

Neighborhood & Family Effects on Learning Motivation among Urban African American Middle School Youth

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Published online: 9 February 2011
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Abstract Motivational theorists in psychology have moved away from individual-based approaches to socio-cognitive and socio-ecological models to explain student engagement and motivation for learning. Such approaches consider, for example, the influence of family and neighborhood environments as important constructs in youth behavior. In this study, links between neighborhood condition (e.g. external appearance of the blocks nearest to the respondents' home), family dysfunction, and motivation for learning are investigated. Data were obtained from two hundred and sixteen (216) urban African American middle school children enrolled in a substance use prevention intervention. Analytic models show associations between poor neighborhood condition, and both family dysfunction and lower learning motivation, and poor neighborhood condition and lower learning motivation. Family dysfunction was also found to mediate the effect of neighborhood condition on motivated learning. Neighborhood and family characteristics are important determinants of urban schoolchildren's motivation for learning.

Keywords Environmental exposure · Youth · Learning · Structural equation

Introduction

A growing body of literature has examined the correlates of academic performance, potential causes of successes and failures in school, and retention and matriculation among

students (Bandura 1986; Bandura et al. 1967; Bandura and Kupers 1964; Dweck and Leggett 1988; Pintrich and DeGroot 1990; Zimmerman and Martinez-Pons 1986; Zimmerman 1981). In sum, evidence from those studies revealed attributional styles, self-regulation and evaluation (e.g. delayed gratification), and control beliefs (elements of human agency) all contribute to behavior and intellectual performance in the classroom (Bandura 1986; Dweck and Leggett 1988; Pintrich and DeGroot 1990; Zimmerman and Martinez-Pons 1986; Zimmerman 1981). In recent years, increasing concerns about rapid increases in academic difficulties during middle childhood and early adolescence has led researchers to expand behavioral and cognitive theories of learning to include socio-ecological contexts, e.g. poverty in urban neighborhoods.

A recent study by the National Center for Education Statistics found that children educated in urban centers perform significantly lower than national averages (National Center for Education Statistics 1991). Research in urban neighborhoods reveals poverty in the last three decades has become more geographically concentrated. Schoolchildren in those neighborhoods, when compared to their counterparts living in more affluent communities, are particularly vulnerable to their environmental context (Faris and Dunham 1939; Lippman et al. 1996; Srole et al. 1962). Myers (1982) posits the demands of economic deprivation are likely to stifle the differing forms of self-regulated learning, e.g. self-planning and reward, for youth. The early work of Bronfenbrenner (1979) on the direct and indirect effects of low quality neighborhoods on youth yielded findings that are consistent with Myers' assertion. Bronfenbrenner observed that community attributes as well as family structure, parental monitoring, maternal and paternal mental health, parental educational attainment (all referred to as the home environment), family socioeconomic situation, and family

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resources for learning are all precursors for adjustment difficulties among school aged youth (Bronfenbrenner 1979). Bell and Jenkins (1993) and others (Sampson 2001) expanded that work to include assessment of neighborhood physical deterioration and community collective efficacy on deviant cognitive styles and peer affiliations among youth. Other research using objective measurement of neighborhood quality (Furr-Holden et al. 2008) showed children who reside in impoverished neighborhoods are more likely to experience delays in school readiness, leave school prior to graduation, and develop behavioral problems (Leventhal and Brooks-Gunn 2004; Sampson 2001).

