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Can the school context moderate the protective effect of parental support on adolescents alcohol trajectories in urban Chicago?

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Abstract

Background—Research explaining school effects on alcohol use is scarce. This study examined the interactive effect between family support and school characteristics (size, poverty, and sector) on adolescents alcohol use trajectories in Chicago.

Methods—Longitudinal and multilevel data were from the Project of Human Development in Chicago Neighborhoods and the Common Core of Data (National Center for Educational Statistics). The sample consisted of 2205 adolescents in 558 schools. A three-level hierarchical linear model was used to estimate multilevel growth curve models and school effects on alcohol trajectories.

Results—In addition to the strong relationship between parental support and alcohol trajectories; the results also found school effects on the average baseline of alcohol use and the rates of change across time. Interestingly, high levels of parental support were more effective in preventing alcohol use in public schools, while adolescents attending private schools with low levels of parental support were more likely to consume alcohol. Similarly, students attending public schools with higher rates of poverty who enjoy higher levels of parental support were less likely to consume alcohol compared to students with lower parental support attending lower rates of schools poverty.

Conclusion—Key findings highlight the importance of the interaction between parental support and school characteristics meaning that protective factors provided by parents could be reinforced or diminished by the school context.

Keywords

parental support; school context; alcohol trajectories

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Contributors

The only author of this manuscript was responsible for all steps in the preparation of the manuscript from the conceptualization of the problem, data analysis, writing and others. Data are public available from ICPSR <http://www.icpsr.umich.edu/icpsrweb/PHDCN/> and the Department of Education Statistics <http://nces.ed.gov/ccd/>.

Conflict of Interest

The author declares having no conflicts of interest.

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1. Introduction

Two of the most influential contexts in the development of children and adolescents are the family and the school. Despite the importance of schools, research on alcohol has broadly focused on the effect of individual and family characteristics on adolescents alcohol use (Fothergill and Ensminger, 2006; Allen, 2003; Guilamo-Ramos et al., 2005; Bachman et al., 1991; Foxcroft and Lowe, 1991). Within the family context, parental support stands as one of the most important family factors that can prevent alcohol consumption. Family support has been extensively discussed by Maccoby and Martin (1983), who broadly found that parental support and parental control play a substantial role in the socialization process of the child and adolescent.

In a more focused study of alcohol, Foxcroft and Lowe (1995) found that students who perceived more family support were less likely to engage in drinking than students who perceived their parents as authoritarian, negligent and indulgent parenting. Other studies have also found a negative relationship between family support and alcohol consumption (Caldwell et al., 2004; Piko, 2000; Stice et al., 1993).

Within the school context literature, there is a growing trend to account for school contextual effects when studying several areas of social development such as normative and pro-social goals (Meece and Eccles, 2010). However, research about school context effects on substance use is scarce. Most of the studies using the term “school effects” refer to adolescents perceptions of their schools characteristics. These types of studies are referred to as “individual-level school-related exposure” (Fletcher et al., 2008). Outside this line of inquiry, to the best of my knowledge, there is only a handful of studies that explore how the school context might be affecting substance using behaviors among youth (Kima and McCarthy, 2006; West et al., 2004; Cleveland and Wiebe, 2003; Kumar et al., 2002).

One of these studies focused on alcohol use explored how the effect of extracurricular activities on alcohol use varies by school characteristics (Hoffmann, 2006). The findings of that study suggest that students attending schools with higher levels of average student SES composition, lower rates of African American and Hispanic composition, and Catholic schools were more likely to use alcohol. Hoffman also examined cross level interactions finding that extracurricular activities have a stronger relationship with alcohol use in students attending low minority and wealthier schools. Another study about school effects on adolescent substance use and health issues by West et al. (2004) shows that schools with higher composition of students who were disengaged from academic activities, knew fewer teachers and schools rated with poor ethos had students who were more likely to drink more alcohol and smoke. All these findings suggest the need for continuing research, especially considering the school context; which can further inform policies and prevention programs related to adolescent alcohol use.

