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## The Influence of Negative Life Events and Problem Behavior on Grades in Early Adolescence: Pathways to Academic Risk in the Middle Grades

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### Abstract

Younger adolescents demonstrate a greater vulnerability to negative life events than do older adolescents and adults. The authors examined whether this heightened vulnerability includes a greater likelihood for participating in problem behaviors associated with poor academic outcomes and receiving lower grades. The study was conducted using data from essentially the whole population of Iceland in the specified age group. Thus, the researchers were able to understand this relationship within traditionally high-risk populations as well as all young people representing the full range of possible risk. All middle grades and high school students who

attended school at the time of the study completed a cross-sectional survey that included self-reports of negative life events (NLEs), participation in problem behaviors, and grades ( $n = 7,291$ , ~ 86% of population). Structural equation modeling indicated a strong pathway between NLEs, problem behaviors, and grades. For boys in the middle grades experiencing NLEs, problem behaviors mediated 100% of the variance in grades, while it mediated 56% of the variance among girls in the middle grades. Implications for research and practice are provided.

*Keywords:* early adolescence, adolescent development, negative life events, academic achievement, middle school

## Introduction

Dropping out of school is not an isolated event; rather, it is the culmination of a process of academic failure and disengagement that begins early in the student's academic career. (Pharris-Ciurej, Hirschman, & Willhoft, 2012, p. 713)

Young adolescents demonstrate a greater vulnerability to negative life events (NLEs) than do older adolescents and young adults (Mann, Kristjansson, & Sigfusdottir, 2014). At a minimum, this greater vulnerability expresses itself in higher rates of NLE-related depression, anxiety, and anger (Mann et al., 2014), as well as a correspondingly greater propensity to engage in problem behaviors associated with poor developmental, health, and life outcomes (Burgess, 2006; Colman, Kim, Mitchell-Herzfeld, & Shady, 2009; D'Amico, 2005; McGee & Williams, 2000; Schumacher & Kurz, 2000).

General strain theory (GST) suggests that young people who experience strain and are unable to achieve socially endorsed goals, such as earning good grades or graduating from school, may become increasingly likely to detach from those goals and pursue other, possibly less pro-social, means of meeting their needs. According to this theory, strain or the accumulation of strain can trigger negative emotions that require a coping effort. Young people who are less capable of successfully pursuing socially legitimate means of coping may become more vulnerable to a wide range of negative outcomes. Additionally, this theory proposes that students who are more predisposed to negative emotions, or are more emotionally reactive as a result of experiencing high levels of strain, may also be more susceptible to these less desirable outcomes (Agnew, 1985, 1992, 2001).

A developmentally grounded application of GST to the early adolescent period would suggest that strain occurring through the accumulation or intensity of NLEs during this emotionally vulnerable time might contribute to a heightened likelihood of problem behavior and poor academic and life outcomes. When conceptualizing GST as applied to young adolescents in the middle grades, we would hypothesize that exposure to NLEs could increase strain; disproportionally heighten young adolescent emotions related to anger, anxiety, and depression; and more quickly activate a perceived need to make a coping attempt—all during a time in which young people are less prepared to mount a successful coping response

than they will be in later adolescence (see, e.g., Mann et al., 2014). Further, among students who are unable to muster a socially acceptable coping response or who are unable to continue achieving socially acceptable goals/results during periods of heightened strain, we would expect these students to be more likely to engage in problem behaviors and to earn poor grades. To date, relatively little work has been conducted that investigates the specific vulnerabilities of young adolescents within the GST framework, especially in terms of middle level academic and behavioral outcomes.

Further investigating these links is critically important, as several studies have demonstrated the potentially devastating influence of students' problem behaviors and poor grades during the middle grades on their later academic and life outcomes. For instance, Balfanz, Herzog, and MacIver's study (2007) investigating high school graduation rates in inner city schools demonstrated a powerful connection between middle level problem behaviors, academic outcomes, and rates of completing high school. Specifically, they found that sixth grade students who went to school in what might be considered high strain environments were 42%–68% less likely to graduate from high school if they had earned one of the following: (1) a final grade of "F" in either mathematics or English, (2) a final rating of "unsatisfactory" in behavior in any one class, or (3) an attendance rate of 80% or less. Even worse, an examination of the cumulative risks was more discouraging, with only 3% of students who had experienced all of these outcomes graduating by the end of the study. In situations like this, a better understanding of the relationship between NLEs, strain, coping, problem behavior, and the influence of broader environmental factors within the GST theoretical framework offer to provide prescriptive guidance likely to improve, enhance, or ground attempts to intervene.

In this study, we examined whether or not the heightened vulnerability of young adolescents to NLEs included a greater likelihood of receiving lower grades in school and participating in problem behaviors associated with poor academic outcomes. Additionally, and perhaps somewhat rare in our current climate of educational research, we conducted our study by surveying the total population of eighth and tenth grade students in a small Nordic country, with the express goal of not only understanding this relationship within traditionally high-risk populations (e.g., the urban or rural poor), but also as it existed

among a nationwide population of young people representing the full range of possible risk.

## Research Questions

In order to more clearly understand the link between NLEs and middle grades academic and behavioral outcomes, we developed five core research questions that guided this study:

1. How common are NLEs among young adolescents attending middle level schools as compared with older adolescents attending high school?
2. What is the relationship between NLEs and school grades among younger adolescents attending middle level schools as compared with older adolescents attending high school, especially while considering the previously demonstrated influence of event proximity and event intensity?
3. What is the relationship between NLEs and school grades as mediated by problem behavior among young adolescents attending middle level schools as compared with older adolescents attending high school, especially while considering the previously demonstrated influence of event proximity and event intensity?
4. How do the relationships outlined in research questions 2 and 3 differ by gender?
5. How do the relationships outlined in research questions 2 and 3 differ by age?