The research attention and conceptual analysis generated by the aforementioned studies has led to an increased understanding of how contextual factors (e.g. neighborhood safety, aesthetics, and traffic) through direct, mediating and interaction have an influence on learning (Bandura 1986; Pintrich and DeGroot 1990; Zimmerman and Martinez-Pons 1986; Zimmerman 1981), academic achievement (Connell et al. 1995; Ensminger et al. 1996), social behavior (Pettit et al. 1999), and physical (Lee and Cubbin 2002) and mental health (Aneshensel and Sucoff 1996). Further, findings from those studies have led to an integration of those contextual elements into a theoretical framework (e.g. Bandura 1986; Dweck and Leggett 1988; Lin and Ensel 1989; Pintrich and DeGroot 1990). This multiple levels of influence theoretical framework provided the foundation for the current study and its examination of family and neighborhood effects on learning motivation, a critical determinant of student success and quality of learning (Mitchell 1992). We hypothesize a positive correlation between family dysfunction, poor neighborhood condition, and learning motivation deficits among urban middle school aged youth.

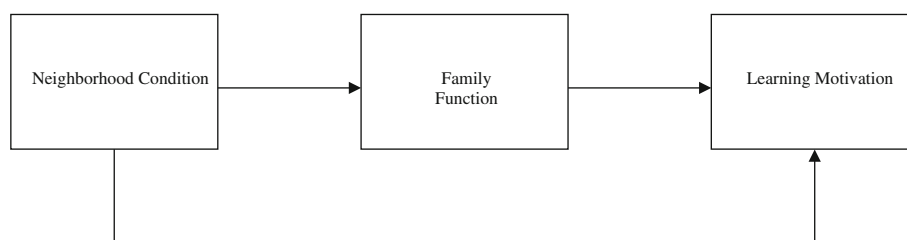
Using a basic ecological framework, this model illustrates links between neighborhood environmental variables, family function variables, and learning motivation among urban schoolchildren (Fig. 1).

Methods

Data Sources

Data from the baseline interviews of 216 African American schoolchildren enrolled in the Neurological Influences on

Fig. 1 Conceptual model linking neighborhood condition, family function and learning motivation among urban school children



Drug Prevention Interventions were used in this analysis. In this randomized control trial, which examines the efficacy of Integrated Family and Cognitive-Behavioral Therapy (IFCBT) in promoting school achievement and preventing drug abuse among at-risk middle school aged youth, the “at-risk” designation is used to denote youth exhibiting early warning signs of drug abuse such as delinquency, failing a grade and/or suspension, poor cognitive flexibility/expressive language, poor planning ability and response inhibition (Latimer et al. 2003).

To be eligible for the study, students had to be aged 11 to 16, attend a community-based school in Baltimore City or Baltimore County and have positive endorsement on inclusionary questions by a parent/guardian: 1) “Has your child experienced problems including failing classes or having a low grade point average in the past year,” 2) “ever repeated a grade”, 3) “ever been expelled or suspended from school,” 4) “ever been discovered using alcohol or drugs,” 5) or “ever had any other significant problems.” The study staff conducted screening and enrollment calls from a master student list generated by the participating schools. Upon eligibility confirmation, parent/guardian consent forms were administered at the participating school, study site, or upon request, at his/her residence. Thereafter, the eligible student was contacted at school and consented for participation. Participants were then randomly assigned to one of four conditions: 1) IFCBT, 2) cognitive-behavioral component of IFCBT only, 3) family component of IFCBT only, or 4) psychoeducation.

The prevention study’s assessment protocol included a structured clinical interview (e.g. extensive sociodemographic, neurodevelopmental, and medical information), urine sample collection for multidrug screening, examiner-administered intelligence measures, and self-administered questionnaires e.g. the Family Assessment Measure III questionnaire, the Motivated Strategies for Learning Questionnaire, and the Neighborhood Environment Scale. Students meeting DSM-IV criteria for substance use disorder, psychotic disturbance, acute suicidal ideation, or chronic medical problems were excluded from the study.

Informed consent was obtained at baseline as well as permission for follow-up. The Johns Hopkins Bloomberg School of Public Health Institutional Review Board approved the Neurological Influences on Drug Prevention

Interventions in November 2003; annual reviews and human subjects' approvals have been maintained. Participants and their parent/guardian were incentivized for study involvement.