Thus, this paper expands our understanding of school effects on alcohol use among adolescents by adding a longitudinal-multilevel component examining interactions between an aspect of the family context –parental support–and school characteristics. The main focus is on how the protective effects of parental support on adolescents trajectories of alcohol consumption vary depending on three school characteristics: school size, school sector (public versus private) and levels of poverty. Given the importance of large urban populations, the aims of this paper are explored among adolescents living in Chicago, which is one of the largest urban settings in the U.S., where drug use problems and other risk behaviors such as violence tend to be prevalent. To address this research topic, three research questions are articulated below.

(1) Does the relationship between alcohol consumption and family support depend on the school size?

A comprehensive literature review suggests there are no studies linking school size and alcohol use. However, it can be argued that the middle and small size schools might generate a protective environment against alcohol use. This idea is based on research accounting for positive effects on adolescents behaviors related to alcohol use. For instance, Lee and Smith (1995) found that middle size schools could motivate more student engagement. Other studies have also reported that smaller schools might encourage more: connectedness with school (McNeely et al., 2002), adolescents participation and engagement (Silinsa and Mulfordb, 2004), and attachment with school (Crosnoe et al., 2004). These protective factors seem to be present also at the school level, for instance West et al. (2004) found that school engagement protects against smoking and alcohol use. Thus, it can be expected that adolescents attending larger schools might be more likely to consume alcohol over time. In addition, it can be expected that the protective effect of parental support could be lower in larger schools compared to middle size and small schools.

(2) Does the relationship between alcohol consumption and family support depend on the school sector?

The literature accounting for the effects of school sector on alcohol use among adolescents is also extremely rare. However, one study by Valois et al. (1997) showed differences on unadjusted rates of alcohol, tobacco and illicit drugs consumption between public and private schools. The results were inconsistent depending on the type of substance. In the case of alcohol, only lower rates of consumption were found among females attending public schools compared to females attending private schools. Following these results, and similar to the case of school poverty levels, it could be hypothesized that the protective effect of parental support could be weaker in private schools compared to public schools.

(3) Does the relationship between alcohol consumption and family support depend on the school poverty levels?

Based on the findings reported by Hoffmann (2006), it seems that the effect of school average SES is inconsistent and varies depending on individual factors such as gender. However, it could be expected that schools with higher levels of poverty have lower levels of alcohol consumption. This is based on the idea that schools with lower levels of poverty concentrate students with more socioeconomic resources and wealth. The availability of resources might open more opportunities to consume alcohol. Thus, it can be expected that lower levels of school poverty would generate environments where adolescents might be more likely to engage in alcohol use. It could be also argued that the protective effect of parental support could be less efficient in school with lower levels of poverty. This research question –because of methodological issues explained in the methods section– could be addressed only in public schools.

To address these research questions and given the focus on school-attending urban adolescents, analyses in this paper were based on data from the Project of Human Development in Chicago Neighborhoods (Earls and Visser, 1997; Liberman, 2007). These data are ideal to address the research questions because the study sample is representative of one of the largest urban sectors in the U.S. Also the data are longitudinal and multilevel containing three waves of measurement complemented with school-level information (National Center for Education Statistics, 1998–2007).

2. Methods

2.1. Sample

The PHDCN is a study focused on the pathways to juvenile delinquency, adult crime, substance abuse, and violence (Earls and Visser, 1997). The longitudinal component of PHDCN followed approximately 6,228 randomly selected children and adolescents. This longitudinal component consisted of three assessment waves from 1995 to 2001. The sampling design of the longitudinal study was a three stage cross-sectional stratified cluster sample of Chicago neighborhoods. For a more detail description of the sample design used in PHDCN see Sampson et al. (2005).

