study charts the course of CREWS in men over the college years. Latent class/latent transition analysis identified typologies of weight- and shape-influenced self judgment, limiting attempts, fasting, overeating, binge eating, self-induced vomiting, and laxative or diuretic abuse for 1,025 men over the four traditional college years. Three classes emerged: (1) no obvious pathological eating-related concerns (61–65%); (2) a high likelihood of limiting attempts and a moderately high likelihood of overeating (31–34%); (3) pervasive bulimic-like concerns (4–6%). Class membership was highly stable across assessment occasions. The results contribute to the growing literature on empirically derived classifications of CREWS and indicate that for many men CREWS are a chronic presence during the college years.

Keywords

disordered eating; latent class analysis; latent transition analysis; empirically derived classification; college; men

Although research is growing to suggest that concerns related to eating, weight, and shape (CREWS) extend across men and women,^{e.g., 1–4} few longitudinal studies of CREWS have focused on men during the college years and, to our knowledge, none has utilized CREWS typologies in this population. Available estimates indicate that during the college years only 9.5% of men want to maintain their current weight and only 3% want to maintain their current body mass index (BMI).⁵ In turn, recent estimates indicate that 25% of college men binge eat, 24% diet, and 3% purge (e.g., self-induce vomiting; abuse diuretics or laxatives) at some level.⁶ A more thorough understanding of CREWS in men during this time period could help guide campus efforts (e.g., in student health services; athletic departments). Extending the literature on this topic, the current study followed CREWS, including

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empirically derived typologies of CREWS, among a large cohort of men over each of the four undergraduate college years.

How to best characterize CREWS in men remains an open question. Increasing attention has been given to the unique CREWS experience of men, such as body dissatisfaction due to being smaller/less muscular or weighing less than desired, excessive exercise, and weight gain behavior (e.g., steroid and dietary supplement misuse).^{e.g., 7–12} Yet, the prevalence of traditionally conceptualized CREWS^{e.g., 1–4} among men supports a need for continued research in this area. Indeed, prevalence estimates for some CREWS have at times been most elevated among men (e.g., overeating;¹³ binge eating¹). Furthermore, complications of CREWS, both medically and related to comorbidity, can be more severe for men than they are for women.^{e.g., 1, 14–16}

Empirical approaches, such as latent class analysis (LCA), have been increasingly employed to characterize typologies of CREWS, with three typologies of typical CREWS replicated in clinical samples including men: (1) pure restriction;^{17, 18} (2) binge eating;¹⁷ (3) pervasive concerns.^{19, 20} However, very few men have been included in these studies (e.g., 28 out of 375 in one study¹⁷; 44 out of 1,135 in another¹⁹). Thus, it is unclear whether these typologies are valid for men. In addition, given that clinical samples likely do not capture the full spectrum of CREWS severity and are biased towards finding typologies of CREWS associated with comorbidity or other factors associated with treatment seeking, nonclinical samples could reveal other classes of CREWS that are not likely to be clinically ascertained. This may be especially relevant for understanding CREWS in men, given their differential treatment seeking.²¹

In addition, further research on developmental periods that may be especially relevant for CREWS in men is needed, given potential differences from women. For example, compared to women, the influence of puberty on CREWS is more variable for men, with differing effects found depending on early, on-time, and late pubertal timing.^{e.g., 22, 23} The college years offer a potentially dynamic period of importance,^{24, 25} as men reach their peak height and continue to develop physically. Men also transitioning from home at this time face what can be the challenging task of navigating food preparation and selection independently.²⁶ The confluence of these occurrences may help set a particularly relevant stage for CREWS engagement in men.

The Current Study

The current study employs LCA to examine and chart the course of CREWS and CREWS typologies among 1,025 men unselected for eating disorder diagnoses or symptoms during the college years. Given the limited literature on the course of CREWS among men during the college years and on empirically derived classifications of men, no *a priori* predictions were made, with one exception. A class with no obvious pathological eating-related concerns (NOPE) was predicted, given the nonclinical sample.

