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ABSTRACT

Learning Hope and Optimism: Classmate Experiences and Adolescent Development*

This paper explores individual and contextual factors related to the development of hopeful attitudes during adolescence using a nationally representative study. A key focus is on the experiences of maltreatment by adults, both for the adolescent and his/her classmates. While all types of individual experiences with maltreatment reduce adolescent hopefulness, maltreatment domains most likely to be visible (i.e physical abuse) by classmates also reduce adolescent hopefulness. This relationship is robust to the inclusion of more general environmental factors through school-level fixed effects, suggesting both a causal explanation and a typically unmeasured spillover effect of violence against children. Other types of maltreatment, such as neglect and material hardship, do not show spillover effects.

JEL Classification: J24, D9

Keywords: hope, optimism, maltreatment, peer effects, spillovers

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Introduction and Background

Emerging literatures in psychology, sociology, philosophy, and other disciplines have pointed to the importance of hope and optimism for adolescent development and future success, particularly for adolescents in disadvantaged circumstances. While the definitions and conceptualizations of hope are numerous, many focus on the qualities of being constructive, attainable, and positively connected to well-being (see Esteves et al. 2013 for review; te Riele 2010). Yet, a smaller literature has sought to understand the development of hope (see Yarcheski and Mahon 2016 for recent meta-analysis of predictors) and very little work has attempted to examine effects of the experiences of peers on adolescent hopefulness (Gillham and Reivich 2004). While Orejudo et al. (2012) shows that experiences with peers (i.e. relationships and peer bullying) can help shape optimism, much less is known about the impacts of the experiences of peers. That is, little research using representative samples has been done to explore how the experiences of peers vicariously shape adolescents own attitude development.

This paper extends the literature to examine whether peer experiences of childhood maltreatment spill over onto their classmates. This focus makes both empirical and conceptual contributions to the literature. Empirically, we leverage research designs from economics that seek to uncover causal effects of peers by comparing adolescents in different grades in the same school who have different sets of classmates. This approach will provide novel estimates of the impacts of peer exposures on own outcomes of hope, net of broader school-level factors. Conceptually, our results separate the impacts of experiences of trauma on developing a hopeless/pessimistic orientation from the potential "learning about the world" that happens

when adolescents experience the trauma of their classmates. An implication of the analysis is that instances of childhood maltreatment affect not only the child but also his/her peers, which multiplies the consequences and increases the benefits of successful programs to reduce child maltreatment.

Methods

Data and measures

In order to examine the impacts of child maltreatment on hope/optimism on both the affected child and his/her peers, we leverage the National Longitudinal Study of Adolescent to Adult Health (Add Health). The baseline sample for Add Health is 20,745. We eliminate observations for students who do not report hopefulness and students in small grades (fewer than 20 classmate), leading to an analysis sample of 19,720.

In order to measure adolescent hope, we focus on a response to the larger Center for Epidemiologic Studies-Depression Scale (CES-D) battery of questions asked as "How often was each of the following true during the last week?" Where hope was accessed by the question, "You felt hopeful about the future," and potential responses included four categories: never/rarely, sometimes, a lot of the time, most/all of the time. For the main analysis, we dichotomize this measure into those with high hopefulness (most/all the time) and those with low hopefulness. Approximately 30% of the sample are categorized as high hopefulness. In results available from the authors, we have estimated ordinal response models rather than focusing on a binary outcome. The results are qualitatively the same.

Our key exposure variables are measures of childhood maltreatment. In Waves 3 and 4 of the survey, respondents are asked to retrospectively report instances of maltreatment that

occurred before the sixth grade for both neglect and abuse. For neglect, respondents are asked the frequency which they were left alone when an adult should have been with them and the frequency which their basic needs (bathing, food, clothing) were not taken care of (response categories include: 1 time, 2 times, 3-5 times, 6-10 times, more than 10 times, never). History of physical abuse was assessed with a question of the frequency that parents/caregivers slapped, hit or kicked them and sexual abuse was assessed by the frequency that parents/caregivers touched them in a sexual way, forced them to touch the caregiver in a sexual way, or forced them to have sexual relations. We dichotomize these measures where maltreatment in each of these categories is indicated if "any" maltreatment occurred. For individuals not followed in Waves 3 or 4 of the survey, we impute the value of the grade-level maltreatment proportion for the maltreatment measurement and control for their missingness in the analysis.