Our study promises to make a significant contribution to the middle level mission by further differentiating the needs of middle grades students from older adolescents, and helping middle level school professionals better understand “the nature of young adolescents” and be more prepared to provide them with “the knowledge and skills they need to control their lives” (NMSA/AMLE, 2010, p. 24).

## Method

### *Sample and Procedures*

The data for this study came from the latest of the population-based *Youth in Iceland* surveys conducted among upper secondary school students in grades 8 to 10 during February 2012. All aspects of data collection were supervised by the Icelandic Centre for Social Research and Analysis (ICSRA) at Reykjavik University and carried out with passive parental consent using procedures approved by the Icelandic authority overseeing the protection of human research subjects. ICSRA distributed anonymous questionnaires and envelopes for

returning completed questionnaires to all secondary schools and junior colleges in Iceland. Consistent with published study protocols (Kristjansson, Sigfusson, Sigfusdottir, & Allegrante, 2013; Sigfusdottir, Thorlindsson, Kristjansson, Roe, & Allegrante, 2009), teachers at individual school sites supervised the participation of the students in the study and administered the survey questionnaire. All students who attended school on the day that the questionnaire was scheduled to be administered completed the questionnaire.

Students were instructed not to write their names, social security numbers, or any other identifying information anywhere on the questionnaire. Once students had completed the questionnaires, they were asked to place their completed questionnaire in the envelope and seal it before returning the questionnaire to the supervising teacher. A total of 7,291 secondary school students (13- and 15-year-olds; 50.4% girls) completed the questionnaire in 2012, representing approximately 86% of the population of Iceland in these age groups.

### *Measures*

An estimated 90% of the approximately 320,000 inhabitants of Iceland are of Norse-Celtic decent, around 77% of the population belongs to the Lutheran State Church, close to 5.0% are outside religious institutions, and no other religious sect has more than 3.3% of the population registered in its services (Statistics Iceland, 2012). Because of this homogeneity, exogenous variables such as race and religion, which are often used in research in other countries, were not included in the present analysis.

**Independent variables.** NLEs: Often referred to as adverse events, stressful events, stressors, chronic events, or traumas (see Thoits 1995, 2010 for overviews), NLEs were measured with 17 questions pertaining to negative life experiences among participants. Similar questions have been used widely to measure the frequency, accumulation (chronicity), and intensity of life experiences defined as stressful or traumatic (e.g., Felitti et al., 1998; Kristjansson, Sigfusdottir, Allegrante, & Helgason, 2009; Sigfusdottir, Farkas, & Silver, 2004; Thoits 2010; Wills, Vaccaro, & McNamara, 1992). Due to the nature of the measured events, the questions are put forth as counts in time sequence since each respondent may have had the same experience more than once and of course more than one type of event.

The questions in our NLEs measure are headed with the following sentence: “How often, if ever, have you had the following experiences?” The question items are (1) Been involved in a serious accident, (2) Had a severe illness, (3) A separation or divorce of your parents, (4) Had a serious argument with your parents, (5) Witnessed a serious argument by your parents, (6) Witnessed a physical violence in your home where an adult was involved, (7) Been involved in physical violence in your home where an adult was involved, (8) The death of a parent or sibling, (9) The death of a friend, (10) A break up with a girlfriend/boyfriend, (11) Been rejected by your friends, (12) A separation from a friend, (13) Received an exceptionally low grade, (14) Father or mother lost a job, (15) Been expelled from school, (16) Experienced sexual abuse by an adult, and (17) Experienced sexual abuse by a contemporary. The four multiple-response categories were (1) “Yes, during last 30 days,” (2) “Yes, during last 12 months,” (3) “Yes, more than 12 months ago,” and (4) “No, never.”

In line with Mann and colleagues (2014), we then proceeded to create latent constructs based on two different types of coding of the NLEs items. The first one is rooted in sociology of deviance/criminology (Thoits, 1995, 2010) and based on time proximity of events where the hypothesis is that events closer in time will yield stronger associations to negative outcomes. Using this approach, we coded response categories with 0 if they never took place, 1 if they happened more than 12 months ago, 2 if reported to have happened during the last 12 months, and 3 if they happened during the last 30 days. Following Mann and colleagues (2014), we then proceeded to code the NLEs variable by weighting the NLE items and assigning them a score of 1 to 4 with the least serious events receiving a score of 1 and the most serious events a score of 4. Items 4, 5, and 13 were categorized as “1”; items 2, 6, 10, 11, 12, and 14 were categorized as “2”; items 1, 3, 7, 9, and 15 as “3”; and items 8, 16, and 17 were categorized as “4.”

**Problem Behavior:** For problem behavior, we used the Oregon Adolescent Depression Project-Conduct Disorder Screen (OADP-CDS) (Lewinsohn, Rohde, & Farrington, 2000). This is a six-item scale headed with, “How often during the past 12 months have you done any of the following?” and the following questions: (1) broken the rules at home, (2) broken the rules in school, (3) got into fights, (4) truancy, (5) run away from home, (6) got into trouble for lying or for

stealing. The response format was 0 = “almost never or seldom,” 1 = “a few times or sometimes,” 2 = “quite often or often,” 3 = “almost all the time or all the time.”

**Academic Grades:** Respondents were asked to report their average grades in the four core academic subjects of Icelandic, Mathematics, English, and Danish (alternatively Norwegian or Swedish), required of all students in grades 8 and 10 in Iceland. The grade range in Iceland in these subjects is 0 to 10, with a score of 5 and above indicating a passing grade. Response options were 1 = “under 4,” 2 = “about 4,” 3 = “about 5,” 4 = “about 6,” 5 = “about 7,” 6 = “about 8,” 7 = “about 9,” and 8 = “about 10.” Although self-reports are not perfect as a measure of academic performance, the results of a pilot study conducted by our group suggest that they are indeed very highly correlated to actual transcripts ( $r \sim .80$ ) and therefore suffice as a measure in a population study (Gísladóttir, 2013).

