

Educational Continuity as a Protective Factor for Health Behavior and Achievement among Middle School Students

Scott H. Frank, MD, MS; Kristina Knight, MPH,
Master of Public Health Program Case Western Reserve University School of Medicine



Purpose To examine educational continuity as a protective factor for health behavior and academic achievement among middle school students.

Background

Residential mobility has been identified as a risk factor for health and underachievement in adolescence. Disconnecting adolescents from familiar peers and social environments, residential mobility creates challenges associated with the adaptation to and inclusion in a new school environment and peer group. Adolescents making frequent moves from one school to another are more likely to have behavioral and school problems, controlling for social factors. Mobile student populations and the resulting loss of educational continuity, have the potential to impact both the student and their school environment.

Methods

Study Design: Cross-sectional Survey. **Participants:** In an Midwestern, integrated, first ring middle school, a total of 1366 students were eligible in 2 separate administrations in 2006 and 2008 to complete a core of Youth Risk Behavior Survey items, with additional items examining broader health issues. There were 1098 usable questionnaires (response rate 81%). Student participation was anonymous and voluntary. Permission slips were mailed, giving the option of excluding each child from participation. **Measurement:** In addition to 66 core YRBS items, measures of depression and stress were added. Items from the student survey on risk and protective factors were also added to address issues of attitude and perceptions. As a result of stakeholder concern about educational discontinuity, an item was added to address educational continuity. Educational continuity was operationally defined as all previous years of education in the present system; and educational discontinuity as 1 or fewer years. **Analysis:** Conducted using PASW 17.0, with descriptive statistics, multilevel chi-square, and logistic regression utilized.

Results

In the first ring school system examined, 66.1% of student respondents had experienced their entire educational career within the same system, while 16.1% of had one or fewer years. Education continuity was significantly related to African American race, low parental education and the absence of a father from the home (see Table 1). Males were somewhat more likely to experience educational continuity. There is not significant difference by grade level within middle school.

Table 1: Educational Continuity and Social Determinants of Health

Characteristic	Educational Discontinuity % (N)	Moderate Educational Continuity % (N)	Educational Continuity % (N)	Total N	p
	16.1% (115)	17.8% (127)	66.1% (472)	714	
Female	17.0% (65)	20.6% (79)	62.4% (239)	383	.065
Male	15.2% (50)	14.6% (48)	70.1% (230)	328	
White	8.4% (27)	11.2% (36)	80.4% (258)	321	<.001
African American	22.3% (76)	20.8% (71)	56.9% (194)	341	
7 th Grade	16.4% (60)	20.2% (74)	63.4% (232)	366	.180
8 th Grade	16.0% (55)	15.1% (52)	68.9% (237)	344	
Low Parent Education	28.6% (20)	22.9% (16)	48.6% (34)	70	<.001
High Parent Education	12.1% (59)	16.9% (82)	71.0% (345)	486	
No Father in Home	25.2% (67)	25.2% (67)	49.6% (132)	266	<.001
Father in Home	10.7% (48)	13.4% (60)	75.9% (340)	448	

Results (Continued)

Educational continuity was related to achievement among all students (see Table 2). There are both within and between group differences by race, SES, and father in the home for educational continuity. Both white and AA students tended to perform better academically with educational continuity (significant for AA, trend for white). Both students with high and low parental education demonstrated a trend toward better academic performance with more continuity of education. Students who had no father in the home had significantly worse grades in the presence of education discontinuity, while if a father was present, there was no significant difference in performance despite educational discontinuity.