Method

Participants

The current sample was drawn from a larger study of incoming undergraduates at a large Midwestern university ($N=3,720$; 46% men; $M_{age}=18$, $SD=0.37$).^{see 27} Participants were then followed regardless of their later enrollment status. Reported sample diversity was limited (8% non-White at baseline; 7% at each assessment for the current study) but representative of the university population.²⁸ The study included CREWS items at four waves, with 1,102 men (64% of baseline; >100% of the current LTA sample) the first-year

Fall Semester; 938 men (54% of baseline; 92% of the current LTA sample) the second-year Spring Semester; 901 men (52% of baseline; 88% of the current LTA sample) the third-year Spring Semester; and 826 men (48% of baseline; 81% of the current LTA sample) the fourth-year Spring Semester. The LCAs and LTA included 1,025 (59% of baseline) men who completed at least two of the four CREWS surveys.

Procedure

All incoming freshmen were invited to participate at summer orientation or, if they did not attend, through mailings. Participants reported their CREWS online approximately one month before the end of the four semesters noted. For each assessment, Institutional Review Board approval and informed consent (assent and parental consent if under 18) were obtained, and participants received \$10–\$25, along with a lottery entry for additional compensation.

Measures

CREWS—The CREWS items were based on the Eating Disorder Diagnostic Scale (EDDS),²⁹ which has demonstrated validity and reliability^{29,30} and been used successfully with college men.^{31,32} Due to space constraints within the larger study, which was not focused on CREWS, expert consultation (see Author Note) determined the items most critical to examine CREWS within a large etiological study, yielding the following items: an item combining the two EDDS items assessing the influence of weight or shape on self-judgment (i.e., “judgment”); an item for attempts to limit the amount or type of food or calories to influence weight or shape (i.e., “limiting attempts”); and average weekly frequency items for not eating any food for at least 8 waking hours (i.e., “fasting”), eating what others would regard as an unusually large amount of food (i.e., “overeating”), experiencing a loss of control while eating a large amount of food (i.e., “binge eating”), vomiting to prevent weight gain or counteract the effects of eating, and using laxative or diuretics to prevent weight gain or counteract the effects of eating. The response options for judgment and limiting attempts ranged from “Not at all” to “Extremely,” on a 6-point Likert-type scale; for the weekly items, response options ranged from 0 to 14+ times in one-unit increments. For all items, options also included “I choose not to answer” and the items referenced the past three months. Responses were dichotomized according to a median split (0–3 vs. 4–6 for judgment and limiting attempts; 0 vs. 1–14+ for the weekly items).^{fn1} Alpha coefficients for a 7-item composite scale using the EDDS items in this study ranged from .72–.75 across the four waves. Similar mean inter-item correlations for a 20-item composite would lead to alpha coefficients paralleling those of Stice and colleagues^{29,30} 20-item scale (.86–.93).

Validation measures—To consider construct validity for the derived classes, the following variables assessed at the first-year Fall Semester were selected based on previous empirical typology studies of CREWS.^{e.g.,19,34} BMI was calculated from self-reported height and weight. The Brief Symptom Inventory-18³⁵ (omitting the suicidality item; coefficient alpha=.93) provided a measure of general average distress. The Personal Mastery Scale³⁶ (coefficient alpha=.79) covered self-efficacy and internal locus of control. The Positive and Negative Affect Scale³⁷ measured past-week positive affect (coefficient alpha=.92). Substance indices included past-month frequencies of smoking and five or more drinks in a sitting and past-year frequencies of marijuana use, alcohol-related consequences (coefficient alpha=.91), and drug-related consequences (coefficient alpha=.96). Personality

¹The decision to dichotomize based on a median split was informed by the data's skewed nature, given that such distributions could produce spurious classes if analyzed continuously.³³

traits consisted of the NEO Five Factor Inventory³⁸ (coefficient alphas=.74–.86) and Novelty Seeking (coefficient alpha=.71).³⁹

Results

Attrition

Attrition analyses on nine variables potentially relevant to CREWS assessed at baseline compared the 1,025 men included in the LTA to the 702 men who were part of the larger study but did not complete at least two follow-up assessments containing CREWS. Statistically significant, but negligible to small effect sizes were found for age, frequency of drinking, smoking, and marijuana, amphetamine, and cocaine use (see Table 1). Attrition was linked to being slightly older and more frequently using substances. These differences suggest that the retained sample is somewhat less “deviant” than the baseline sample and prevalence estimates of individual CREWS and the CREWS classes are likely to be underestimates.