**Parental Education:** Parental Education was obtained by asking respondents separate questions about their fathers’ and mothers’ educational attainment. Response options were 1 = “finished elementary school or less,” 2 = “started but did not finish secondary school,” 3 = “finished secondary school,” 4 = “started university but did not finish,” 5 = “has a university degree,” and 6 = “Don’t know.”

Table 1 shows the descriptive statistics for all continuous items in the study, and Table 2 shows frequency counts for all response categories of the NLEs measure within each of the four study groups.

## Statistical Analyses

After examining a zero-order correlation-matrix for all variables, we conducted structural equation modeling (SEM) using AMOS 21.0.0 (Byrne, 2010). SEM allowed us to explicitly model direct and indirect effects using measured and latent variables (Bollen, 1989). We specified four latent constructs in the analysis: parental education, NLEs, and academic achievement. The specification included the number of factors, the number of indicators for each factor, and whether the measurement errors were allowed to correlate or not. Confirmatory factor analysis was used from the beginning in the construction of all latent variables, and was also used to test the fit of the hypothesized factor structure to the covariance matrix of the observed variables.

Table 1  
*Descriptive Statistics (Means and SDs) for all Continuous Items in the Study*

	Range	Boys 8	Girls 8	Boys 10	Girls 10
Parental education					
Mother's education	1–6	4.34 (1.60)	4.22 (1.63)	4.07 (1.58)	3.89 (1.59)
Father's education	1–6	4.20 (1.70)	4.17 (1.70)	3.83 (1.63)	3.73 (1.64)
Problem behavior					
Broke the rules at home	1–4	1.49 (0.69)	1.39 (0.65)	1.53 (0.72)	1.47 (0.70)
Broke the rules in school	1–4	1.69 (0.77)	1.32 (0.61)	1.65 (0.79)	1.34 (0.61)
Got into a fight	1–4	1.30 (0.61)	1.10 (0.41)	1.19 (0.51)	1.08 (0.37)
Truancy	1–4	1.18 (0.53)	1.32 (0.47)	1.22 (0.59)	1.19 (0.53)
Ran away from home	1–4	1.06 (0.33)	1.05 (0.31)	1.05 (0.34)	1.05 (0.32)
Got into trouble for lying and stealing	1–4	1.15 (0.48)	1.12 (0.42)	1.12 (0.43)	1.11 (0.40)
Grades					
Icelandic	1–8	5.48 (1.46)	6.03 (1.33)	5.05 (1.57)	5.72 (1.40)
Mathematics	1–8	5.74 (1.69)	5.74 (1.77)	5.22 (1.80)	5.61 (1.78)
English	1–8	5.99 (1.59)	6.06 (1.55)	5.98 (1.55)	6.09 (1.42)
Danish (or other Scandinavian)	1–8	5.23 (1.79)	6.01 (1.54)	4.85 (1.83)	5.81 (1.66)

The structural equation model we tested can be expressed with the equation:  $\eta = \beta\eta + \Gamma\xi + \zeta$ , where  $\beta$  is the matrix of regression weights interrelating the endogenous ( $\eta$ ) variable, academic grades, as well as the mediating variables NLEs and problem behavior.  $\Gamma$  is the matrix of regression weights relating the exogenous ( $\xi$ ) variable, parental education, to the endogenous ( $\eta$ ) ones, and  $\zeta$  is a vector of error terms. During model building, we used modification indices to improve the fit of the model, resulting in several indicators within the latent constructs to be treated as free standing parameters. This exercise also led to two of the NLEs indicators being dropped from the model due to high inter-item correlation: item 4 (“Had a serious argument with your parents”) and item 13 (“Received an exceptionally low grade”). The final SEM models therefore include 15 NLE items.

Ho and Bentler's (1999) cutoff criteria for adequate-fit indices were adopted, with a comparative fit index (CFI) of .950 and above, and the root mean square error of approximation (RMSEA) of below .050

indicating a very good fit to the data. The data were then modeled in two ways depending on the coding of the NLEs variables. A relationship between two variables is generally considered to be mediated if it exists (or is strengthened) when a third variable is included in the putative causal pathway (Baron & Kenny, 1986). Accordingly, the mediating relationship of NLEs on academic achievement through the mediation of problem behavior was estimated by calculating direct, indirect, and total effects in AMOS (Byrne, 2010).

For the purpose of our research questions, we carried out a multiple-group analysis separately for girls and boys in grades 8 and 10, respectively. We had AMOS compute a table of critical ratios (CR) of differences among all pairs of free parameters between those four groups. The CR is the difference between the parameters divided by the estimated standard error of the difference (Bollen, 1989). Similar to the  $t$  statistic, the CR statistic can be compared to a table of the standard normal distribution to test whether each pair of parameters listed in the table are equal.