Measures

Family Assessment Measure III (FAM-III)

The family function measurement was obtained from the FAM-III, a 50-item general scale including query on task accomplishment, communication, role performance, values and norms, affective expression, social desirability, control, and defensiveness (Skinner et al. 1995). Responses were scored from “strongly agree” (= 0) to “strongly disagree” (= 3) with some reversed scored items. A higher score indicated greater family dysfunction or conflict (e.g. less family ‘health’). The current study focuses on overall functioning because of the high reliability ($\alpha = 0.85$) relative to individual scales.

Motivated Strategies for Learning Questionnaire (MSLQ [25])

The learning motivation measurement was obtained using the 25 item Motivated Strategies for Learning Questionnaire (Pintrich et al. 1993; Pintrich and DeGroot 1990). The instrument has two major sections, the motivation (e.g. students' beliefs about their skills to succeed) and learning strategies (e.g. students' use of different cognitive and metacognitive devices) section. Items included query on students' goals and value beliefs (motivation) and student management of different resources (learning strategies). Responses were scored from “not at all like me” (= 1) to “very true for me” (= 7) (Pintrich et al. 1993; Pintrich and DeGroot 1990). Because five MSLQ items correlated inversely with other scale items, we chose to exclude them and compute the sum score on the remaining 20 items.

Neighborhood Environment Scale

The neighborhood condition measurement was obtained via responses on the Neighborhood Environment Scale (Crum et al. 1996). Items included questions about observable crime, filth, public drug use/alcohol consumption, and perceived safety (Crum et al. 1996). Responses were scored from “yes/true” (= 1) to “no/false” (= 0). A higher score indicated poorer neighborhood condition or neighborhood disadvantage (e.g. more indicators of alcohol use/other drugs, increased evidence of criminal activity, and excess noise/filth in the community). To ease interpretation of the results, individuals in the top tertile were considered to reside in “disadvantaged neighborhoods” and those in

the lower two tertiles were considered to reside in “good or moderate neighborhoods” (Burdette and Whitaker 2005).

Control variables: Demographic data including the children's self reported race, gender, and age (in years) were included as control variables. Due to the small representation of other ethnicities, only those who self reported their race as African American ($N = 228$) were included in this analysis. Twelve other participants were excluded due to missing data on key variables, leaving a sample of 216 for the analysis.

Statistical Analysis

Structural equation modeling (SEM) with maximum likelihood estimation procedures were used to examine hypothesized associations ($\alpha = 0.05$; Hoyle 1995). Mplus version 5.1 software was used for the structural equation analyses. Descriptive statistics were computed using Stata version 10.0 for Windows. One model was tested in this study which consisted of self-report data and the results are reported; the observed self-report data has the advantage of the school children's own subjective experiences. Before estimation of the structural model, the fit statistics and parameter estimates were examined. Standard guidelines for evaluating goodness of fit including comparative fit index (CFI) and root mean square error of approximation (RMSEA) were followed (Hu and Bentler 1999). The measure of the degree to which parameters were estimated with error (RMSEA) was at an acceptable level. SEM methods were selected to model mediating variables, test structural relations between variables of interest, and reduce potential bias associated with measurement error.

Using exploratory factor analysis (EFA) techniques, a factor structure was determined for the items in both the FAM-III and MSLQ scales. The structural equation model (SEM) was then established, with path diagrams, to quantify the pattern by which the predictors directly or indirectly influenced model outcomes as shown in Fig. 2. Goodness of fit indices described above were used to identify the model that best fit the data. Missing data were minimal and were managed using the full information maximum likelihood estimation method implemented in Mplus version 5.1.

Figure 2. Path diagram for neighborhood condition and learning motivation mediated by family function. Arrows indicate hypothesized paths with standardized coefficients and standard errors.