Prevalence Estimates of Concerns Related to Eating, Weight, and Shape

Table 2 reports the prevalence estimates of specific CREWS. Most men did not report CREWS (<50% for each at all time points). Overeating was most prevalent (38–47%), followed by judgment (36–38%) and limiting attempts (31–37%). Generalized estimating equation models found no statistically significant changes across waves ($p>.05$).^{fn2}

Typologies of Concerns Related to Eating, Weight, and Shape

Using latent class analysis (LCA) in MPlus version 5.0,40,^{fn3} we estimated latent class structure, with the number of classes to best account for variation in the patterns of CREWS based on the Bayesian Information Criterion (BIC),⁴¹ the measure goodness of fit most commonly used for mixture models^{e.g.,42,43} and regularly used as the primary fit index in latent structure studies of CREWS.^{12,44,45,46} Missing data were handled by full information maximum likelihood (FIML) estimation, assuming missing is random. Ancillary analyses using listwise deletion yielded the same pattern of results as when all data were included. Therefore, LTA results reported here are from all participants using FIML.

The lowest BIC suggested a three-class solution for two waves and a four-class solution for two waves. The overall pattern suggested a three-class solution since in the two cases where the four-class solution had the lowest BIC, the BIC for the four-class solution differed by less than 1.0 from the BIC for the three-class solution, compared to a substantially larger difference when BIC indicated a three-class solution, particularly for first-year Fall, in which participation was greatest (see Table 3). The classes consisted of (1) the predicted class with no obvious pathological eating-related concerns (NOPE; prevalence: 62–64%); a class with pervasive bulimic-like concerns, consistent with previous findings (4–6%); and a class combining a high likelihood of limiting attempts and a moderately high likelihood of overeating (Limiting Attempts with Overeating; LO; 31–24%; see Table 4).^{fn4} Generalized

²Prevalence estimates of CREWS items for the 198 men with CREWS data only the first-year Fall Semester and the 904 with CREWS data the first-year Fall Semester and at least one additional assessment time were comparable to each other and the full sample (1,084–1,095).

³LCA is a method of characterizing the number and composition of unobserved latent classes underlying observed data. For each class in a model, LCA produces class membership probabilities (the likelihood of being in a given class) and item endorsement probabilities. Each latent class represents a unique profile of item endorsement probabilities (the likelihood of endorsing an item given membership in a class) that is the same for all members of the class.

⁴Class prevalence estimates for the 198 men with CREWS data for only the first-year Fall semester and for the 904 men with CREWS data the first-year Fall semester and at least one additional assessment time were comparable to each other and to the full sample (1,025).

estimating equation models indicated no significant changes in prevalence across time ($p>.05$).

One-way analyses of variance examined class validity (see Table 5), with post-hoc comparisons using the Ryan-Einot-Gabriel-Welsch multiple range test.⁴⁷ NOPE and LO tended to be similar to each other but different from the Pervasive class on various external criteria, with the Pervasive class having the lowest positive affect, Extraversion, Openness, Conscientiousness, and personal control and the highest Novelty Seeking and alcohol/substance use frequencies and consequences. In contrast, each class was distinct for global distress, Agreeableness, and BMI. Distress increased and Agreeableness decreased as CREWS severity increased. For BMI, LO was highest (on average, slightly overweight), followed by the Pervasive class, then NOPE (both normal weight on average). For Neuroticism, LO and the Pervasive class had the highest levels and were not distinguishable. All classes were indistinguishable on Openness and smoking.