Table 2  
Frequency of Individual NLEs for all Subgroups in the Study\*

	Boys 8 (%)			Girls 8 (%)			Boys 10 (%)			Girls 10 (%)		
	30d	12m	More	30d	12m	More	30d	12m	More	30d	12m	More
Serious accident	3.3	5.0	14.6	1.6	3.8	9.6	2.7	5.7	12.7	0.9	2.7	8.7
Severe illness	3.5	3.5	7.9	3.1	4.0	6.3	2.9	3.8	8.0	3.5	3.9	8.8
Parental separation or divorce	14.2	2.1	1.0	17.4	2.2	1.2	16.5	1.4	1.0	20.1	2.4	0.9
Serious argum. with parents	5.4	6.5	5.2	8.2	8.9	6.3	6.0	8.8	7.4	10.4	14.4	8.1
Witm. serious argum. by parents	2.8	3.9	6.1	3.2	5.6	8.3	2.5	4.9	7.7	3.6	8.4	10.7
Witm. phys. violence at home	1.5	1.3	1.8	1.0	1.6	2.2	1.2	1.2	2.3	0.7	1.8	3.5
Involved in phys. viol. at home	1.1	1.4	1.6	1.1	1.4	1.6	0.8	1.2	2.7	0.7	1.6	2.7
Death of a parent or sibling	0.6	1.3	3.1	0.6	0.8	3.2	0.8	1.1	3.2	0.1	0.7	2.4
Death of a friend	1.4	3.1	3.4	1.4	5.0	2.7	1.1	3.0	3.7	1.4	3.0	3.5
A break up with a girl/boy friend	4.6	10.5	9.0	4.6	9.8	7.3	4.0	10.0	7.4	4.9	14.1	6.8
Rejected by friends	5.1	4.9	7.5	9.5	11.2	11.1	3.9	6.5	6.7	7.1	13.2	11.8
Separation from a friend	4.3	5.8	8.7	6.9	13.7	13.5	4.4	9.6	9.6	7.0	17.7	17.0
Father/Mother lost a job	1.0	3.9	5.8	1.7	4.3	7.9	1.3	5.0	6.5	0.9	6.6	8.9
Expelled from school	0.7	0.9	1.8	0.3	0.4	0.4	0.6	1.2	2.1	0.2	0.3	0.7
Sexual abuse by an adult	0.5	0.6	0.6	0.4	0.8	2.2	0.4	0.3	0.8	0.2	1.4	3.0
Sexual abuse by a peer	0.7	0.8	0.7	0.6	1.6	1.5	0.7	0.6	0.8	0.5	1.9	3.2

Note. \* Although it is uncommon for respondents to mark more than one response category within each NLE, response categories are not exclusive.

## Results

Table 2 summarizes the cumulative frequency of NLEs for all subgroups in the study. Generally, no unexpectedly large differences were observed. Some NLEs are more common among boys (e.g., a serious accident) and others among girls (e.g., sexual abuse), and the frequency of some NLEs increases with age (e.g., a breakup with a girl/boyfriend).

The proposed SEM is shown in Figure 1, and all SEM results are depicted in Tables 3–5. Generally, both the proximity and intensity revealed good fit to the data (proximity model:  $\chi^2 = 3,504.2$  (1,168),  $p < .001$ . CFI = .952, RMSEA = .017, intensity model:  $\chi^2 = 3,589.9$  (1,172),  $p < .001$ . CFI = .947, RMSEA = .017). As expected with large samples, the chi-square test failed to reject the null hypothesis that the observed and the expected matrices are identical (Bollen, 1989), but the CFI and RMSEA model fit statistics suggest a very good (proximity) and good (intensity) fit to the data (Ho & Bentler, 1999). The standardized regression weights for all direct relationships are shown in Table 4, their respective variance explained is shown in Table 5, and the mediational component of the relationship of NLEs on academic grades through problem behavior is shown in Table 6.

In the proximity model, the relationship between NLEs and problem behavior ranges from a standardized  $\beta = .40$  among girls in eighth grade to  $\beta = .63$  among girls in tenth grade, with the boys falling in between those. Further, the relationship between NLEs and problem behavior is significantly stronger between girls in eighth grade and girls in tenth grade (CR: 3.08), as well as between boys in tenth grade and girls in tenth grade (CR: 2.20). The relationships between NLEs and grades are non-significant for boys in eighth and tenth grades, and small but significant at the 95% level for girls in both eighth and tenth grades. No significant differences were observed between the groups in this respect. Lastly, the relationship between problem behavior and grades ranges from a standardized  $\beta = -.22$  for boys in tenth grade to  $\beta = -.28$  for boys in eighth grade, with the girls falling in between those numbers. No significant differences were observed for these relationships between any of the groups.

In the intensity model, the relationship between NLEs and problem behavior ranges from a standardized  $\beta = .40$  among girls in eighth grade to  $\beta = .59$  among girls in tenth grade, with the boys falling in between those. Further, the relationship between NLEs and problem behavior is significantly