Results

Table 1 presents descriptive statistics of the study sample. Over fifty percent of the sample was female (50.5%, $n = 109$) and eighty one percent of the participants lived in

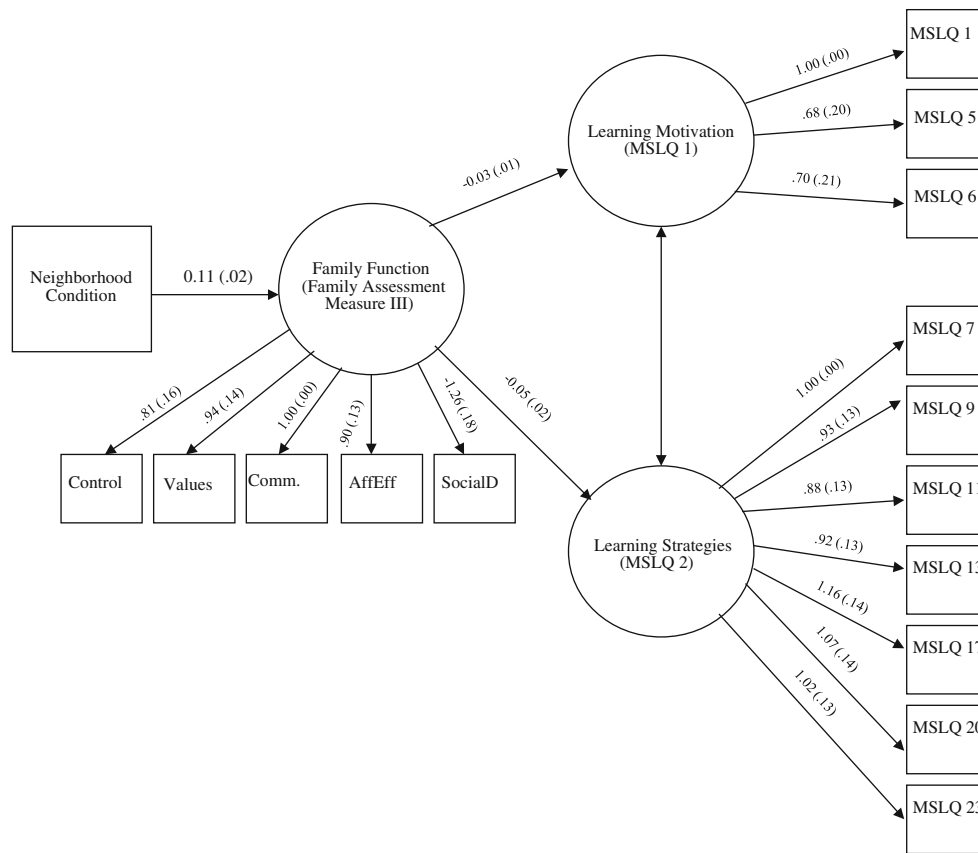


Fig. 2 Path diagram for the neighborhood condition predicting learning motivation with family function as a mediator structural equation model. Circles in the diagram represent latent constructs and

the rectangles represent self-report measures from the respective questionnaires administered at baseline

disordered neighborhood environments (see Table 1 for other sample characteristics). Examination of the fit indices, shown in Table 2, revealed the overall structural model fit the data well ($\chi^2 = 129.14$, $df = 122$, $p = 0.31$, CFI = 0.99, RMSEA = 0.02) (MacCallum and Austin 2000).

The parameter estimates (factor loadings) for the FAM-III and MSLQ items are presented in Tables 3 and 4, respectively. The loadings on the respective measures were strong; with respect to the individual scales, the EFAs suggested a one-factor solution for the FAM-III and a two-factor solution from the MSLQ, factor 1, “learning motivation,” (MSLQ₁) and factor 2, “learning strategies” (MSLQ₂). Table 4 shows what scale items each factor contained. Table 5 presents the mediation model.

The hypothesis that poorer neighborhood condition significantly influences family function was supported by the data ($\beta = 0.11$; SE = 0.02). Additionally, after adjusting for neighborhood condition, learning motivation (MSLQ₁) and learning strategies (MSLQ₂) were significantly associated with family function ($\beta = -0.03$; SE = 0.01) and ($\beta = -0.05$; SE = 0.02), respectively (see Fig. 2).

