Evaluating the role of intuitive eating in predicting first-semester body composition changes among ethnically-diverse college women

Jennifer B. Webb, Ph.D., Suzanne J. Schoenefeld, Abigail S. Hardin
University of North Carolina at Charlotte Department of Psychology

Abstract

The first-year college transition is marked by elevated risk for unhealthy body composition changes among emerging adults. Accordingly, the present pilot investigation evaluated whether a constructive eating style at college entry accounted for unique variance in a range of body composition variables measured at the beginning of the spring semester over and above traditionally-studied stress and disordered eating variables. Results indicated that in this ethnically-diverse sample of first-year college women, higher levels of intuitive eating predicted lower first-semester percent body fat even when other variables were considered. The practical implications of these preliminary findings for enhancing health promotion among entering first-year women are discussed.

Background and Objectives

- Public health scientists have designated the first year of college to be a critical period of heightened risk for unhealthy body composition changes among emerging adults.[1]
- Existing research has primarily focused on evaluating the contribution of disordered eating patterns to enhancing first-year weight gain with inconclusive results.[2]
- Few studies have examined predictors of early college weight gain beyond basic anthropometric measurements.[1] Yet inclusion of more diverse body composition parameters may enhance our understanding of the relationship between psychological factors and potentially more sensitive markers of cardiometabolic risk at this developmental juncture.
- Contemporary research is advancing the benefits of an intuitive eating style as an alternative to engaging in externally- and emotionally-driven dysregulated eating patterns.[3]
- Greater attention is needed in clarifying whether individual differences in an internally-guided, adaptive self-regulatory approach to eating may explain incremental variability in a broader range of body composition variables during the early college transition period beyond the contributions of stress, night eating, and binge eating.
- A clearer understanding of the modifiable lifestyle factors and psychological processes contributing to unhealthy body composition changes during the first-year transition may meaningfully guide the development of empirically-derived health promotion initiatives.

Methods

Participants

Participants at baseline (beginning of the fall 2008 semester) included a sample of first-time first-year female undergraduate students (mean age = 18, SD = .21) who identified as either African American (AA: N = 54) or as European American (EA: N = 80). Eighty-eight percent of students reported living on campus. Students were recruited to participate in a longitudinal investigation of factors that influence health and adjustment to college life for first-year women. Eighty-three participants (39 AA and 44 EA) returned to complete the second data collection session at the beginning of the spring 2009 semester. Students received either research credit in a participating Psychology course or a $20 Visa debit card as an incentive at each time point.

Procedures and Measures

In addition to having their body measurements taken [i.e. height, weight, waist and hip circumference (also used to calculate waist-to-hip ratio), percent body fat], participants were also administered the following self-report questionnaires at both the early fall (T1) and early spring (T2) semester time points:

- Demographic questionnaire
- Revised University Student Hassles Scale (RUSHS)[4]
- Intuitive Eating Scale (IES)[3]
- Binge Eating Scale (BES)[5]
- Night Eating Questionnaire (NEQ)[6]

Statistical Analyses

Pearson's bivariate correlations were computed to evaluate the basic linear associations between T1 psychosocial variables and T2 body composition variables. Five hierarchical linear regression models were performed to determine whether intuitive eating at T1 accounted for unique variance in a range of body composition variables measured at T2 while controlling for the respective T1 anthropometric parameter and other stress and disordered eating covariates. All statistical analyses were performed using SPSS 16.0.

Results

- Significant positive correlations were observed among weight and BMI, percent body fat, waist circumference, waist-hip ratio, and T1 BES (see Table 1).
- T1 NES scores were negatively associated with T2 waist-to-hip ratios.
- IES was strongly negatively correlated with all body measurements except BMI.
- To explore the impact of Time 1 IES scores on a variety of Time 2 physiological characteristics, five hierarchical linear regression models were tested. For each of these models, the time 1 version of the dependent variable was entered as step 1, and for each time 1 scores on the RUSHS, BES and NEQ as step two and time 1 IES score as step three.
- Weight, BMI, percent body fat, waist-hip ratio and waist circumference were all tested as dependent variables, and of these only the model with percent body fat as the dependent variable was found to be significant.
- After accounting for time 1 percent body fat and scores on the RUSHS, BES and NEQ, time 1 scores on the IES were found to uniquely contribute an approximate 2% of the variance in percent body fat, a significant finding ($p < .05$, $F = 6.13$).
- Overall, the model accounted for about 80% of the variance in percent body fat, with a predicted decrease of 2.41 percent body fat per increase in total time 1 IES score, a meaningful effect. Table 2 shows the unstandardized regression coefficients and R^2 values for this significant model.