Classes were also not differentially associated with ethnicity ($\chi^2(8, N=1024)=4.31, p=.83$), although this may reflect a lack of power due to the low base rates of minority ethnicities in the sample. Across ethnicities (non-Hispanic White; non-Hispanic Black; Hispanic; Asian; American Indian), NOPE characterized most men (50–75% of each ethnicity), followed by LO (25–50% of each ethnicity) and Pervasive Bulimic-Like Concerns (0–38% of each ethnicity).

Stability and Change in the Typologies Over the College Years

We conducted latent transition analyses (LTA) to characterize transitions across latent classes from each year to the next.⁵ With three classes and four time points, 81 (3^4) transition patterns across time were possible and each of these 81 patterns was observed. The twelve most prevalent patterns (each including 10 or more participants) together, accounted for approximately 88% of participants. In total, an estimated 49% of participants maintained their original class at subsequent assessments (see the diagonals of Table 6 for the probability of maintaining a latent status, i.e., the conditional latent transition probability estimates). When patterns included transitions, movement typically occurred only once. Transitions to Pervasive Bulimic-Like Concerns were rare (2–5% probability), and stability was lowest for Pervasive Bulimic-Like Concerns, with 53–62% probability of transition, compared to 10–15% for NOPE and 22–28% for LO. Transition probabilities from Pervasive Bulimic-Like Concerns favored NOPE after the first two years (35–44% vs. 10–27% for LO).

Discussion

The current study uniquely followed classic concerns related to eating, weight, and shape (CREWS) in a large cohort of men over the college years. Although most men did not report any CREWS, overeating prevalence was up to 47%. This behavior was most common, followed by limiting attempts for up to 37%. In general, the prevalence estimates were consistent with existing empirical literature on men³ and distributions found in adolescence.^{e.g.,50,51}

⁵At each time point, LTA estimates the probability of being in a particular latent status at Time T, conditional on latent status membership at Time T-1.^{48,49} Because the LTA studied patterns of temporally adjacent change, we conducted an additional LTA involving the two most temporally distant waves (first-year Fall and fourth-year Spring) to see if this longer interval yielded less stability. The structure of the classes observed over 3.5 years was highly similar to that observed over one. Eighty-nine percent remained in the same class (simple kappas=.73–.82 for cross-classification of first-year Fall structure and fourth-year Spring structure with the structure from first-year Fall to fourth-year Spring LTA structure).

Three typologies emerged: (1) no obvious pathological eating-related concerns (NOPE; 61–65%); (2) a high likelihood of limiting attempts and moderately high likelihood of overeating (LO; 31–34%); and (3) pervasive bulimic-like concerns (4–6%). The latter replicates the pervasive class that has consistently emerged in empirically derived classifications with women.^{17–20} Validity analyses suggested that the NOPE and LO classes shared a similarly low impairment and that the Pervasive bulimic-like class was the most impaired. Likewise, previous research has associated bulimic and pervasive CREWS patterns with the most elevated severity.^{e.g.,10,11,29} With the EDDS, Stice and colleagues²⁹ found greater elevations in depressive symptoms and emotionality for bulimia nervosa relative to cases not classified as eating disordered. Considering CREWS more unique to men, Hildebrandt and colleagues^{10,11} found support for an association between their most pervasively severe class and the greatest level of impairment, with the most extreme co-occurring tendencies (e.g., willingness to sacrifice the greatest number of years of life to achieve performance or appearance goals) occurring with the most pervasive appearance- and performance-enhancing drug use typology. Yet, LO had the highest average BMI of the three classes, a distress level between the levels for NOPE and the Pervasive class, and a level of Neuroticism indistinguishable from that of the Pervasive class. Thus, there was some support for LO not being entirely benign.

