Title: Mentor Age and Youth Developmental Outcomes in School-Based Mentoring Programs

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Background / Context:

Mentoring programs that provide guidance and support for disadvantaged youth have expanded rapidly during the past decade in the United States. More than three million at-risk youth have mentoring relationships and the number of youth in mentoring programs is expected to rise (MENTOR/National Mentoring Partnership, 2006). As mentoring programs have expanded in the past few decades, the number of teenage mentors has also rapidly increased. For example, one quarter of the mentors at Big Brothers Big Sisters of America (BBBS), one of the biggest mentoring organizations in America, are teenagers. Research suggests that students with teenage mentors exhibit positive youth development, including enhanced academic self-esteem and connectedness (Karcher, 2005, 2007). By contrast, studies show that programs that offer teenagers opportunities to interact with their peers may produce unintended consequences, such as problem behaviors (Dishion, Poulin, & Burraston, 2001; Dodge, Dishion, & Lansford, 2006; McCord, 2003). Little research, however, explores whether teenage mentors are more or less effective than mentors in other age ranges.

This study uses data from the Department of Education's Student Mentoring Program, a randomized evaluation of school-based mentoring programs in the US between 2005 and 2007, to investigate the effects of mentor age on student developmental outcomes. This study contributes to mentoring research in several ways. First, we will examine whether the impacts of mentoring differ by mentor age. While some studies suggest that teenage mentors have positive effects on the developmental outcomes of mentees, researchers have warned that interventions that encourage teenagers to interact with other teenagers have potential iatrogenic effects. This study tests whether or not teenage mentors are more or less effective relative to other age ranges. In addition, although the number of elderly mentors has increased and those who are much older than mentees may serve as effective mentors, little research examines whether the links between elderly mentors and positive youth outcomes are stronger than those between mentors in other age ranges and positive youth outcomes. Finally, we investigate the links between mentor age and three crucial domains of youth outcomes: academic performance, scholastic efficacy, and behavioral outcomes.

Purpose / Objective / Research Question / Focus of Study:

This study uses data from the Department of Education's Student Mentoring Program, a randomized evaluation of school-based mentoring programs in the US between 2005 and 2007, and investigates the effects of mentor age on student academic and behavioral outcomes. This study contributes to mentoring research in several ways. First, it will examine whether the impacts of mentoring differ by mentors' ages. While some studies suggest that teenage mentors have a positive effect on the developmental outcomes of mentees, researchers have warned that interventions that encourage teenagers to aggregate have potential iatrogenic effects. This study is able to test whether or not teenage mentors are more or less effective relative to other age ranges. Moreover, it investigates the links between mentor age and three crucial domains: academic performance, scholastic efficacy, and behavioral outcomes.

Setting:

This study uses data from the Department of Education (ED) evaluation that was collected from cohorts of students in 2005-2006 and 2006 -2007 (Bernstein et al., 2009). Researchers collected the data from 32 nationally representative ED grantees. Within sites, students were randomly assigned to either a treatment or a control group.

Population / Participants / Subjects:

The dataset consists of 2,573 students in the fourth through the eighth grades. Students who participated in the ED evaluation completed baseline surveys at the beginning of the school year. At the end of the school year, 92% of students who completed base year surveys also completed follow-up surveys. Approximately 70% of students are minority students and 86% of them are free-reduced lunch status. Approximately 72% of mentors are female, 66% of mentors are White, and 28% of mentors are African American. The average age of mentors is approximately 31 years old. Table 1 shows the characteristics of mentor, mentee, and site.

Intervention / Program / Practice:

On average, mentors met students for an hour 4.4 times per month throughout the school year. The average duration for a mentoring relation was 5.8 months. Mentors provide general guidance and academic support, including planning for higher education as they serve as role models. Mentoring programs offer activities that promote academic achievement, positive psychosocial development, and healthier behaviors.

Research Design:

Researchers select 32 grantees that met the requirements that enable researchers to collect data based on randomized design. Data collectors randomly assigned students to either a treatment (N=1,272; i.e. assigned a mentor) or a control group (N=1,301; i.e. not assigned a mentor) from those thirty-two nationally representative ED grantees.