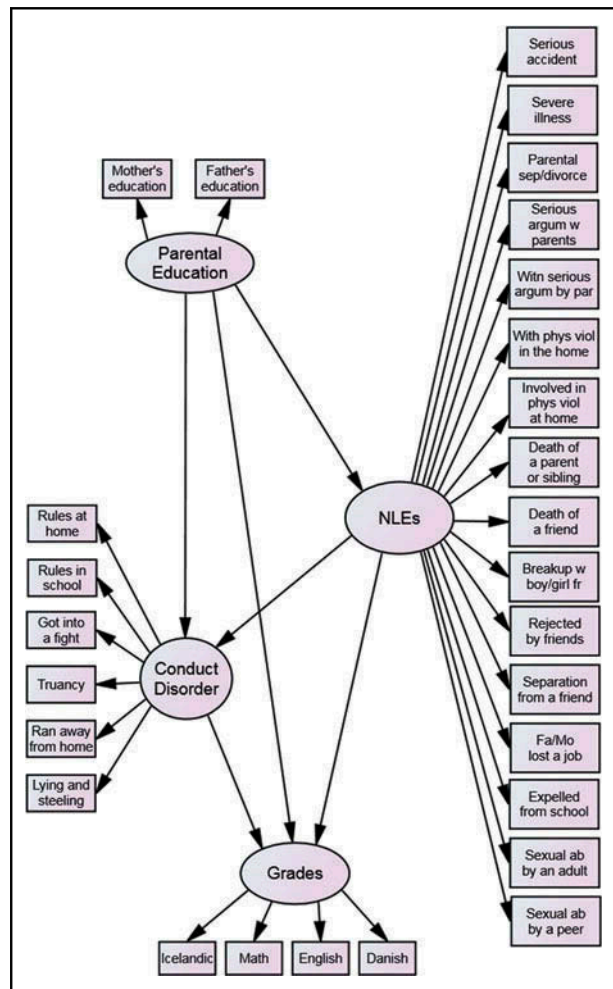


Figure 1 Proposed pathways in the final structural model

stronger between girls in eighth grade and girls in tenth grade (CR: 2.40). The relationships between NLEs and grades are non-significant for all groups except for girls in tenth grade ( $\beta = -.10$ ). No significant differences were observed between the groups in this respect. Finally, the relationship between problem behavior and grades ranges from a standardized  $\beta = -.22$  for boys in tenth grade to  $\beta = -.29$  for boys in eighth grade, with the girls falling in between those. No significant differences were observed for these relationships between any of the groups.

When considering the mediating role of problem behavior in the relationship between NLEs and grades, an interesting age-based pattern is observed. Generally across the spectrum, the mediation is very large, with as much as the total relationship being due to mediation among boys in eighth grade (intensity



Table 3  
*Experiencing at least One Exposure to an NLE during the Period*

	Boys 8 (%)			Girls 8 (%)			Boys 10 (%)			Girls 10 (%)		
	30d	12m	Ever	30d	12m	Ever	30d	12m	Ever	30d	12m	Ever
All NLEs	21.9	43.4	62.1	26.4	50.3	70.2	19.8	45.0	64.4	27.4	58.5	75.4
High intensity NLEs	1.4	3.1	6.2	1.3	3.7	9.2	1.1	2.7	6.7	0.7	3.9	10.4

Note. Rates do not reflect multiple exposures to NLEs during the period.

Table 4  
*Standardized Regression Weights for all SEMs, Taking Account of Proximity and Intensity of NLEs*

	NLR proximity				NLE intensity			
	B8	G8	B10	G10	B8	G8	B10	G10
NLEs → Problem behavior	.47**	.40**	.42**	.63**	.47**	.40**	.44**	.59**
NLEs → Grades	-.01	-.08*	-.06	-.10*	.00	-.04	-.07	-.10*
Problem behavior → Grades	-.28**	-.25**	-.22**	-.27**	-.29**	-.26**	-.22**	-.28**

Note. \* $p < .05$ , \*\* $p < .01$

Table 5  
*Variance Explained (%) for Problem Behavior and Academic Grades*

	NLE proximity				NLE intensity			
	B8	G8	B10	G10	B8	G8	B10	G10
Problem behavior	22	16	18	39	23	16	19	34
Grades	09	08	08	13	09	08	08	13

Table 6  
*Mediation of NLEs → Grades through Problem Behavior*

	NLE proximity				NLE intensity			
	B8	G8	B10	G10	B8	G8	B10	G10
Standardized total effects	-.14	-.18	-.16	-.27	-.13	-.15	-.16	-.27
Standardized indirect effects	-.13	-.10	.09	-.17	-.13	-.11	-.10	-.16
Mediation (%)	93	56	56	63	100	73	63	59

model) and no mediation being less than 56% of the total relationship.

## Discussion

In this study, we investigated the relationship between NLEs, problem behavior, and school grades among a national population of young adolescents attending middle level schools, not just among traditionally “at-risk” youth. Specifically, we described the rates of exposure to NLEs among young adolescents attending middle level schools in Iceland. Additionally, we examined the pathway from experiencing NLEs to participating in problem behaviors to earning poor academic grades, and the mediating influence of participation in those problem behaviors. Further, we explored differences in these pathways based on NLE intensity, NLE proximity, and gender. Finally, we compared our younger adolescent findings to a cohort of older Icelandic adolescents attending high school.

### *The Frequency of NLEs in Early Adolescence*

Descriptive statistics suggested that young adolescents experience NLEs at significant rates. Approximately one-quarter of all eighth grade students reported experiencing at least one NLE within the last 30 days, and approximately one-half reported experiencing at least one NLE during the previous 12 months. As expected, rates of higher intensity NLEs (e.g., experiencing the death of a loved one, being involved in physical violence in the home, or being a victim of peer sexual abuse) were substantially lower, but 6% of eighth grade boys and 9% of eighth grade girls reported experiencing at least one higher intensity NLE during their lifetime.

Additionally, young adolescent girls experienced slightly higher rates of most NLEs than young adolescent boys, with a few exceptions. Boys had higher rates of serious accidents, and girls had higher rates of rejection and separation from friends, arguments with parents, and sexual abuse by adults or peers. Finally, for most NLEs, young adolescents experienced similar rates of exposure to difficult or challenging circumstances as older adolescents. Older adolescent girls experienced moderately higher rates of arguing with parents, witnessing a parental argument, being separated from or rejected by friends, experiencing a break up, and sexual abuse by a peer, while rates of being sexually abused by an adult almost doubled. Older adolescent boys experienced moderately higher rates of rejection by friends.

These findings are well supported by the adolescent development literature and suggest that young adolescents experience significant challenges during the middle grades (Mann et al., 2014). Whether or not these challenges result in significant harm, they certainly demand mental and emotional resources from young people that could otherwise be channeled into academic pursuits (Mann et al., 2014). Although learning to cope with NLEs may represent a healthy part of adolescent development, or even be a requirement of healthy adolescent development, school may seem less relevant to young adolescents coping with these difficult circumstances (Lazarus, 1987, 2000). As such, NLEs present a potential pathway leading to an increased risk of academic failure and disengaging from school, especially among younger adolescents experiencing less normative high intensity NLEs, an accumulation of NLEs, or who lack the coping skills or social support necessary to successfully negotiate these difficulties. Fundamentally, these findings suggest that middle level educational institutions should anticipate their students experiencing high rates of NLEs and be prepared to help them remain engaged in school while coping with these challenges. This is especially true when considering the heightened vulnerability of younger adolescents to NLEs described in previous studies (Mann et al., 2014).