The analytic sample was restricted to cohorts 9, 12 and 15 (2205 students nested in 558 schools at wave 1. The distribution of the number of students per school ranged from 1 to 28 with median 2, it had a mean of 4 students per school and standard deviation 3.8). The rest of the cohorts were excluded because they did not have reports of drinking alcohol or participants finished school at the beginning of wave 1. About 50% of the sample was female and almost 49% percent were Hispanic, 37% African American, and 14% white. One out of five students belonged to families with an annual income lower than \$10,000 at wave 1, while 40% lived in families with incomes over \$30,000. The school data came from the Common Core of Data (National Center for Education Statistics, 1998–2007). The author of this paper gathered school data from the CCD. Students attended both public (69%) and private schools with average size of 710 students, and the percentages of low income students ($n=1849$ attending 385 public schools), ranged from 12% to 100% with a mean of 79%.

Missing observations ranged from 2% to almost 30% depending on the type of measurement and waves. To address the attrition problem, and under the assumption of missing at random, missing data were treated using multiple imputation procedures (MI). The MI was carried out using the Sequential Regression Imputation Method (Raghunathan et al., 2007).

2.2. Measures

Outcome—The outcome measure was a dichotomous variable accounting for the use of alcohol in the past twelve months. (Earls et al., 2006e,f,g). Participants were asked: “How many days did you have alcoholic beverages to drink, not just a sip or taste during the last 12 months”. The responses ranged in a nine ordinal categories from 0: never, 1–2 days, 3–5, 6–11, 12–24, 25–50, 51–99, 100–199, and 200 or more days. Participants who responded never were coded as 0: not consumed in the past year, the rest of the categories were collapsed into 1: consumed alcohol in the past year.

Time—Time was represented by the age of the adolescent which is centered on the individual mean age of the participant across the three waves. The reason to center this variable is to have zero represent the mean age. Age is expressed as the deviation from the individual mean across waves.

School measurements—Three school characteristics were used in the analysis: sector expressed as a dummy (1: public, 0: private). School size accounts for the number of students attending the school and the percentage of low income students attending the school. The percentage of low income students was defined and constructed only for public schools based on school data from the CCD that accounted for the percentages of students in the school receiving reduced or free lunch at schools. Data about reduced and free lunch were only available for public schools. Both size and percentage of low income students were standardized (mean 0 and standard deviation 1).

Family support—The participant's family support score came from six items from the Provision of Social Relations Subject (PSRS) measured in wave 1 and 3 (Earls et al., 2006d, 2007). The family support score was categorized into three levels based on two cut points -1 and $+1$ standard deviations: low, some, and high family support. The highest level was used as the reference category.

Individual covariates—To account for other risk factors that have been found to explain adolescent alcohol consumption the following individual covariates were included. Adolescent's ethnicity was coded into a three level categorical variable that consisted of White, Hispanic and African American and the comparison category was White. The gender of the participant was expressed as a dummy variable called female (1: female). The socioeconomic status of the adolescent's family was captured by three measures: parental education, parental occupational prestige and family income. Parental education was constructed as the maximum level of education in the family at wave 1: Less than high school, some high school, completed high school, some tertiary education non college degree, and bachelor degree or higher. Family income was coded into a three level categorical variable: less than \$9999, \$10000–\$19999 (comparison group), and more than \$20000. Parental occupation was accounted by the average standardized score of occupational prestige indexes across wave 1, 2 and 3. Higher values of the index represent higher prestige (Earls et al., 2006c,d, 2005).

Sensation seeking trait was represented by the score, at wave 1, from the Emotionality, Activity, Sociability, and Impulsivity Temperament Survey -EASI (Buss and Plomin, 1984; Earls et al., 2006a). Higher values represented higher degrees of sensation seeker trait. The religiosity scale was a standardized score based on items from the Family Environmental Scale FES (Moos and Moos, 1994; Earls et al., 2006b), which reflects the family's religiosity (higher values represent higher degrees of religiosity). Peers influence was coded into a categorical variable with three levels: low, some, and high levels of peer influence (comparison group). This variable was constructed based on the average score of the Provision of Social Relations Subject scale measured in wave 1 and 3 (Turner et al., 1983; Earls et al., 2006d, 2007).