	1	2	3	4	5	6	7	8
1. T2 Weight in kg								
2. T2 Body Mass Index	.95**							
3. T2 Percent Body Fat	.88**	.88**						
4. T2 Waist Circumference	.92**	.89**	.86**					
5. T2 Waist-Hip Ratio	.51**	.48**	.48**	.02				
6. T1 RUSHS	.05	-.01	.04	.02	.00			
7. T1 IES	-.23*	-.21	-.31**	-.29**	-.26*	-.25**		
8. T1 NEQ	-.07	-.05	-.12	-.19	-.31**	.47**	-.12	
9. T1 BES	.32**	.31**	.28*	.31**	.16	.36**	-.61**	.30**

Note. (*) p < .05; (**) p < .01.

Table 1. Zero-order correlations for T1 Psychosocial Variables and T2 Body Measures

Model		R^2	ΔR^2	*b*	*SE*
Step 1		.78**	.78**		
	(Intercept)			3.34*	1.61
	T1 Percent Body Fat			.91**	.06
Step 2		.78**	.01		
	(Intercept)			2.18	2.28
	T1 Percent Body Fat			.91**	.06
	T1 RUSHS			.03	.02
	T1 BES			-.01	.08
	T1 NEQ			-.05	.10
Step 3		.80**	.02*		
	(Intercept)			12.41**	4.68
	T1 Percent Body Fat			.90**	.06
	T1 RUSHS			.02	.02
	T1 BES			-.14	.09
	T1 NEQ			-.02	.10
	T1 IES			-2.41*	.97

Note. N = 74. (*) p < .05; (**) p < .01. b = unstandardized regression weight.

Table 2. Regression Coefficients for significant model with T2 Percent Body Fat as DV.

Conclusions and Implications

- An intuitive eating style improves the prediction of future percent body fat levels among first-year college women when considered in the context of stress and disordered eating variables.
- As a body composition health marker, percent body fat may be more sensitive than other such biometric attributes to adopting an approach to food intake that involves cultivating an unconditional permission to eat, eating for physiological versus emotional reasons, and tuning into one's internal signals of hunger and satiety to guide the eating process.
- College health professionals may find it useful to incorporate brief assessments of stress, disordered eating (e.g., binge eating and night eating behavior), and intuitive eating in their initial orientation sessions with first-year students. This may aid in both: 1) the early identification process of students who may be at heightened vulnerability for psychosocial distress and unhealthy weight gain during this developmental transition and 2) subsequently matching them with appropriate support resources.
- College health educators are encouraged to consider the utility of introducing the concept of intuitive eating perhaps in freshman seminars where students may have structured guidance in integrating this practice during the early college adjustment period.

Future Directions

- Determining possible mediators underlying the relationship between intuitive eating and percent body fat, such as specific types of eating behavior changes.
- Further clarifying whether the relationship between night eating and waist-to-hip ratio is a function of increases in stress and hip circumference.
- Using larger sample size to determine if results replicate or if other models tested may be significant.
- Evaluating to what extent regional differences may be impacting results, particularly with respect to food and cultural differences among various regions of the United States.

Limitations

- The relatively small nonrandom sample represented less than 10% of the population of eligible students.
- The exclusively female sample precludes generalizing findings to first-year male students.
- The appreciable attrition rate (i.e. 38%) reduced the power of the statistical analyses.

Acknowledgements

This research was supported by a UNC Charlotte Faculty Research Grant and an NSF-funded UNC Charlotte ADVANCE Grant Bonnie E. Cone Fellowship Award.

References

1. Crombie, A. P., Illich, J. Z., Dutton, G. R., Panton, L. B., & Abood, D. A. (2009). The freshman weight gain phenomenon revisited. *Nutrition Reviews*, *67*, 83-94.
2. Delinsky, S. S., & Wilson, G. T. (2008). Weight gain, dietary restraint, and disordered eating in the freshman year of college. *Eating Behaviors*, *9*, 82-90.
3. Tylka, T. L. (2006). Development and psychometric evaluation of a measure of intuitive eating. *Journal of Counseling Psychology*, *53*, 226-240.
4. Pett, M. A., & Johnson, M. J. M. (2005). Development and psychometric evaluation of the Revised University Student Hassles Scale. *Educational and Psychological Measurement*, *65*, 984-1010.
5. Gormally, J., Black, S., Daston, S., & Rardin, D. (1982). The assessment of binge eating severity among obese persons. *Addictive Behaviors*, *7*, 47-55.
6. Allison, K. C., Lundgren, J. D., O'Reardon, J. P., Martino, N. S., Sarwer, D. B, Wadden, T. A. et al. (2008). The Night Eating Questionnaire (NEQ): Psychometric properties of a measure of severity of night eating syndrome. *Eating Behaviors*, *9*, 62-72.