### *The Relationship between NLEs, Problem Behavior, and Grades*

The direct relationship between NLEs and poor grades was modest. Evidence suggesting younger adolescent girls experiencing NLEs were more likely to have lower grades was somewhat stronger, but the practical explanatory power of this relationship was relatively small. There was substantial evidence suggesting a strong relationship between NLEs and problem behavior in both young adolescent boys and girls. Perhaps most importantly, there was very strong evidence suggesting a powerful pathway from NLEs to problem behavior to poor grades. These findings strongly suggest that (1) if a young adolescent has experienced an NLE, they are more likely to demonstrate behavior problems, and that (2) young adolescents experiencing NLEs and behavior problems are very likely to have poor grades as well. In all cases, this relationship was very strong. The weakest mediated relationship explained 56% of the variance in grades for eighth grade girls and tenth grade boys, while the strongest mediated relationship

explained 100% of the variance in grades among eighth grade boys.

Although problem behavior is clearly not always rooted in NLEs, our evidence supports a strong likelihood that coping with NLEs or strain contributes to increased rates of problem behavior. This finding is consistent with other research investigating the relationship between NLEs, resilience, adverse childhood events, and stress or strain, and adolescent problem behavior (Anda, Butchart, Felitti, & Brown, 2010; Ash & Huebner, 2001). Perhaps most importantly, the strength of this relationship demands that those of us working with young people should respond to young adolescent problem behaviors in a careful, tempered, and measured manner. In practice, this means understanding that problem behaviors may be rooted in NLEs or strain instead of personality, and choosing a disciplinary approach that holds students accountable for their decisions while helping them develop effective coping and decision-making skills as well as providing additional support and assistance as required.

The literature on authoritative parenting and teaching provides clear guidance about how to maintain high expectations for behavior while responding constructively to the legitimate needs of children and adolescents (Dever & Karabenick, 2011). Our data support this type of approach, one characterized by warmth, firmness, and an adult willingness to engage in rational discussions designed to help young people recognize the benefits of pro-social behavior, and that connects students to people, communities, and systems that are responsive to their individual and community needs (Brownlee et al., 2013).

These findings also suggest that middle level educators and educational institutions should take student struggles with NLEs and corresponding behavior problems seriously, as they can make substantial contributions to poor grades. A number of studies demonstrate that academic failure increases the risk of disengaging from school and future school dropout (Henry, Knight, & Thornberry, 2012; Pharris-Ciurej et al., 2012). As discussed in the introduction, the potential consequences of both school disengagement and school dropout are powerful, real, and long-lasting at both the individual and community levels.

Our findings provide strong evidence that behavior problems are not only often related to coping with difficulty, but also that students who are both struggling with NLEs and exhibiting problem

behaviors are very likely to have problems with their grades as well. This meditational relationship was exceptionally strong and suggests that these students have a higher risk of academic disengagement and future school dropout. Once again, these findings may be more suggestive of a need for additional guidance and support than punishment or disciplinary action per se (Mann et al., 2014; Brownlee et al., 2013).

Finally, although the idea that students who are experiencing NLEs and choosing problem behaviors also achieve less academically represents one explanation of these data, an alternate explanation might be that teachers grade these students more harshly as a result of their challenging behavior. Several studies suggest that grading is not an objective exercise and that subjective factors influence the grades educators assign (Bowers, 2011; Van Ewijk, 2011). Therefore, educators who grade these students more harshly, in either an unconscious or conscious manner, might be heightening vulnerable students' susceptibility to a range of negative academic, health, and life outcomes. Simply asking educators not to be influenced by students' problem behavior when assigning grades is probably naïve. Because our interpretation of these behaviors is largely socially constructed, building and maintaining a school culture and organizational systems that assume the best of challenging students, attempts to understand the factors that contribute to their behavior choices, and values helping them develop the desire and capacity to choose pro-social behaviors congruent with academic and life success represents a critical prerequisite to consistent and empowered student-centered decision-making by educators working within that school (Mann & Smith, 2013). Individual teachers may be more likely to grade challenging students fairly when school and district-level culture and systems consistently value, support, and reward that outcome (Mann & Smith, 2013). As such, developing these types of supportive cultures and structures represents an important system-level goal and an important priority for further research, especially as it pertains to how it affects the grading of behaviorally challenging students.

#### ***Gender Differences in the NLEs-Problem Behavior-Grades Pathway***

In most categories, girls reported slightly higher rates of experiencing NLEs than boys, with a few exceptions. In general, girls had higher rates of

socially-oriented NLEs such as rejection and separation from friends or arguments with parents, as well as higher rates of being sexually abused by adults or peers; boys had higher rates of serious accidents. Additionally, girls in the middle grades reported having experienced 30% more high intensity NLEs during their lifetime than did boys in the middle grades. These high intensity NLEs included sexual abuse by an adult or a peer, witnessing violence in the home, and living with a parent or guardian who lost their job.

Particularly important in this study, the relationship between NLEs, problem behavior, and grades was substantially stronger for younger boys than it was for older boys, while the relationship was stronger for older girls than younger girls. Although the cross-sectional nature of our data prevents us from drawing direct conclusions about how individuals are changing over time, these population-level data do provide some preliminary evidence suggesting that the negative impact of NLEs on problem behavior and grades may peak at different times for adolescent girls and boys. In this case, the relationship between NLEs, problem behavior, and grades appears strongest for young adolescent boys, while older adolescent boys seem to be somewhat less affected by these events. Conversely, although the relationship between NLEs, problem behavior, and grades is strong for both younger and older adolescent girls, older adolescent girls seemed more vulnerable to the negative effects associated with exposure to NLEs than do younger adolescent girls.