Although the stability of all three typologies was high, it was lowest for the Pervasive Bulimic-Like Concerns. This parallels previous evidence that college men are most likely to stop purging²⁶ and previous trajectories of improvement in men for most CREWS after college.³ In contrast, other evidence indicates that men may remain vulnerable to eating disorder onset after college,⁵² with weight gain implicated as a causal influence.^{e.g.,3,52} Likewise, in contrast to the overall pattern, limiting attempts and LO increased in prevalence over the four years of the current study. Taken together, these findings suggest that helping men establish moderate eating patterns and prevent undesired weight gain during college may be particularly warranted. This is consistent with conclusions of previous longitudinal research with adolescents.^{53,54} Yet, such interventions targeting young adult men are lacking, with limited evidence for efficacy.^{55,56}

Strengths, Limitations, and Future Directions

The current study uniquely charts the course of men's typologies of classic CREWS over each of the four traditional college years in a large cohort of systematically ascertained men from a well defined sampling frame, enhancing the likelihood that the findings are inclusively depicting CREWS. Nonetheless, the current study has several limitations. In particular, we did not examine CREWS more unique to men (e.g., muscle dissatisfaction and weight gain behavior), which could produce greater heterogeneity.^{e.g.,7,8,10–12} Moving beyond college samples of men would also permit a more comprehensive depiction of CREWS typologies in men. Examining predictors of classes and transitions is also warranted, and considering individual CREWS dimensionally rather than categorically would likely provide a more nuanced picture.^{fn1}

In conclusion, the current study provides further evidence that men are not immune to CREWS, with a substantial proportion endorsing overeating and limiting attempts and 4–6% exhibiting a more pervasive, bulimic-like typology. Given the risk for severe medical complications and comorbidity in this population,^{1,14–16} these findings support the need for increased consideration of men in prevention and intervention efforts during the college years.

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Table 1

Attrition Analyses

	Participants at Baseline but <2 Waves of CREWS <i>n</i> =667–702 ¹	Participants with 2 Waves of CREWS <i>n</i> =983– 1,025 ¹	Cohen's <i>d</i>	<i>F</i>	<i>df</i>	<i>p</i>
Age	18.03 (.37)	17.99 (.37)	.10	4.58	1, 1,725	.033 *
Overall Health ²	4.02 (.86)	4.03 (.82)	.01	.05	1, 1,648	.831
Frequency of Eating Healthy ³	2.33 (.92)	2.38 (.87)	.06	1.47	1, 1,724	.225
Frequency of Exercising ⁴	4.29 (2.10)	4.33 (2.04)	.02	.19	1, 1,719	.659
SUBSTANCE USE						
Frequency of Drinking Alcohol ⁵	3.35 (2.38)	2.71 (2.17)	.28	33.14	1, 1,721	.000 ***
Frequency of Smoking ⁵	11.29 (16.94)	7.12 (13.96)	.27	31.12	1, 1,722	.000 ***
Frequency of Marijuana Use ⁵	9.36 (15.34)	5.33 (11.77)	.30	37.91	1, 1,714	.000 ***
Frequency of Amphetamine Use ⁵	.57 (3.63)	.23 (2.54)	.11	5.24	1, 1,720	.022 *
Frequency of Cocaine Use ⁵	.56 (3.41)	.20 (2.23)	.13	6.95	1, 1,722	.009 **

Note.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

¹ *n*s vary due to missing data. Thus the range of *n* is provided for each column.

² Overall health response options were as follows: 1=poor; 2=fair; 3=good; 4=very good; 5=excellent.

³ Frequency of eating healthy response options were as follows: 0=never; 1=rarely; 2=sometimes; 3=usually; 4=always.

⁴ The timeframe for frequency of exercising was weekly, with response options as follows: 0=never; 1=rarely; 2=1 day/week; 3=2 days/week; 4=3 days/week; 5=4 days/week; 6=5 days/week; 7=6 days/week; 8=7 days/week.

⁵ The timeframe for alcohol/substance use frequencies is past year.