This finding indicates among the youth who reported living in a distressed community, comorbid exposure to

family dysfunction negatively affects motivated learning even more so, as expected. The data also reveals this effect can be averted with increased parental management as evidenced by the positive association between the control sub-scale (within the FAM-III) and learning strategies (MSLQ₂) ($\beta = 0.03$; SE = 0.01).

Discussion

In view of the integrated socio-cognitive and ecological stress model which proposes that elements in the internal and external environment mediate the potential adverse consequences of stressful conditions, this study investigated associations between family function, neighborhood condition, and learning motivation among urban African American middle school children. Among the youth, poor neighborhood condition was associated with family dysfunction. The primary social environment for children is the family; when Cassidy and Lynn (1991) explored the impact of the family environment on youth motivation and achievement, they found that students’ motivation for learning served as a mediating variable between family and

Table 1 Summary characteristics of the RCT sample

Variable	All N = 216 N(%) or Mean (SD)
Age (years)	13 (1.07)
11	17 (7.9%)
12	50 (23.1%)
13	75 (34.7%)
14	59 (27.3%)
15	13 (6%)
16	2 (0.9%)
Gender	
Male	107 (49.5%)
Female	109 (50.5%)
Free/Low Cost Lunch	
Yes	171 (79.2%)
No	45 (20.8%)
Feelings about School	
Good	153 (70.8%)
Not so Good/Bad	59 (27.3%)
Ever failed a class	
Yes	59 (27.3%)
No	156 (72.2%)
Suspended	
Yes	90 (41.7%)
No	126 (58.3%)
Neighborhood Environment Scale Tertiles	
Disadvantaged	175 (81%)
Good/Moderate	41 (19%)

The numbers in the parentheses are the percentages of the cell values

Table 2 Model fit indices

χ^2	<i>df</i>	<i>p</i>	CFI	RMSEA
129.14	1.22	.31	.99	.02

Table 3 EFA factor loadings for FAM-III

FAM-III	Factor 1	
Control	0.593	
Communication	0.652	
Affective Expression	0.646	
Social Desirability	0.815	
Values	0.707	
	1	2
Eigenvalues	2.871	0.640

individual characteristics and academic achievement. This study’s major finding is similar to that work and that of Elder and Caspi (1988) all of which suggests that maladaptive responsivity in childhood is stimulated by high-risk family environments (low levels of family cohesion) and disadvantaged neighborhoods (e.g. poor housing quality and sidewalk conditions, serial migration, economic and racial segregation, population density, and availability of illicit substances) just as the opposite serves as a social buffer promoting stability and social connectedness (Garmezy and Rutter 1983; Garmezy et al. 1984; Garmezy 1985; Kessler et al. 1999; Leventhal and Brooks-Gunn 2004; Slavin et al. 1993; Turner and Avison 2003).

In this study, family functioning was found to mediate the effect of neighborhood condition on motivated learning through parental management (noted by the control subscale), indicating that learning motivation is even more at-risk of decline for youth affected by both unhealthy family and neighborhood environments. Previous investigations (e.g. Cassidy and Lynn 1991; Klebanov et al. 1997; Sampson 2001) show that parental involvement, monitoring, and support are important to student motivation and effective school functioning; these findings extend that work by suggesting academic motivation and competence can be preserved in presence of socioeconomic and/or environmental disadvantage with an increase in favorable parent–child interactions.

It is well established that neighborhoods characterized by economic decline, increased neighborhood-level availability of alcohol and other drugs, and low levels of cohesion and family resources lead to learned helplessness and increased risk of inconsistent and precarious family environments (Klebanov et al. 1997; Sampson 2001). Further, learning motivation is recognizable as a necessary part of skills mastery, as it directs student activity towards exploration, risk taking, and the rewards of achieving learning objectives (Dweck 1986). This study’s findings suggest learning motivation deficits for youth in precarious family and neighborhood environments may render poverty more difficult to escape.