Data Collection and Analysis:

This study estimates whether the impacts of mentoring on developmental outcomes vary by age using ordinary least square (OLS) regression. Unfortunately, 30% of students who are in a treatment group did not meet mentors due to a lack of mentors. I include this group in the analysis to compare with the control group. The model can be expressed as:

$$Y_i = \beta_0 + \beta_1 Prior_i + \beta_2 Teenage\ Mentors_i + \beta_3 Non\text{-}Teenage\ Mentors_i + \beta_4 No\ Mentors_i + \beta_5 Demo_i + F\delta_i + w_t + e_i$$

Y is a variable that represents student i's outcome in the spring: grade, scholastic efficacy, and any problem behaviors. $Prior_i$ is a variable that represents the prior measure of each outcome collected in the fall (i.e., prior to mentoring). $Teenage\ Mentor_i$ is a dummy variable that indicates whether mentees had teenage mentors. $Non\text{-}teenage\ Mentor_i$ is a dummy variable that indicates whether mentees had non-teenage mentors. *No Mentor* is a dummy variable that show whether a student in the treatment group did not meet a mentor. $Demo_i$ includes demographic characteristics, such as race/ethnicity, gender, free/reduced lunch status, and family composition (i.e. whether or not a student is from a two-parent household). $F\delta_i$ are controlled for in the analysis with grantee/site fixed effects, and cohort fixed effects are represented by w_t. Finally, e_i is the error component.

Findings / Results:

Balance Check

It is important to note that mentors were not randomly assigned to students. Thus, for a

balance check, I test whether or not students who were matched with a certain age range of mentors exhibited different characteristics from students who met with other age ranges, from students who did not meet mentors, or from students in the control group. Table 2 shows the baseline student characteristics according to mentor age. Results indicate female students were more likely to meet with non-teenage mentors relative to students who never met mentors in the treatment group. In addition, the control group has more black students than the no-mentor treatment group. Finally, students who exhibited more problem behaviors are more likely to be in a control group compared with no-mentor treatment group. For other dimensions, however, students who had teenage mentors do not demonstrate different baseline characteristics from students who had non-teenage mentors, from students who never met with mentors, or from students in the control group.

Teenage Mentors and Youth Outcomes

The analyses reported in Table 3 represent the relations between the ages of mentors and the outcomes of mentees. The analyses reported in Table 3 represent the relations between the ages of mentors and the developmental outcomes of mentees. While the first model shows that the effect of mentoring on grades does not differ according to mentor age, the second model indicates that the effects of mentoring on scholastic efficacy differ according to mentor age. In particular, the students whose mentors were teenagers exhibit a .120 standard deviation ($p< .05$) increase in scholastic efficacy than students who were in the control group. The third model shows that mentees who had teenage mentors are less likely to have problematic behaviors, but the relation did not appear to be significant. In addition, I also investigate whether mentor age jointly explains variation in the student outcomes, but any differences were significant.

Conclusions:

This study uses data from the Department of Education evaluation for school-based mentoring programs and investigates the associations between mentor age and the youth outcomes of mentees. In particular, we explore whether or not teenage mentors more or less positively affect developmental outcomes of mentees than mentors of other age ranges. The results of this study do not support the hypothesis that teenage mentors are more likely to have a negative impact on their mentees. In fact, students who met with mentors are more likely to exhibit positive youth outcomes than students in the control group.

This study has several limitations. First, students in this study were not randomly assigned to mentors. It is possible that unobservable characteristics of students matched with a certain age range of mentors might differ from those of students who were matched with other age ranges. Second, this study is not able to identify the mechanisms linking mentor age with youth developmental outcomes. Exploring the mechanisms of how mentor age can affect the quality of mentoring is important. Finally, although additional impacts of mentoring on mentees' outcomes may emerge over a longer term, this study does not investigate the long-term developmental impacts of mentoring programs.