Table 2

Prevalence Estimates of Concerns Related to Eating, Weight, and Shape across the Four Traditional College Years

Concern	1 st -Year Fall <i>N</i> =1084–1095 ^{<i>I</i>}	2 nd -Year Spring <i>N</i> =923–930 ^{<i>I</i>}	3 rd -Year Spring <i>N</i> =883–891 ^{<i>I</i>}	4 th -Year Spring <i>N</i> =809–818 ^{<i>I</i>}
	% (<i>SE</i>)			
Weight/Shape Self-Judgment	36% (1.45)	37% (1.59)	38% (1.63)	36% (1.68)
Limiting Attempts	34% (1.44)	31% (1.53)	36% (1.61)	37% (1.70)
Overeating	47% (1.51)	44% (1.63)	45% (1.67)	38% (1.70)
Binge Eating	13% (1.01)	16% (1.20)	17% (1.26)	15% (1.25)
Fasting	11% (.96)	12% (1.06)	10% (.99)	11% (1.07)
Self-Induced Vomiting	6% (.69)	6% (.81)	5% (.74)	5% (.75)
Laxative/Diuretic Abuse	5% (.64)	5% (.75)	4% (.69)	4% (.72)

Note.

^{*I*} *n*'s vary due to missing data. Thus the range of *n* is provided for each column.

Table 3
Summary of the Bayesian Information Criterion Fit Statistic for Two- to Six-Class Solutions at Each of the Four College Years

	2-Class	3-Class	4-Class	5-Class	6-Class
1 st -Year Fall	6,218.490	5,959.141	5,981.793	6,005.977	6,037.565
2 nd -Year Spring	5,334.760	5,128.505	5,127.759	5,140.697	5,168.880
3 rd -Year Spring	5,127.197	4,930.642	4,937.05	4,957.072	4,986.685
4 th -Year Spring	4,609.088	4,446.386	4,446.210	4,469.627	4,500.001

Table 4

Item Endorsement Probabilities According to Class Membership and Prevalence Estimates of the Classes

Class	Item										Time Point			
	Weight/Shape Self-Judgment	Limiting Attempts	Overeating	Binge Eating	Fasting	Self-Induced Vomiting	Laxative/Diuretic Abuse	1 st , Year Fall	2 nd , Year Spring	3 rd , Year Spring	4 th , Year Spring			
NOPE	.127	.107	.371	.046	.016	.003	.002	64 (1.50)	63 (1.51)	62 (1.52)	63 (1.51)			
LO	.809	.773	.515	.227	.165	.021	.008	31 (1.44)	31 (1.45)	34 (1.48)	33 (1.47)			
Pervasive	.603	.629	.724	.927	.910	.921	.849	5 (.67)	6 (.72)	5 (.66)	4 (.63)			

Note. IEP=item endorsement probability. NOPE=No Obvious Pathological Eating-related concerns. LO=Limiting Attempts with Overeating. Pervasive=Pervasive Bulimic-Like Concerns.

Table 5Means (SD) of Validity Measures Within Latent Classes for the First-Year Fall (N =752–848¹)

