

RUNNING HEAD: Cumulative Stress and Adolescent Weight Status

Cumulative Family-Level Stress and Adolescent Weight Status: Gender Disparities

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Adolescent overweight and obesity is a public health concern that is influenced by multiple ecological systems (Huang et al., 2009). Research focused on the family environment has suggested that cumulative family-level stress places children and adolescents at risk for obesity (Garasky et al., 2009). Yet, it is unclear whether adolescent female and male weight status differ depending on their childhood exposure to particular cumulative family-level stressors. The overarching goal of the proposed paper is to use a child lifespan approach to investigate how three cumulative family stress indices measured from birth to age 15 are related to adolescent female and male weight status at age 18. Specifically, the paper will 1) document the proportion of adolescents that experienced the three cumulative family-level stress indices by gender 2) examine the association between the three cumulative family-level stress indices, as well as a total cumulative stress index, and adolescent weight status and 3) examine gender as a moderating factor of the association between stress and adolescent weight status.

Data for this study come from the National Longitudinal Survey of Youth 1979 (NLSY79) and the linked Young Adults files (YA-NLSY). The analysis will focus on 5,085 adolescents (mean = 18.52 years) who were born between 1975 and 1991 to women from the main youth file. Cumulative family-level stress indices include: family disruption, financial strain, and maternal risky health behaviors measured from birth to age 15. The three indices are similar to previous research that has examined family risk indices (Garasky et al 2009; Gundersen et al 2008). Similar to previous research, each index will be based on aggregate experiences of particular family risk factors (See Table 1 for item description). Self-reported adolescent weight status was based on body mass index (BMI) definitions of the American Academy of Pediatrics (Barlow, 2007): Obese (BMI \geq 95th percentile), overweight (BMI \geq 85th

percentile and < 95th percentile), healthy weight (BMI \geq 5th percentile and < 85th percentile) and underweight (BMI < 5th percentile). Child and maternal characteristics were included as controls (Table 1).

Preliminary logistic regression analyses suggest that family-level stress has different effects on female and male adolescent weight status (Table 2). While greater childhood exposure to financial strain placed adolescent males at 12% lower odds of being overweight or obese, greater childhood exposure to financial strain placed adolescent females at 41% greater odds of being overweight or obese (Panel A). Further, greater childhood exposure to family disruption placed adolescent females at 44% greater odds of being overweight or obese. Panel B demonstrated that cumulative family stress placed females at 26% greater odds of being overweight or obese. Last, females who were not exposed to cumulative family-level stress during childhood were at 47% lower odds of being overweight or obese during late adolescence. Further analyses will include a robustness check on the indices using principal components analysis. Implications will be discussed in terms of improving adolescent health by reducing economic hardship and improving family relations during childhood.

Table 1. *Weighted Descriptive Statistics for Study Variables for the Analytic Sample and by Gender [M (SD) or %]*

	Analytic Sample (n = 5,085)	Female (n = 2,508)	Male (n = 2,577)
<i>Adolescent Weight Status (Age 18)</i>			
Obese	12%	11%	14%
Overweight.	14%	15%	13%
Normal weight	71%	71%	70%
Underweight	3%	3%	3%
<i>Stress Indices from Birth to Age 15</i>			
Cumulative Stress Index [0-8]	2.42 (1.65)	2.43 (1.67)	2.40 (1.63)
Family Disruption Index [0-3]	0.23 (0.50)	0.24 (0.53)	0.22 (0.48)
Family Structure Instability	8%	8%	7%
Incarceration	5%	5%	5%
Victim of a Violent Crime	5%	6%	3%
Victim of a More than 1 Violent Crime	1%	1%	1%
Death	6%	4%	8%
Financial Strain Index [0-3]	1.39 (0.97)	1.39 (0.96)	1.39 (0.98)
Poverty	54%	55%	53%
Parental Unemployment	68%	69%	68%
Maternal Education Less than High School	18%	17%	19%
Maternal Risky Health Behaviors Index [0-3]	0.79 (0.83)	0.79 (0.83)	0.79 (0.83)
Mother is a Binge Drinker	43%	43%	43%
Mother uses Illicit Drugs	34%	32%	36%
Mother has Elevated Depression	25%	26%	25%
<i>Control Variables</i>			
<i>Child Characteristics</i>			
Female	49%	100%	---
<i>Race/Ethnicity</i>			
White	75%	76%	76%
Black	17%	17%	16%
Hispanic	8%	7%	8%
Age at BMI Assessment	18.52 (0.50)	18.51 (0.50)	18.53 (0.50)
Number of siblings	1.87 (1.28)	1.89 (1.30)	1.86 (1.27)
<i>Mother Characteristics</i>			
Age at time of child's birth	24.01 (4.16)	23.95 (4.20)	24.09 (4.12)
Continuous BMI	22.42 (3.81)	22.40 (3.93)	22.45 (3.70)