2.3. Analytic Approach

Hierarchical Generalized Linear Model with a Logit link was used to estimate the growth curve models for the trajectories of alcohol use (Raudenbush et al., 2004; Raudenbush and Bryk, 2002). More specifically, a three level model was used. The first level had the outcome measurement that varies across time age is the time indicator used in the modeling. The second level was composed of time invariant student measurements and the third level consisted of school covariates at wave 1. The school level was based on the attended school at wave 1.

Six models were fitted in order to estimate the effect of school characteristics on adolescent alcohol use. Model 1 fitted the unconditional model incorporating the time structure in the alcohol trajectory. This trajectory was modeled as a linear function of time (the quadratic term was not significant). Model 2 included all student covariates except parental support. Model 3 included parental support. Model 4 incorporated school characteristics modeling both the intercept and the trajectories. Additional models were tested for the cross-level interaction between school characteristics and parental support on both the intercept (starting point) and the slope (trajectories). From all the tested combinations only two models presented significant interactions. These models are model 6 that estimated how school sector moderated the effect of parental support on the intercept (base line) and model 7 that

estimated how school levels of poverty, only for public schools, moderated the effect of parental support on the intercept (baseline).

3. Results

3.1. Alcohol trajectories and student level

A simple characterization of the alcohol trajectories is depicted in Figure 1. Adolescent alcohol use increase at age 12 and increments as age increases. Tables 1 and 2 show descriptive statistics for the adolescents and schools' characteristics by alcohol consumption across the three waves. By the end of wave 1, 14% of the sample had consumed alcohol in the past year. This percentage increased as time passes (i.e. students got older). Twenty five percent of students had consumed alcohol in the past year in wave 2, and by the end of wave 3, the percent of adolescents who consumed alcohol increased to nearly 45%. Students who consumed alcohol belonged to families with weak or low family support.

The estimations for the growth curve model are presented in Tables 3 and 4. Table 3 displays the results for models with only student time invariant characteristics. Model 1 is the unconditional model with a linear structure for time assuming random intercepts at school levels. This means that the average baseline for the alcohol trajectories were not the same among schools. In the case of the trajectories the model assumed no random effects meaning that the increment of alcohol use was assumed constant across students and schools. The intercept in model 1 was $-1.19 (\ln(0.304))$; thus, for a fourteen-year old, the estimated probability of alcohol consumption was 0.234. The average rate of deviation from the individual mean age was estimated to be 1.404 (log odds ratio), meaning that there is a strong positive association between age and the consumption of alcohol. As expected, the older the students get the higher their probability of alcohol use.

The effect of parental support on both the starting point and the slope of the trajectories of alcohol use after controlling for all individual covariates are displayed in Model 3. This results show that adolescents who perceived their parents to be less supportive, low (2.653) and some (1.62) parental support, were more likely to have higher levels of alcohol consumption at the starting point. However, only adolescents who reported low levels of parental support showed a significant negative coefficient in the slope of the trajectories ($\ln(0.88) = -.01228$). This means that students with lower levels of parental support might have smaller rates of change in their alcohol trajectories. Although the difference is small still suggests that students with high or medium parental support were less likely to consume in the baseline but later have a steeper rate of consumption.

3.2. School level

Table 4 presents the models that adjust by school size, school sector (public versus private), and school levels of poverty (in public schools). This table also presents the cross-level interactions between parental support and school characteristics. Model 4 shows the effects of the three school characteristics on both the intercept and the slope. These three characteristics had a significant coefficient on the starting point. Students attending private schools, larger schools, and school with lower concentrations of poverty (in the case of public schools) were more likely to have a greater levels of alcohol use at the base line. Per each increment in a standard deviation of school size the initial starting point increases by a factor of 1.65 (log odds). Holding all other factors constant, students attending private schools have a probability of 0.28 of consuming alcohol at the starting point while the probability for students attending public is 0.18. Similar to school size public-school students attending schools with lower levels of poverty increased their chances to consume alcohol at the starting point by .17 per standard deviation in the scale of poverty.