Despite these limitations, the study provides important findings for mentoring programs that serve many at-risk youth in the United States. As the number of mentoring programs rise, the number of teenage mentors has also grown in the recent years. The findings of this study suggest that mentors whose ages are close to those of mentees have more positive impacts on their mentees.

Appendix A. Reference

Bernstein, L., Rappaport, C. D., Olsho, L., Hunt, D., & Levin, M. (2009). Impact Evaluation of the US Department of Education's Student Mentoring Program. Final Report. NCEE 2009-4047. *National Center for Education Evaluation and Regional Assistance*.

Dishion, T. J., Poulin, F., & Burraston, B. (2001). Peer Goup Dynamics Associated with Iatrogenic Effect in Group Interventions with High-Risk Young Adolescents. *New directions for child and adolescent development*, *2001*(91), 79-92.

Dodge, K. A., Dishion, T. J., & Lansford, J. E. (2006). Deviant Peer Influences in Intervention and Public Policy for Youth. Social Policy Report. Volume 20, Number 1. *Society for Research in Child Development*.

Karcher, M. J. (2005). The effects of developmental mentoring and high school mentors' attendance on their younger mentees' self-esteem, social skills, and connectedness. *Psychology in the Schools*, *42*(1), 65-77.

Karcher, M. J. (2007). Cross-age peer mentoring. Youth Mentoring: *Research in Action*, 1(7), 3-17

MENTOR/National Mentoring Partnership. (2006). Mentoring in America 2005: A snapshot of the current state of mentoring. Alexandria, VA: Author.

McCord, J. (2003). Cures that harm: Unanticipated outcomes of crime prevention programs. *The Annals of the American Academy of Political and Social Science*, *587*(1), 16-30.

Appendix B. Tables and Figures

Table 1
Descriptive Statistics of Students, Mentors, and Mentoring Sites

	Mean	S.D.	Min	Max
Student				
Female	0.53	0.50	0.00	1.00
Two-parent households	0.57	0.50	0.00	1.00
Free/Reduced lunch status	0.86	0.35	0.00	1.00
Age of Students in years	11.13	1.43	7.79	16.46
Ethnicity/Race				
Black	0.41	0.49	0.00	1.00
Hispanic	0.31	0.46	0.00	1.00
White	0.21	0.41	0.00	1.00
Other	0.06	0.23	0.00	1.00
GPA (T2)	2.32	0.89	0.00	4.00
GPA (T1)	2.46	0.84	0.00	4.00
Scholastic efficacy (T2)	2.99	0.56	1.00	4.00
Scholastic efficacy (T1)	2.97	0.55	1.00	4.00
Number of behavior problems (T2)	0.61	1.26	0.00	4.00
Number of behavior problems (T1)	0.39	1.02	0.00	4.00
Behavior problems (T2)	0.15	0.36	0.00	1.00
Behavior problems (T1)	0.10	0.30	0.00	1.00
Mentor				
Female Mentors	0.73	0.45	0.00	1.00
Mentors Ethnicity/Race				
Hispanic	0.10	0.30	0.00	1.00
American Indian or Alaskan Native	0.03	0.18	0.00	1.00
Asian	0.05	0.22	0.00	1.00
African American	0.29	0.45	0.00	1.00
Native Hawaiian or other Pacific Islander	0.01	0.10	0.00	1.00
White	0.66	0.47	0.00	1.00
Mentor age				
Mentor age in years	31.35	15.55	12.00	82.00
Teenage mentors	0.10	0.30	0.00	1.00
Middle-aged mentors	0.20	0.40	0.00	1.00
Mentors over 50	0.06	0.24	0.00	1.00
Sites				
Faith-based organization	0.43	0.50	0.00	1.00
Number of full staff	3.67	5.66	0.00	26.00
Number of years of the program	6.01	3.98	0.00	16.00
Annual budget ($)	283,463	192,682	100,000	1,000,000
Auspice				
BBBS	0.34	0.47	0.00	1.00
School or School district	0.37	0.48	0.00	1.00
Non profit	0.26	0.44	0.00	1.00
N	2222			