There are a few possible explanations for these findings. First, knowing that girls tend to mature more quickly than boys suggests that girls may begin adolescence more prepared to cope with strain than do boys (Cinnchetti, Natsuaki, Rudolph, Troop-Gordon, & Lamber, 2014). Second, knowing that girls experience more frequent and intense NLEs than boys, they may conclude that girls become increasingly vulnerable as they experience higher rates of high intensity NLEs than boys (Flouri & Panourgia, 2011; Harkness et al., 2010; Sigfusdottir & Silver, 2009). In other words, girls may become more vulnerable to problem behaviors and poor grades as their allotropic load increases. Finally, exposure to higher rates of socially oriented NLEs may erode young women's confidence in their ability to access the networks of support and assistance associated with the most resilient outcomes over time.

## Limitations and Strengths

There are some limitations associated with this study. First, this study used data from a cross-sectional survey administered to groups of middle grades and high school students. Because the study did not follow the students longitudinally or apply experimental methodology, it does not provide definitive causal evidence. Second, the sample from this study came from a relatively homogenous population. Most participants were middle class, White, and European. Therefore, caution should be used when generalizing this study's findings to young people from other ethnic, socioeconomic, cultural, or otherwise dissimilar backgrounds. Third, all measures relied on participant self-reports. Some students may not have accurately reported their histories with NLEs, or their current feelings and emotions. Finally, the NLEs instrument itself has some limitations. As originally designed, this instrument is a count-based measure that does not account for intensity. Although effective adaptations were made for the purposes of this study, it might be reasonable for future researchers to use an instrument designed to better measure the intensity of NLEs.

Researchers and practitioners can also be confident in these findings for several reasons. This study used an exceptionally large sample size of approximately 7,000 participants. This sample size suggests participant responses will be highly representative of the populations and sub-populations being studied. For instance, each study subgroup (e.g., middle grades girls or college-age boys) consisted of over 1,000 respondents. Additionally, this study used data collection procedures that have been used routinely and carefully refined for over 15 years. These data collection procedures have been rigorously assessed (Kristjansson et al., 2013), and were implemented consistently and effectively. Finally, the scale used to measure conduct disorder has been validated and demonstrates reliability when used among adolescent and young adult populations.

## Conclusions

Although these findings are preliminary, they potentially have important implications for middle level practice. First, they highlight the utility of using GST to explain outcomes related to problem behavior and school grades during early adolescence. Second, they underscore the importance of early intervention for both boys and girls, for younger adolescent boys because they appear to be at

their most vulnerable to the negative impact of NLEs on behavior and grades, and for younger adolescent girls because they may be at the beginning of a pathway that becomes more challenging as exposure to high intensity NLEs accumulate over time.

Third, our findings suggest the efficacy of using strategies designed to build socially endorsed coping skills, and reestablishing sources of support and assistance among young adolescents who have experienced NLEs and are struggling academically and behaviorally. This is especially important among young adolescent boys who have experienced NLEs, as 93%–100% of the pathway from NLEs to poor grades was mediated through problem behavior. This especially strong evidence suggests that young adolescents who are coping with NLEs often make poor behavior choices that contribute to earning lower grades or being assigned lower grades. Learning more effective, pro-social coping skills while increasing connectivity to and support from pro-social family, school, and community members may reduce rates of poor behavior choices and lower grades.

Finally, because we cannot be certain that problem behavior directly contributes to students completing inferior work, we must recognize it is possible that teachers may grade students who behave poorly lower than those who behave well, irrespective of their actual academic performance. This suggests that teachers should be especially vigilant about the grades they assign students who are behaving poorly, especially those with a track record of NLEs.

## References

- Agnew, R. (1985). A revised strain theory of delinquency. *Social Forces*, 64(1), 151–167.
- Agnew, R. (1992). Foundation for a general strain theory of crime and delinquency. *Criminology*, 30, 47–87.
- Agnew, R. (2001). Building on the foundation of general strain theory: Specifying the types of strain most likely to lead to crime and delinquency. *Journal of Research in Crime & Delinquency*, 38(4), 319–361.
- Anda, R. F., Butchart, A., Felitti, V. J., & Brown, D. W. (2010). Building a framework for global surveillance of the public health implications of adverse childhood experiences. *American Journal of Preventive Medicine*, 39(1), 93–98.
- Ash, C., & Huebner, E. S. (2001). Environmental events and life satisfaction reports of adolescents. *School Psychology International*, 22(3), 320.
- Balfanz, R., Herzog, L., & MacIver, D. J. (2007). Preventing student disengagement and keeping students on the graduation path in urban middle-grades schools: Early identification and effective interventions. *Educational Psychologist*, 42(4), 223–235.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173–1182.
- Bollen, K. A. (1989). *Structural equations with latent variables*. New York, NY: John Wiley.
- Bowers, A. J. (2011). What's in a grade? The multidimensional nature of what teacher-assigned grades assess in high school. *Educational Research & Evaluation*, 17(3), 141–159.
- Brownlee, K., Rewana, J., Franks, J., Harper, J., Bajwa, J., O'Brian, E., & Clarkson, A. (2013). A systematic review of strengths and resilience outcome literature relevant to children and adolescents. *Child & Adolescent Social Work Journal*, 30(5), 435–459.
- Burgess, D. E. (2006). Alcohol use, smoking, and feeling unsafe: Health risk behaviors of two urban seventh grade classes. *Issues in Comprehensive Pediatric Nursing*, 29(3), 157–171.
- Byrne, B. (2010). *Structural equation modeling with AMOS* (2nd ed.). London: Routledge.
- Cinnchetti, D., Natsuaki, M., Rudolph, K. D., Troop-Gordon, W., & Lamber, S. F. (2014). Long-term consequences of pubertal timing for youth depression: Identifying personal and contextual pathways of risk. *Development & Psychopathology*, 26(4), 1423–1444.
- Colman, R. A., Kim, D. H., Mitchell-Herzfeld, S., & Shady, T. A. (2009). Delinquent girls grown up: Young adult offending patterns and their relation to early legal, individual, and family risk. *Journal of Youth and Adolescence*, 38(3), 355–366.
- D'Amico, E. J. (2005). Factors that impact adolescents' intentions to utilize alcohol-related prevention services. *The Journal of Behavioral Health Services & Research*, 32(3), 332–340.
- Dever, B. V., & Karabenick, S. A. (2011). Is authoritative teaching beneficial for all students? A multi-level model of the effects of teaching style on interest and achievement. *School Psychology Quarterly*, 26(2), 131–144.
- Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., et al. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of