Interestingly, the rate of change in the trajectories of alcohol only depended on the school size. The rate of change was reduced by a factor of 0.033 per each standard deviation increment in the school size.

3.3. Parental support and school characteristics

Key findings revealing the interactions between family support and school sector, and family support and school levels of poverty are presented in Models 5 and 6. These interactions were significant only at the intercept (base line). Given the complexity of the models, findings are easier to interpret showing how the predicted probabilities vary across time depending on family support and these two school characteristics. Thus, Figures 1 and 2 depict these adjusted probabilities, holding all covariates fixed to their mean.

It is interesting to notice that the effect of parental support on the adolescents baseline alcohol use was moderated by the school sector (see Figure 2). On average, students with lower levels of parental support showed a higher starting point; however students with lower levels of parental support who were attending private schools had the highest starting point, while students attending public schools with higher levels of parental support would have the lowest starting point. On average, students with the same level of parental support, had higher probabilities of consuming alcohol across time if they attended private schools.

A second key finding is depicted in Figure 2, which shows the probabilities of alcohol depending on the moderated effect of parental support by public-school poverty levels. The effect of parental support is more protective in the case of students who attend schools with higher levels of poverty. In other words, students attending schools with lower levels of poverty and who had lower levels of parental support were more likely to use alcohol at the base line and across time than student who have same lower levels of parental support but attend schools with higher levels of poverty. It is interesting to note that for higher levels of parental support the differences across the levels of poverty is not as large as the differences in the levels of poverty for student with low parental support. This might imply that parental support has a stronger protective effect in public schools with higher levels of poverty. The implications of key findings are discussed in the last section of this paper.

4. Discussion

The study findings indicate that parental support might be a protective factor for both the baseline and the rate of change of adolescents alcohol trajectories. These findings also suggest that school size, sector, and levels of poverty were related to the baseline, but only school size was related to the average rate of change. In addition, the type of school that students attend might increase or decrease the protective effect of parental support at the beginning of the trajectories. In general, for same levels of parental support, students attending private schools report more consumption across time compared to students attending public schools. Similar results were found in the case of school levels of poverty, where students with similar levels of parental support were more likely to consume alcohol if attending schools with lower levels of poverty.

A partial explanation of these cross level-interactions, could be based on findings showing a positive relationship between alcohol use and SES -family income and parental education- (Goodman and Huang, 2002; Reading, 2002; Blum et al., 2000). The positive relationship between alcohol use and SES suggest that adolescents with more economic resources could be more likely to engage in alcohol use. Similarly, adolescents attending schools with lower levels of poverty might have more financial resources and therefore more purchasing power to acquire alcohol. In other words, the possibility to acquire alcohol might increase if an adolescent attends a school with clusters of students with more economic resources.

It also could be the case that public schools with higher levels of poverty provide the adolescent with peers who might not think about consuming alcohol instead consume other substances. However, this interpretation is speculative and more research is needed to understand the complexity and meaning of school effects on alcohol use.

Similarly, on average private schools are composed by students with more economic resources; thus an adolescent attending a private school might have higher probabilities of engaging in alcohol use. However, the effect of school sector could also reflect some school structural and cultural characteristics. Unfortunately, school data are insufficient to test this interpretation.

There is another explanation –based on peers effects– that can account for the findings related to school sector. Schools are social environments that can provide similar peers for the adolescents (Epstein, 1989); peers can exert influences on adolescents' behaviors increasing the peer-influences susceptibility to consume alcohol (Schulenberg et al., 1999; Dielman et al., 1987) or providing more opportunities to use alcohol (Gottfredson and Hirschi, 1990). Thus private school can provide mind-liked and more homogeneous peers with more resources and opportunities to consume alcohol decreasing the protective effect of parental support (Steinberg et al., 1994).