Our other key measure of exposure is peer maltreatment. In order to create these measures, we aggregate the individual-level reports to the grade-level for each grade in each school in the data. We then remove the focal individual from the peer measure (i.e. "leave me out calculation") to separate peer exposure from own exposure. The typical number of grades per school is 4-6 (depending on whether the grade span is 9-12th grade or 7-12th grade) and the number of adolescents per grade is at least thirty-four, but larger schools will have greater numbers. Anticipating our research design that compares difference exposure levels across-grades within the same school, we create our peer measure at the school-grade level rather than school-level, as school-level fixed effects will be controlled in the analysis.

There are alternative measures of "peer" that are available in the data. Add Health is unique in having measurements of friendship nominations, so one alternative definition of "peer" we considered was to use the maltreatment experiences of nominated friends. This approach has at least two major limitations. The first is that the majority of friend nominations do not have measures of maltreatment—while the component of the Add Health dataset that has friendship nominations has 90,000 observations, only 20,000 of these students were asked to report their maltreatment history, and thus the we have even fewer instances where both the ego and alter of the friend dyad both have maltreatment history. The second major limitation with the friendship nomination data is that these "peers" are chosen rather than assigned. If children who are mistreated tend to choose friends who are also mistreated, we will have limited ability to separate the causal effects of peer maltreatment with statistical associations that are driven by selection bias. Using grademates as "peers" allows us to have measurements of peer exposure for everyone in our sample and also allows us to estimate effects we argue can be interpreted as causal.

Table 1 provides descriptive statistics. Over half of the respondents report some type of maltreatment, with the major sources from being left alone or physically abused. At the school-grade level, we also find substantial variation, with school-grades reporting the full range of prevalence of each type of abuse (from 0% to 100%), and that the standard deviation across school-grades in these measures is between 5-12 percentage points.

Analytic Strategy

In order to examine the effects of peer experiences with maltreatment as well as own-experiences, we estimate empirical models of the following form:

$$y_{ics} = \beta_0 + \beta_1 M_{ics} + \beta_2 \bar{M}_{ics} + \beta_3 X_{ics} + C_c + S_s + \varepsilon_{ics}$$

where outcome y of student *i* in cohort *c* in school *s* is a function of individual maltreatment exposure (M_{ics}), the proportion of grademates exposed to maltreatment ($\bar{M}_{ics}$)and controls for individual covariates (X_{ics}) as well as cohort and school fixed effects and an idiosyncratic shock (ε_{ics}). In this regression, our estimate of interest is β_2, which is the effect of increasing the share of the cohort exposed to maltreatment on the outcomes of students in that cohort/school. Robust standard errors are clustered at the school-level.

In order for our estimates of $\beta_2$to have a causal interpretation, we use a quasi-experimental research design following work in the economics of education (Bifulco, Fletcher, and Ross 2011) that used the Add Health data to estimate causal effects of cohort composition measures (e.g. peers with college educated mothers) on academic outcomes. A key assumption in the design is that parents purposely choose schools for their children (through residential selection of neighborhood schools or using private school) but do not otherwise purposely choose their children's school-grades. That is, once we control for school-level fixed effects, the particular peers (and peer exposures to maltreatment) is unrelated to child/parent/family characteristics and can be treated as quasi-random. An additional implication of our research design that uses within-school variation in peer maltreatment is that our effective sample size is much smaller than 20,000. In fact, since we only use variation in peer exposure at the school X grade level, we have closer to 600 usable observations, which will limit the precision in our estimates.

To provide support for this assumption, this literature estimates "balancing tests" that mimic analyses often done with data of randomized control trials, where "balance" on

covariates between treatment and control groups is tested. An implication of assumption is that we should not be able to detect statistical associations between student background characteristics (e.g. family income, parental education) and their levels of exposure to grademate maltreatment, once our models control for school-level fixed effects. Table 2 shows evidence supporting our research design. In columns 1-4 of Table 2, we find that a variety of student background characteristics are correlated with a variety of grademate maltreatment measures. However, columns 5-8 show that controlling for school fixed effects leads to a lack of association between student characteristics and exposure to grademate maltreatment.