- death in adults: The adverse childhood experiences (ACE) study. *American Journal of Preventive Medicine*, 14, 245–258.
- Flouri, E., & Panourgia, C. (2011). Gender differences in the pathway from adverse life events to adolescent emotional and behavioural problems via negative cognitive errors. *British Journal of Developmental Psychology*, 29(2), 234–252.
- Gisladdottir, B. (2013). *Social capital and adolescents mathematics achievement: A comparative analysis of eight European cities* (Doctoral dissertation). New York, NY: Columbia University.
- Harkness, K. L., Alavi, N., Monroe, S. M., Slavich, G. M., Gotlib, I. H., & Bagby, R. M. (2010). Gender differences in life events prior to onset of major depressive disorder: The moderating effect of age. *Journal of Abnormal Psychology*, 119(4), 791–803.
- Henry, K. L., Knight, K. E., & Thornberry, T. P. (2012). School disengagement as a predictor of dropout, delinquency, and problem substance use during adolescence and early adulthood. *Journal of Youth and Adolescence*, 41, 156–166.
- Ho, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis. Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1–55.
- Kristjansson, A. L., Sigfusdottir, I. D., Allegrante, J. P., & Helgason, A. R. (2009). Parental divorce and adolescent cigarette smoking and alcohol use: Assessing the importance of family conflict. *Acta Paediatrica*, 98, 537–542.
- Kristjansson, A. L., Sigfusson, J., Sigfusdottir, I. D., & Allegrante, J. P. (2013). Data collection procedures for school-based surveys among adolescents: The Youth in Europe Study. *Journal of School Health*, 83, 662–667.
- Lazarus, R. S. (1987). Transactional theory and research on emotions and coping. *European Journal of Personality*, 1(3), 141–169.
- Lazarus, R. S. (2000). Toward better research on stress and coping. *American Psychologist*, 55(6), 665–673.
- Lewinsohn, P. M., Rohde, P., & Farrington, D. P. (2000). The OADP-CDS: A brief screener for adolescent conduct disorder. *Journal of American Academy of Child and Adolescent Psychiatry*, 39, 888–895.
- Mann, M. J., Kristjansson, A. L., & Sigfusdottir, I. D. (2014). The impact of negative life events: Comparing the relative vulnerability of middle school, high school, and college-age students. *Research in Middle Level Education*, 38(2), 1–13.
- Mann, M. J., & Smith, M. L. (2013). Promoting rigor-in-practice through school self-evaluation: A middle school's experience with model development, implementation, and evaluation. *Research in Middle Level Education*, 37(4), 1–15.
- McGee, R., & Williams, S. (2000). Does low self-esteem predict health compromising behaviours among adolescents? *Journal of Adolescence*, 23(5), 569–582.
- National Middle School Association. (2010). *This we believe: Keys to educating young adolescents*. Westerville, OH: Author.
- Pharris-Ciurej, N., Hirschman, C., & Willhoft, J. (2012). The 9th grade shock and the high school dropout crisis. *Social Science Research*, 41, 709–731.
- Schumacher, M., & Kurz, G. (2000). *The 8% solution: Preventing serious, repeat juvenile crime*. Thousand Oaks, CA: Sage Publications.
- Sigfusdottir, I. D., Farkas, G., & Silver, E. (2004). The role of depressed mood and anger in the relationship between family conflict and delinquent behavior. *Journal of Youth and Adolescence*, 33, 509–522.
- Sigfusdottir, I. D., & Silver, E. (2009). Emotional reactions to stress among adolescent boys and girls: An examination of the mediating mechanisms proposed by general strain theory. *Youth & Society*, 40(4), 571–590.
- Sigfusdottir, I. D., Thorlindsson, T., Kristjansson, A. L., Roe, K. M., & Allegrante, J. P. (2009). Substance use prevention for adolescents: The Icelandic model. *Health Promotion International*, 24(1), 16–25.
- Statistics Iceland. (2012). Population by origin, citizenship and country of birth. Retrieved from <http://www.statice.is/Statistics/Population/Religious-organizations>.
- Thoits, P. A. (1995). Stress, coping, and social support processes: Where are we? What next? *Journal of Health and Social Behavior* (extra issue), 53–79.
- Thoits, P. A. (2010). Stress and health: Major findings and policy implications. *Journal of Health and Social Behavior* (supplement), 51, 41–53.
- Van Ewijk, R. (2011). Same work, lower grade? Student ethnicity and teachers' subjective assessments. *Economics of Education Review*, 30(5), 1045–1058.
- Wills, T. A., Vaccaro, D., & McNamara, G. (1992). The role of life events, family support, and competence in adolescent substance use. A test of vulnerability and protective factors. *American Journal of Community Psychology*, 20, 349–374.