As far as the effect of school size, it is plausible that larger schools could be less cohesive environments where students might find: less connectedness with school (McNeely et al., 2002), less participation and engagement (Silinsa and Mulfordb, 2004; Lee and Smith, 1995), and less attachment with school (Crosnoe et al., 2004); thus larger schools might be environments where adolescent might be more likely to consume alcohol. In other words, adolescents attending larger schools are in environments where adolescent may not find as much protection such as school attachment, cohesive environments and opportunities to engage in school activities.

This study findings must be considered within the context of several limitations, some of these are: (i) The lack of more school level information which limits the understanding of the findings related to the school effects on alcohol use. (ii) Other measures of school poverty based on the student body composition (e.g. family income and home resources) could expand the modeling of school poverty to private school. (iii) Alcohol use was modeled using dummies that account for whether the adolescent consumed alcohol in the past year. Despite the advantage of modeling a parsimonious outcome, the estimation of growth curves might be different for other definitions of alcohol use and alcohol abuse or dependence. The specification of the linear relationship between time and alcohol use could not be the most accurate, unfortunately non-linear specifications were not significant mainly because of the focus on school context where the consumption of alcohol might be mostly linear and monotonic.

Notwithstanding these limitations, the use of a large longitudinal dataset and the availability of school data allowed for a unique examination of how parental support interacts with school characteristics in shaping alcohol use over time. The work in this paper resonates with the works of Perra et al. (2012) and West et al. (2004) supporting the public health importance of considering the school context and experiences in schools as factors that expand our understanding of adolescent substance use and other health issues.

As the growing literature on school effects in non-academic areas has been claiming, further research is needed to expand our knowledge of the ways by which schools interact with what students bring from home, and how all these might influence youth development.

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Figure 1. Average probability of alcohol consumption by age. The y-axis represent probabilities and x-axis represent time (age) ($n = 2205$).

Figure 2.

Alcohol use adjusted probability by parental support and school sector. The y-axis represent probabilities and x-axis represent time (age) ($n = 2205$ nested in 558 schools).

Figure 3.

Alcohol use adjusted probability by parental support and school poverty levels for students attending only public schools. LPS:Low parental support, SPS:Some parental support, HPS:High parental support. LLP:Lower levels of poverty, MLP:Medium levels of poverty, HLP:High levels of Poverty. The y-axis represent probabilities and x-axis represent time (age) ($n = 1849$ nested in 385 schools).

Parental support and school characteristics by adolescent alcohol use by waves. (a) Significant differences across groups ($p < 0.05$) within waves for parental support, school size, school sector and percentage of low-income students attending public schools. (b) Standard deviations are in parenthesis, rounded with no decimals.

Table 1

	Wave 1		Wave 2		Wave 3		Total	
	%No	%Yes	%No	%Yes	%No	%Yes	N	N
Alcohol consumption	86	14	75	25	56	44		2205
Parental Support								
Low family support	72	28	59	41	44	56		271
Some family support	86	14	74	26	54	46		1085
Strong family support	91	9	81	19	65	35		849
School characteristics								
School size	897 (611)	1400 (890)	865 (598)	1274 (845)	830 (564)	1136 (795)		2205
Average % low income	80 (18)	73 (19)	80 (18)	74 (19)	81 (17)	75 (19)		1849
Private	83	17	71	29	50	50		356
Public	87	13	76	24	58	42		1849
N	1898	307	1450	483	996	774		2205

Table 2

Individual covariates by alcohol use across all waves. (a) Significant differences across groups ($p < 0.05$) for age, ethnicity, peer influences, religiosity, and sensation seeker. (b) Significant differences across groups ($p < 0.05$) for age, ethnicity, peer influences, religiosity, caregiver education, family income, sensation seeker, school size and percent low income. (c) Significant differences across groups ($p < 0.05$) for age, ethnicity, peer influences, religiosity, and family income. (d) Standard deviations are displayed in parenthesis. ($n = 2205$).