	NOPE (64%) <i>n</i> =480–539	LO (31%) <i>n</i> =240–274	Pervasive (5%) <i>n</i> =30–36	R ²
AFFECTIVITY				
BSI Global Severity Index	.40 (.50) _a	.62 (.63) _b	1.45 (1.09) _c	.13**
PANAS Positive Affect	26.13 (7.61) _a	25.03 (7.53) _a	20.88 (9.94) _b	.02**
PERSONALITY				
NEO-FFI Neuroticism	18.17 (7.83) _a	22.39 (8.29) _b	23.54 (5.58) _b	.07**
NEO-FFI Extraversion	29.60 (6.12) _a	28.89 (6.03) _a	25.81 (5.86) _b	.02**
NEO-FFI Openness	27.25 (6.30) _a	27.78 (6.91) _a	26.71 (4.82) _a	.002
NEO-FFI Agreeableness	30.61 (5.70) _a	28.58 (5.66) _b	25.37 (4.38) _c	.05**
NEO-FFI Conscientiousness	30.36 (6.45) _a	28.98 (6.71) _a	25.22 (5.29) _b	.03**
STPQ Novelty Seeking	4.82 (2.89) _a	5.48 (2.77) _a	6.62 (2.20) _b	.02**
Personal Mastery Scale	14.61 (3.33) _a	13.59 (3.52) _a	12.13 (2.77) _b	.03**
SUBSTANCE USE/PROBLEMS				
Frequency of Smoking ²	.81 (1.72) _a	.91 (1.91) _a	1.47 (2.05) _a	.01
Frequency of 5+ drinks ³	1.48 (1.50) _a	1.49 (1.47) _a	2.29 (1.93) _b	.01*
Frequency of Marijuana Use ⁴	5.26 (11.71) _a	5.18 (11.59) _a	7.70 (13.94) _a	.00
No. Alcohol Consequences ⁵	4.48 (4.87) _a	5.19 (5.83) _a	10.79 (11.49) _b	.05**
No. Drug Consequences ⁵	1.12 (3.84) _a	1.43 (4.04) _a	14.53 (15.55) _b	.22**
Body Mass Index	22.96 (3.30) _a	25.44 (4.02) _b	4.13 (4.70) _c	.09**

Note. Classes that *share* subscript letters are *not* significantly different from one another based on the Ryan-Einot-Gabriel-Welsch multiple range test. NOPE=No Obvious Pathological Eating-related concerns. LO=Limiting Attempts with Overeating. Pervasive=Pervasive Bulimic-Like Concerns. BSI=Brief Symptom Inventory. PANAS=Positive and Negative Affect Scale. STPQ=Short Tridimensional Personality Questionnaire. NEO-FFI=NEO Five Factor Inventory.

*
 $p < .01$.

**
 $p < .001$.

¹
n's vary due to missing data. Thus the range of *n* is provided for each column.

²
For past-month frequency of smoking, 0=never in the past month, 1=once or twice, 2=a few days, 3=a couple of days/week, 4=three times/week, 5=most days of the week, and 6=daily or almost daily.

³
For frequency of five or more drinks in one sitting, 0=never in the past 30 days, 1=once, 2=2 to 3 times, 3=once or twice/week, 4=3 to 4 times/week, 5=5 to 6 times/week, 6=nearly every day, and 7=every day.

⁴
The timeframe for frequency of using marijuana is the past year.

⁵
37 possible consequences for the past month.

Table 6

Conditional Latent Transition Probability Estimates (Estimated n)

	NOPE	LO	Pervasive
Spring 2nd Year Latent Status			
Fall 1st Year Latent Status			
NOPE (<i>n</i> ≈ 658)	.85 (559)	.12 (79)	.03 (20)
LO (<i>n</i> ≈ 317)	.24 (75)	.72 (227)	.05 (15)
Pervasive (<i>n</i> ≈ 50)	.24 (12)	.37 (18)	.39 (20)
Spring 3rd Year Latent Status			
Spring 2nd Year Latent Status			
NOPE (<i>n</i> ≈ 647)	.90 (579)	.09 (56)	.02 (11)
LO (<i>n</i> ≈ 321)	.09 (29)	.88 (282)	.03 (10)
Pervasive (<i>n</i> ≈ 57)	.44 (25)	.10 (6)	.47 (27)
Spring 4th Year Latent Status			
Spring 3rd Year Latent Status			
NOPE (<i>n</i> ≈ 633)	.87 (551)	.11 (70)	.03 (19)
LO (<i>n</i> ≈ 345)	.23 (79)	.75 (259)	.02 (7)
Pervasive (<i>n</i> ≈ 48)	.35 (17)	.27 (13)	.38 (18)

Note. NOPE=No Obvious Pathological Eating-related concerns. LO=Limiting Attempts with Overeating. Pervasive=Pervasive Bulimic-Like Concerns. Latent transition probabilities that are >.10, i.e., a likelihood of at least 10% of occurring, are bolded.