Results

Table 3 reports results of our main analysis of the impacts of own exposure to childhood maltreatment and peer exposure to maltreatment on the development of hopeful attitudes in adolescence. Children who experience maltreatment by their parents and/or caregivers are less hopeful about the future. Odd numbered columns do not control for school level fixed effects and even numbered columns do have these controls. The largest effects are exposure to sexual abuse, which reduces hopefulness by over 5 percentage points (off of a baseline rate of hopefulness of 30%). Physical abuse and neglect are also important predictors of reduced hopefulness, between 3-4 percentage point reductions.

Turning now to the effects of classmate exposure of maltreatment, we find small and not statistically significant effects of neglect. For sexual abuse, the effects are larger but not statistically significant, potentially due to the overall low rates of sexual abuse of classmates. We do find important effects for classmate exposure to physical abuse, where a 10% increase in the proportion of classmates who are exposed reduces own hopefulness by nearly 1 percentage

point. While the effects of classmate exposure are expected to be smaller than own-exposure, recall these spillovers are multiplied by the size of the classmate group. In results available upon request, we explore whether the impacts of classmates differ based on three factors (1) own maltreatment experience, (2) gender (3) and family background (measured by maternal education level). In each case, we fail to detect statistical interactions, although it is possible that we are underpowered to find differences.

Conclusion

This paper presents the first evidence in the literature on the importance of children's experiences of maltreatment as a determinant of their classmates' development of hopefulness. Other researchers have provided evidence of contextual factors as determinants of hopefulness. For example, Lorion and Saltzman (1993) show that neighborhood factors, like violence and poverty, appear to shape adolescents' abilities to think about the future and development hope. However, our use of school-level fixed effects, which largely control for these broader neighborhood effects, allow us to focus on more granular processes and more specific person-to-person spillover pathways that shape hopefulness. One limitation with our use of grademates as "peers" is that it is likely that adolescents do not know all their grademates, and certainly would not know all their grademates' maltreatment exposure histories, and thus our definition of "peer exposure" is measured with error. An implication of this limitation is that our results are likely understated compared to measures that would allow better representations of peers. However, two advantages of our measure of peer is that grademates are at a level of more straightforward policy intervention, whereas policies to

shape friendships are more difficult to imagine and implement, and our choice supports our methodological framework that allows a causal interpretation of our results.

More generally, the results suggest that classmate experiences provide key contexts in which youth develop hopeful orientations about their own futures. Much of the literature focuses attention on adult role models, such as parents and teachers, for shaping adolescents' development of hopeful dispositions, whereas our results suggest broader peer influences. Finally, our estimates of peer influence are net of a host of other important contextual influences, such as neighborhood violence and school characteristics, since we control for school-level fixed effects in our analysis.

Tables

Table 1
Descriptive Statistics
Add Health Longitudinal Sample
N=19439

	Mean	SD	Min	Max
Dependent variable				
Hopefulness	0.29	0.46	0	1
Control variables				
White	0.53	0.50	0	1
Black	0.23	0.42	0	1
Hispanic	0.16	0.37	0	1
Other race/ethnicity	0.08	0.27	0	1
Female	0.50	0.50	0	1
Age	16.13	1.71	12	21
Std PVT score	0.03	0.95	-6	3
Grade 7	0.13	0.34	0	1
Grade 8	0.13	0.34	0	1
Grade 9	0.18	0.38	0	1
Grade 10	0.20	0.40	0	1
Grade 11	0.19	0.39	0	1
Grade 12	0.17	0.37	0	1
Mother's education	13.11	2.33	0	17
Family income	0.45	0.46	0	10
Rural status	0.24	0.43	0	1
Missing data dummy	0.35	0.48	0	1
Individual-level maltreatment				
Left alone	0.41	0.41	0	1
Unmet basic needs	0.11	0.27	0	1
Physical abuse	0.29	0.38	0	1
Sexual abuse	0.05	0.18	0	1
Physical or sexual abuse	0.30	0.39	0	1
Any maltreatment	0.52	0.42	0	1
Grade-level maltreatment				
Grade-level left alone	0.40	0.12	0	1
Grade-level unmet basic needs	0.11	0.08	0	1
Grade-level physical abuse	0.30	0.11	0	1
Grade-level sexual abuse	0.05	0.05	0	1
Grade-level physical or sexual abuse	0.30	0.11	0	1
Grade-level any maltreatment	0.52	0.12	0	1

Note: Standardized PVT score, family income, and maternal education contain imputed values and missing data dummy reflects this missingness.