Note: All values are weighted (except *N*) and based on non-imputed data.

Table 2. Logistic Regressions Predicting the Association between Stress Indices and Adolescent Weight Status.

Panel A: Family-level Stress Indices						
	Obese vs. Overweight (n = 1,461)		Overweight vs. Normal weight (n = 4,241)		Overweight or Obese vs. Normal weight (n = 4,927)	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Stress Indices						
Family Disruption Index	1.17 (0.97, 1.42)	1.10 (0.82, 1.49)	1.10 (0.95, 1.28)	0.91 (0.72, 1.14)	1.17 (1.03, 1.32)*	0.96 (0.80, 1.14)
Financial Strain Index	1.05 (0.92, 1.20)	1.00 (0.84, 1.19)	1.02 (0.92, 1.12)	0.87 (0.76, 0.99)*	1.03 (0.95, 1.12)	0.88 (0.79, 0.97)*
Risky Health Behaviors Index	0.95 (0.81, 1.11)	0.82 (0.67, 1.02)	1.15 (1.03, 1.29)*	1.20 (1.03, 1.41)*	1.12 (1.02, 1.22)*	1.09 (0.07, 1.24)
Gender						
Female	0.60 (0.49, 0.75)***	0.36 (0.23, 0.57)***	1.29 (1.10, 1.52)**	0.78 (0.56, 1.07)	1.04 (0.91, 1.18)	0.51 (0.39, 0.67)***
Stress Indices and Gender Interactions						
Family Disruption* Female	---	1.10 (0.75, 1.61)	---	1.40 (1.02, 1.92)*	---	1.44 (1.13, 1.84)**
Financial Strain* Female	---	1.13 (0.89, 1.42)	---	1.35 (1.14, 1.61)***	---	1.41 (1.23, 1.63)***
Risky Health Behaviors*Female	---	1.32 (0.99, 1.73)	---	0.91 (0.75, 1.10)	---	1.03 (0.97, 1.21)
Panel B: Cumulative Stress Index						
	Obese vs. Overweight (n = 1,461)		Overweight vs. Normal weight (n = 4,241)		Overweight or Obese vs. Normal weight (n = 4,927)	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Stress Index						
Cumulative Stress Index	1.03 (0.96, 1.11)	0.94 (0.85, 1.04)	1.08 (1.03, 1.15)**	0.99 (0.92, 1.08)	1.09 (1.04, 1.14)***	0.97 (0.91, 1.03)
Gender						
Female	0.61 (0.49, 0.76)***	0.35 (0.23, 0.56)***	1.29 (1.09, 1.51)**	0.80 (0.58, 1.10)	1.04 (0.91, 1.18)	0.53 (0.40, 0.68)***
Stress Index and Gender Interactions						
Cumulative Stress * Female	---	1.19 (1.06, 1.35)**	---	1.17 (1.07, 1.29)**	---	1.26 (1.16, 1.36)***

Note: Odds ratios and 95% Confidence Intervals are presented. Models were conducted on pooled and imputed NLSY79 & NLSY79-YA data. Models include the child and mother characteristics listed in Table 1. Dependent variables do not include underweight individuals.

* $p < .05$, ** $p < .01$, *** $p < .001$.