PAA 2013
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Extended Abstract

Stressful Life Events and Longitudinal Patterns of Obesity from Adolescence to Young Adulthood

The period of adolescence is a transitional developmental stage, characterized by significant physiological, social, and psychological changes (Cobb, 2010; Gluckman, Beedle, & Hanson, 2009; Santrock, 2010). While many individuals traverse the adolescent transition relatively unscathed, a number suffer from significant physical and psychological health problems, including obesity, emotional distress, and type II diabetes; as well as harmful health behaviors including substance abuse and unprotected sex (Centers for Disease Control and Prevention, 2012a; Knopf, Park, & Mulye, 2008; Mulye et al., 2009).

Disparities in health and behavior such as these also continue well into young adulthood, contributing to chronic diseases across the life course (Adler & Rehkopf, 2008; Green & Darity, 2010; Harris et al., 2006; Mulye et al., 2009; Pearlin et al., 2005; Phelan, Link, & Tehranifar, 2010). Such disparities in behavior and health during adolescence result from numerous factors: individual social conditions that influence exposure to life's experiences; the transitional nature of adolescence in coping with life's challenges; and the timing with which such challenges occur during adolescence (Braveman et al., 2010; Chen, Martin, & Matthews, 2006; Goodman, 1999).

This study focused on a highly salient public health issue, adolescent obesity (Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, & Division of Nutrition Physical Activity and Obesity, 2011e). Obesity prevalence among adolescents has nearly tripled in the last three decades (Ogden et al., 2012), and obesity in adolescence is highly predictive of adult obesity (Guo et al., 1994; Whitaker et al., 1997),

suggesting the importance of investigating longitudinal patterns of obesity from adolescence to young adulthood.

Obesity is influenced by both social conditions as well as exposure to life's stressful experiences (Barry & Petry, 2008; Lee, Harris, & Gordon-Larsen, 2009; Wang, 2001). As recent literature has begun to explore the mechanisms through which social conditions during adolescence lead to changing obesity patterns during the transition to adulthood (Lee, 2009), none have considered stressful life events (SLE). Using Waves I-III of the National Longitudinal Study of Adolescent Health (Add Health) (N = 9,311), this study examined the effects of SLE during adolescence on longitudinal patterns of obesity during the transition to adulthood, separately for females and males.

Similar to previous Add Health literature on longitudinal obesity (Gordon-Larsen et al., 2004; Gordon-Larsen et al., 2010; Lee et al., 2009; Scharoun-Lee et al., 2009), a two-by-two table of obesity status at Wave II and Wave III was used to create a categorical variable of longitudinal obesity patterns: *Becoming obese* (not obese at Wave II but obese at Wave III); *Staying Obese* (obese at both Waves II and III); *Reduce Obesity* (obese at Wave II but not obese at Wave III); and *Staying Non-Obese* (not obese at both Waves II and III). Following convention, a small proportion of respondents identified with the *reduce obesity* category, and were thus combined with the *stay non-obese* group.

Consistent with prior research (Adkins, 2009; Boardman & Alexander, 2011; Ge et al., 1994; Ge et al., 2006; Ge et al., 2009), we operationalized SLE as the cumulative number of events occurring during adolescence at Wave I. The measure of SLE was based on those life events experienced prior and reported at Wave I of Add Health by Adkins and colleagues (Adkins, 2009), originally derived from an SLE index developed by Ge et al. (Ge, 1994). They

included nearly 50 items from numerous life domains, such as family, romantic conflicts, academic problems, violence exposure, and death of family members or friends. Additionally, the current study took into account individual control over whether an event occurred. Thus, distinct SLE indices were created according to events that occurred *to* or were performed *by* the adolescent. Due to the number of events (range from 0-16), and a wider distribution of SLE done *to* adolescents, a four category variable was created: 0 SLE, 1 SLE, 2 SLE, and 3 or more SLE. For the index of SLE performed *by* the adolescent (range from 0-7), a three category variable was created: 0 SLE, 1 SLE, and 2 or more SLE.

Results showed that females who experienced 3 or more SLE done *to* them had the highest rates of becoming and staying obese from Wave II to Wave III (20.3% and 14.0%, respectively) (Table 1). Females who performed 2 or more SLE had the highest percentage of becoming obese (21.4%); however, those who performed 1 or more SLE had a higher percentage of staying obese (11.6%). Among males, longitudinal patterns of obesity from Wave II to Wave III by SLE revealed that males who experienced 3 or more SLE done *to* them had the highest percentage of becoming obese (14.2%), while those who experienced 0 SLE and 1 SLE had the highest percentages of staying obese (11.5% and 11.1%, respectively) (Table 2). There was no significant association between SLE performed by males and longitudinal patterns of obesity.

However, multinomial logistic regression results found that upon controlling for demographic factors, SLE experienced and performed during adolescence did not significantly predict longitudinal patterns of obesity. These findings contribute to those within the stress and obesity literature, specifically including the period of the transition to adulthood.

Tables

Table 1. Weighted Percents and Standard Errors of Patterns of Obesity by Wave I SLE, Females, Add Health Waves I-III (N=4,813)

	Longitudinal Obesity Patterns[a] % (SE)		
Wave I SLE	Become Obese	Stay Obese	Stay Non/Reduce Obese
SLE Done *To*			
0 SLE	12.6 (.009)***	9.6 (.010)	77.8 (.013)
1 SLE	10.7 (.011)	8.2 (.009)	81.1 (.015)
2 SLE	13.0 (.020)	10.8 (.016)	76.3 (.022)
3+ SLE	20.3 (.030)	14.0 (.023)	65.7 (.657)
SLE Performed *By*			
0 SLE	12.1 (.007)*	9.5 (.008)	78.5 (.012)
1 SLE	14.3 (.019)	11.6 (.017)	74.1 (.026)
2+ SLE	21.4 (.045)	6.0 (.021)	72.7 (.048)

Note: Design-based Wald test for bivariate analysis
* p≤0.05, **p≤0.01, ***p≤0.001.
[a] Wald test compared differences across the 3 categories of longitudinal obesity outcome.

Table 2. Weighted Percents and Standard Errors of Patterns of Obesity by Wave I SLE, Males, Add Health Waves I-III (N=4,498)

	Longitudinal Obesity Patterns[a] % (SE)		
Wave I SLE	Become Obese	Stay Obese	Stay Non/Reduce Obese
SLE Done *To*			
0 SLE	6.6 (.007)**	11.5 (.013)	81.9 (.014)
1 SLE	10.6 (.012)	9.3 (.012)	80.1 (.015)
2 SLE	8.3 (.014)	11.1 (.017)	80.6 (.021)
3+ SLE	14.2 (.018)	10.2 (.018)	75.6 (.022)
SLE Performed *By*			
0 SLE	8.9 (.007)	10.8 (.008)	80.3 (.010)
1 SLE	9.6 (.012)	10.3 (.016)	80.2 (.018)
2+ SLE	12.5 (.029)	9.4 (.021)	78.1 (.036)

Note: Design-based Wald test for bivariate analysis
* p≤0.05, **p≤0.01, ***p≤0.001.
[a] Wald test compared differences across the 3 categories of longitudinal obesity outcome.