Table 2
Balancing Tests for Exposure to Grademate Maltreatment

	(1) Grade-level left alone	(2) Grade-level unmet basic needs	(3) Grade-level physical abuse	(4) Grade-level sexual abuse	(5) Grade-level left alone	(6) Grade-level unmet basic needs	(7) Grade-level physical abuse	(8) Grade-level sexual abuse
Black	-0.025***	0.007	-0.016	0.006*	-0.001	-0.000	0.000	0.002
	(0.008)	(0.005)	(0.011)	(0.003)	(0.002)	(0.001)	(0.001)	(0.001)
Hispanic	0.005	0.008	0.012	0.004	0.001	-0.001	-0.000	0.001
	(0.012)	(0.007)	(0.011)	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)
Other race/ethnicity	0.017*	0.015	0.032***	0.007	-0.002	-0.002	-0.004**	-0.000
	(0.010)	(0.010)	(0.008)	(0.005)	(0.002)	(0.001)	(0.002)	(0.001)
Female	-0.000	-0.001	0.001	-0.000	-0.001	0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)
Age	-0.002	0.000	-0.005**	-0.000	-0.000	-0.000	-0.001	-0.001
	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Std PVT score	0.002	-0.004**	0.005*	-0.002**	0.000	0.001	0.000	0.000
	(0.002)	(0.002)	(0.003)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
Mother's education	0.000	-0.001***	-0.000	-0.000	0.000	0.000	0.000	0.000
	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Family income	-0.004	-0.006***	-0.001	-0.002**	-0.001	0.001*	0.000	0.001
	(0.003)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Rural status	0.004	0.008**	-0.015**	0.004**	-0.000	0.001	0.001	-0.001
	(0.007)	(0.004)	(0.007)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
Missing data dummy	-0.001	-0.001	-0.003	-0.000	-0.001	-0.001	-0.001	-0.001
	(0.003)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Constant	0.342***	0.102***	0.282***	0.041***	0.329***	0.106***	0.226***	0.050***
	(0.036)	(0.019)	(0.030)	(0.011)	(0.021)	(0.014)	(0.017)	(0.009)
N(Students)	19439	19439	19439	19439	19439	19439	19439	19439
School fixed effects	No	No	No	No	Yes	Yes	Yes	Yes

Note: Robust standard errors clustered at school-level.
Additional controls include a set of grade dummies.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 3
Associations between Own and Classmate Maltreatment and Hopefulness

Type of maltreatment	(1) Left alone	(2) Left alone	(3) Unmet basic needs	(4) Unmet basic needs	(5) Physical abuse	(6) Physical abuse	(7) Sexual abuse	(8) Sexual abuse
Individual-level	-0.043***	-0.043***	-0.041***	-0.039***	-0.032***	-0.032***	-0.052***	-0.051***
maltreatment	(0.008)	(0.008)	(0.011)	(0.011)	(0.009)	(0.009)	(0.019)	(0.019)
Grade-level	-0.039	-0.010	-0.070	-0.026	-0.075*	-0.072*	-0.080	-0.057
maltreatment	(0.037)	(0.044)	(0.057)	(0.058)	(0.043)	(0.043)	(0.094)	(0.095)
N(Students)	19439	19439	19439	19439	19439	19439	19439	19439
School fixed effects	No	Yes	No	Yes	No	Yes	No	Yes
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Robust standard errors clustered at school-level.
Individual controls include gender, race/ethnicity, age, PVT score, grade level, mother's education, family income, rural status, and missing data dummy.
Grade-level controls include % female, % white, % mother's education, % family income, and % missing data dummy.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

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