Table 2

Mean or Proportion Comparisons of Students According to Mentor Age

	Treatment Group			Control	Significance Test
	Teen Mentors (1)	Non-Teen Mentors (2)	No mentor (3)	(4)	
Student Characteristics					
Female	0.54	0.58*	0.47	0.52	(2) >(3)
	(0.50)	(0.49)	(0.50)	(0.50)	
Two-parent households	0.50	0.58	0.56	0.57	
	(0.50)	(0.49)	(0.50)	(0.50)	
Free/Reduced lunch status	0.82	0.85	0.82	0.88	
	(0.38)	(0.36)	(0.38)	(0.33)	
Student Age in years	11.33	11.13	11.16	11.24	
	(1.43)	(1.44)	(1.43)	(1.46)	
Black	0.45	0.45	0.29	0.39*	(4) >(3)
	(0.50)	(0.50)	(0.45)	(0.49)	
Hispanic	0.28	0.24	0.33	0.32	
	(0.45)	(0.43)	(0.47)	(0.47)	
White	0.21	0.21	0.24	0.20	
	(0.41)	(0.41)	(0.43)	(0.40)	
Other	0.04	0.06	0.04	0.06	
	(0.20)	(0.24)	(0.20)	(0.23)	
GPA (T1)	2.37	2.52	2.35	2.43	
	(0.92)	(0.81)	(0.90)	(0.86)	
Scholastic efficacy (T1)	2.97	2.97	2.98	2.97	
	(0.55)	(0.55)	(0.56)	(0.55)	
Number of problem behaviors (T1)	0.49	0.34	0.26	0.38*	(4) > (3)
	(1.16)	(0.96)	(0.77)	(1.01)	
N	220	630	389	1300	

$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

Table 3
Estimated Effects of Mentoring by Mentor Age

	Model 1 GPA (T2)	Model 2 Scholastic Efficacy (T2)	Model 3 Problem Behaviors (T2)
Mentor Age (ref: control group)			
Teenage Mentor	-0.016	0.120*	-0.099
	(0.072)	(0.054)	(0.058)
Non-teenage Mentor	-0.008	0.057	-0.034
	(0.055)	(0.050)	(0.025)
No mentor	-0.011	0.037	0.034
	(0.049)	(0.078)	(0.057)
Mentee Characteristics			
Female	0.148***	0.121**	-0.140**
	(0.032)	(0.035)	(0.041)
Black	-0.057	0.101	0.347***
	(0.097)	(0.062)	(0.075)
Hispanic	-0.040	-0.006	0.024
	(0.052)	(0.061)	(0.072)
Other	0.136	0.159	-0.030
	(0.124)	(0.090)	(0.096)
Age	-0.074***	-0.088***	0.047
	(0.020)	(0.018)	(0.025)
Two parent household	0.013	0.075	-0.060
	(0.037)	(0.046)	(0.036)
Free/reduced lunch status	-0.176*	-0.125*	0.079*
	(0.085)	(0.060)	(0.036)
GPA (T1)	0.514***		
	(0.033)		
Scholastic Efficacy (T1)		0.458***	
		(0.026)	
Behavior Problems (T1)			0.407***
			(0.045)
Constant	0.956**	0.947***	-0.647*
	(0.276)	(0.219)	(0.306)
N	1568	2031	2222
R^2	0.443	0.312	0.419

Note. ICC= .24 for GPA, ICC= .06 for scholastic efficacy, ICC= .19 for the number of problem behaviors, and ICC= .15 for more than twice problem behaviors. GPA and Scholastic Efficacy have been transformed to have a mean 0 and a standard deviation 1. All models are controlled for grantee/site and cohort fixed effects. T1 indicates the variable was measured at Time 1(i.e. in the fall) and T2 indicates the variable was measured at Time 2 (i.e. in the spring). All the models present analysis with grantee/site fixed effects and cohort fixed effects. Standard errors, corrected for clustering at the grantee/site level, are in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$