Table 2: Educational Continuity and Academic Performance

Characteristic	Educational Discontinuity % (N)	Moderate Educational Continuity % (N)	Educational Continuity % (N)	Total N	p
All Students					
Mostly A's and B's	12.6% (60)	16.1% (77)	71.3% (340)	477	<.001
Mostly C's, D's, F's	25.3% (42)	24.1% (40)	50.6% (84)	166	
White					
Mostly A's and B's	8.0% (22)	10.2% (35)	81.8% (224)	274	.066
Mostly C's, D's, F's	10.3% (3)	24.1% (7)	65.5% (19)	29	
African American					
Mostly A's and B's	18.6% (30)	19.3% (31)	62.1% (100)	161	.049
Mostly C's, D's, F's	27.8% (3)	24.1% (32)	48.1% (64)	133	
Low Parental Education					
Mostly A's and B's	17.1% (6)	28.6% (10)	54.3% (19)	35	.090
Mostly C's, D's, F's	43.2% (11)	23.1% (6)	34.6% (9)	26	
High Parental Education					
Mostly A's and B's	11.1% (42)	15.6% (59)	73.2% (276)	377	.091
Mostly C's, D's, F's	14.9% (11)	24.3% (18)	60.8% (45)	74	
Father Not in Home					
Mostly A's and B's	19.1% (25)	22.9% (30)	58.0.3% (76)	101	.011
Mostly C's, D's, F's	31.7% (32)	29.7% (30)	38.6% (39)	131	
Father in Home					
Mostly A's and B's	10.1% (35)	13.6% (47)	76.3% (264)	346	.391
Mostly C's, D's, F's	15.4% (10)	15.4% (10)	69.2% (45)	65	

Educational discontinuity was examined controlling for gender, race, grade level, parental education, and father in the home (see Tables 3, 4, 5). Middle school respondents with educational discontinuity were significantly more likely to have tried alcohol, cigarettes, marijuana; and to have abused prescription drugs in their lifetime, with the highest odds ratio present for lifetime marijuana use (see Table 3). They were also more likely to be current alcohol and cigarette users. While lifetime sex was not related to educational discontinuity, students who had total educational continuity were less likely to have had sex, again controlling for gender, race, grade level, parental education, and father in the home (odds ratio=2.05, CI 1.09 – 3.87, p=.026).

Table 3: Educational Continuity and Substance Use

Characteristic	Odds Ratio*	95% Confidence Interval	P
Lifetime Alcohol	1.76	1.04 – 2.99	.035
Current Alcohol	2.20	1.04 – 4.62	.038
Lifetime Cigarettes	2.46	1.27 – 4.79	.008
Current Cigarettes	4.82	1.03 – 22.56	.046
Lifetime Marijuana	5.10	2.57 – 10.12	<.001
Prescription Drug Abuse	2.61	1.26 – 5.43	.010

*Controlling for gender, race, grade level, parental education, and father in the home.

Results (Continued)

Analysis demonstrated significant differences in teens perception of their parents attitudes regarding substance use. Parents of children with education discontinuity were consistently more than twice as likely to demonstrate permissive attitudes toward alcohol, cigarette, and marijuana use (see Table 4). Attitudes of the teens themselves did not differ based on educational discontinuity, though those teens who had been in this school system for their entire academic career were significantly more likely to view alcohol drinking at their age as wrong (odds ratio=.61, 95% CI=.385 – .928, p=.022). Teens with discontinuity were more likely to relate no trusted adults in their lives; and more likely to spend 2 hours per day or more unsupervised time during weekdays, caring for themselves.

Table 4: Educational Continuity and Teen Perceptions of Adults

Characteristic	Odds Ratio*	95% Confidence Interval	P
Perceived Parental Attitude—Alcohol	2.85	1.33 – 6.11	.007
Perceived Parental Attitude—Cigarettes	2.32	1.24 – 4.32	.008
Perceived Parental Attitude—Marijuana	2.42	1.06 – 5.56	.037
Trusted Adults	2.22	1.22 – 4.19	.014
>2 hours/day Self Care	1.93	1.01 – 3.70	.049

*Controlling for gender, race, grade level, parental education, and father in the home.

Mental health was significantly related to educational discontinuity (see Table 5). Depression occurs at more than twice the rate among teens with discontinuity, with criteria for depression including dysphoria, anhedonia (difficulty experiencing pleasure), psychomotor retardation, low self esteem, hopelessness, and preoccupation with thoughts of death or suicide all significantly more likely. While there was an increase in suicidal thinking, there was no increase in suicide attempts. Depressive criteria not significantly related to educational continuity were reduced energy, cognition, oral intake, and sleep. Perceived stress was more than 2 and a half times greater among students with greater educational discontinuity, with significant increases in stress domains of demands, expectations, unmet needs, uncertainty, and a trend toward an increase in problems perceived as unsolvable (see Table 5).