Before placing this work in the context of research implications, it is important to note study limitations and the future refinements needed to enhance generalizability. Three limitations were noted. First, there are exogenous variables potentially related to family functioning, neighborhood condition and learning motivation that were not available for study, including parental education, peer interactions, and classroom-level variables. Such data were not controlled for in these analyses. Secondly, the Neurological Influences on Drug Prevention Interventions study has a cross-sectional study design, a very specific sample, and a small sample size. Generalizability is limited and inferences concerning causality could not be fully

Table 4 EFA factor loadings for MSLQ models

	Factor 1	Factor 2
<i>Learning motivation</i>		
MSLQ1		
In my classes, I prefer course material that really challenges me so I can learn new things	0.530	0.044
MSLQ5		
If I try hard enough, then I will understand the material in my courses	0.600	−0.092
MSLQ6		
I think I will do well in my courses	0.646	0.082
<i>Learning strategies</i>		
MSLQ7		
When I study the readings for my courses, I outline the material to help me organize my thoughts	0.040	0.635
MSLQ9		
When reading for my courses, I make up questions to help focus my reading	−0.036	0.576
MSLQ11		
When studying for my classes, I practice saying the material to myself out loud	0.112	0.489
MSLQ13		
When I study for my courses, I go through the readings and my class notes and try to find the most important ideas	0.145	0.629
MSLQ17		
Before I study new course material thoroughly, I often look over a book quickly to see how it is organized	−0.026	0.719
MSLQ20		
I write down key words from some of my textbooks and write down definitions to help study for tests	−0.135	0.772
MSLQ23		
When I study for my courses, I write brief summaries of the main ideas from the readings and my class notes	0.158	0.579
1	2	3
Eigenvalues		
3.700	1.543	0.793

Table 5 Mediation model: indirect effects for neighborhood condition on learning motivation and learning strategies via family function

Indirect Effects				
Outcome	Pathway	Estimate	SE	p-value
Family function	Neighborhood	0.11*	0.024	0.000
Learning motivation (MSLQ ₁)	Neighborhood via Family function	−0.03	0.014	0.016
Learning strategies (MSLQ ₂)	Neighborhood via Family function	−0.05	0.017	0.002
Learning strategies (MSLQ ₂)	Neighborhood via Family function (Control)	0.03**	0.011	0.007

* Adjusted by age and gender

** Adjusted for control subscale of FAM-III

explored. Lastly, self-report measures were used to examine links between model variables. Self-report measures do represent an important source of information; however,

future replication of these analyses would benefit from the inclusion of cross-validation of family function ratings from the parents, parental education/income variables,

information on peer interactions, and the use of an objective neighborhood measure (see Furr-Holden et al. 2008). Overall, results from this investigation strengthen the rationale for intervention design that targets family-, school-, and/or neighborhood-based triggers for learning and adjustment difficulties among urban, particularly ethnic minority, youth as they are more likely to be exposed to urban physical and social hazards in their residential neighborhoods.

Acknowledgments This research was supported by awards from the National Institute on Drug Abuse (NIDA) Drug Dependence Epidemiology Training Program (DDET) T32 DA007292 and DA015075 (Principal Investigator, William W. Latimer, PhD, MPH); the Department of Mental Health, Johns Hopkins University Bloomberg School of Public Health, Baltimore, MD; and the Intramural Research Program, NIH, National Institute on Drug Abuse. The authors would like to acknowledge the Drug Dependence Epidemiology Training Program (DDET) trainees, the Neurological Influences on Drug Prevention Interventions study participants, the study coordinator and study staff, and Dr. Mary Pfeiffer, Writer/Editor, National Institute on Drug Abuse, Intramural Research Program.

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