Table 5: Educational Continuity and Mental Health

Characteristic	Odds Ratio*	95% Confidence Interval	P
Depression	2.22	1.02 – 4.85	.045
Depressive Criteria			
Dysphoria	1.75	.96 – 3.18	.067
Anhedonia	1.80	1.05 – 3.07	.032
Psychomotor Retardation	2.07	1.11 – 3.86	.022
Low Self Esteem	1.97	1.13 – 3.41	.016
Hopelessness	2.44	1.4 – 4.25	.002
Thoughts of Death or Suicide	2.25	1.29 – 3.92	.004
Perceived Stress	2.63	1.26 – 5.50	.010
Perceived Stress Domains			
High Demands	1.75	1.12 – 2.73	.014
High Felt Expectations	1.57	1.02 – 2.41	.041
High Unmet Needs	2.09	1.12 – 3.91	.021
High Uncertainty	2.08	1.16 – 3.72	.013
Unsolvable Problems	1.76	.978 – 3.18	.059

*Controlling for gender, race, grade level, parental education, and father in the home.

Results (Continued)

Importantly, there were key pertinent negatives, where educational continuity was not related to student risk behaviors. Educational discontinuity was not related to violence such as fighting, fighting on school property, dating violence, weapon carrying, or being the victim of bullying. In addition, there was no significant difference in the number of trusted friends or in advice seeking from friends. Excessive TV watching was not noted.

Discussion

This study demonstrates the challenges facing students who attend new schools; and the advantages experienced by those who function in a stable educational environment. While there are many potentially confounding factors, the relationships appear to be persistent and robust. It is important to note that educational discontinuity cannot be viewed as a cause of these problem behaviors—indeed students may be attending a new school because of behavior problems at their old school. It is far less important to think of causality in these circumstances than it is to recognize these students as at risk and to seek to institute programming to help them cope with the nearly inevitable difficulties of their transition. Finally, educational continuity can be examined from either end of the spectrum, as a protective factor to those who have it or a risk factor for those who don't.

Conclusions

Key Findings

- Educational continuity was common (66.1%) in this first ring suburb
- Educational discontinuity (16.1%) was more common AA, low SES, and homes without fathers
- Educational discontinuity has a strong impact on academic achievement
 - Both AA and white teens were influenced by educational continuity
 - AA students appear to suffer more from discontinuity than white students
 - SES (parental education) did not spare teens from problems related to discontinuity
 - In homes with fathers, there was no difference in academic performance despite educational discontinuity, while a strong difference occurred in homes with no fathers
- Educational discontinuity was related to lifetime and current substance abuse (tobacco, alcohol, marijuana, prescription drugs)
- Based on teen perceptions of parental attitudes, their parents demonstrate higher levels of permissiveness related to substance use
- Teens with educational discontinuity were more likely to be without trusted adults in their lives and more likely to spend unsupervised time on school days
- Educational discontinuity is related to both stress and depression, with higher levels of hopelessness, suicidal thought, and anhedonia; and lower levels of self esteem all related to depression. Stress domains offering special vulnerability included unmet needs and uncertainty
- Lifetime sexual activity was lower among students with educational continuity
- Educational discontinuity was not related to violence, or having friends

Strengths and Limitations

Strengths include attention to middle school aged children, an under evaluated group; availability of social, behavioral and mental health variables to examine the issue in depth; and the diversity of the school system examined. This study is limited by its cross sectional design. Generalizability is compromised by examination of a single school system.

References

- Dong, M., Anda, R.F., & Felitti, V.J. et al. (2005). Childhood residential mobility and multiple health risks during adolescence and adulthood: The hidden role of adverse childhood experiences. *Archives of Pediatrics Adolescent Medicine*, 159, 1104-1110.
- Jellman T. & Spencer N. (2008). Residential mobility in childhood and health outcomes: A Systematic Review. *Journal of Epidemiology and Community Health*, 62:584-592
- Lash, A.A. & Kirkpatrick, S.L. (1994). Interrupted lessons: Teacher views of transfer student education. *American Education Research Journal*, 31 (4):813-843
- Simpson, G.A. & Fowler, M.G. (1994). Geographic mobility and children's emotional/behavioral adjustment and school functioning. *Pediatrics*, 93(2):303-309.