	Wave 1		Wave 2		Wave 3		Total	
	%No	%Yes	%No	%Yes	%No	%Yes	N	
Alcohol consumption	86	14	75	25	56	44	2205	
Age	11.54 (2.29)	14.64 (1.25)	13.29 (2.25)	16.18 (1.76)	15.54 (2.23)	17.94 (2.13)		
Gender								
Female	85	15	75	25	56	44	1109	
Male	87	13	75	25	57	43	1096	
Ethnicity								
Hispanic	86	14	75	25	56	44	1056	
Black	89	11	79	21	63	37	821	
White	80	20	67	33	43	57	328	
Parental Occupation	41.98 (13.97)	42.38 (14.23)	41.99 (13.76)	42.54 (14.03)	42.24 (13.48)	42.69 (13.72)		
Parental Education								
Less than high school	85	15	279	93	55	45	419	
Some high school	85	15	73	27	59	41	432	
High school	86	14	76	24	56	44	306	
Some tertiary/no bach.	88	12	78	22	57	43	790	
Bachelor degree or more	84	16	69	31	52	48	258	
Family Income								
Less than 10000	88	12	78	22	62	38	470	
Between 10000–19999	88	12	78	22	60	40	443	
More than 20000	85	15	73	27	53	47	1292	
Sensation seeker	2.72 (0.54)	2.81 (0.53)	2.72 (0.01)	2.8 (0.02)	2.73 (0.49)	2.74 (0.48)		
Peer influences								
Low	90	10	79	21	66	34	560	
Some	86	14	76	24	56	44	1051	
Strong	83	17	68	32	47	53	594	

	Wave 1		Wave 2		Wave 3		Total
	%No	%Yes	%No	%Yes	%No	%Yes	N
Religiosity	61.04 (5.27)	59.74 (5.42)	61.27 (5.01)	59.64 (5.18)	61.56 (4.9)	60.1 (5.01)	
N	1898	307	1450	483	996	774	2205

Table 3

Growth curve model for alcohol use trajectories in Chicago adolescents: Unconditional model and individual level covariates.

	Model 1	Model 2	Model 3
Adolescent Level			
<i>Intercept</i>	0.304 ***	0.468 ***	0.383 ***
<i>Female</i>		0.873 *	0.827 **
<i>Ethnicity</i>			
Hispanic		0.776 *	0.771
Black		0.623 ***	0.589 ***
<i>Caregiver Occupation</i>		1.001	1.001
<i>Caregiver Education</i>			
Less than high school		1.05	0.976
Some high school		1.048	0.989
High school		0.938	0.887
Some tertiary/non bach.		0.856	0.864
<i>Family Income</i>			
Between 10000–19999		0.99	0.981
More than 20000		1.186	1.169
<i>Sensation seeker</i>		1.299 ***	1.289 ***
<i>Peer influences</i>			
Low peer influence		0.704 ***	0.589 ***
Some peer influence		0.881 ***	0.795 ***
<i>Religiosity</i>		0.968 ***	0.972 ***
<i>Family support</i>			
Low parental support			2.653 ***
Some parental support			1.62 ***
Age slope	1.404 ***	1.418 ***	1.455 ***
<i>Family support</i>			
Low family support			0.885 *
Some family support			1.002
Random effects for intercept			
<i>Between students</i>	0.66 ***	0.62 ***	0.6 ***
<i>Between schools</i>	1.159 ***	1.12 ***	1.01 ***

Significant difference across groups: $p < .10$,

* $p < .05$,

** $p < .01$,

*** $p < .001$. ($n = 2205$).

Table 4

Growth curve model for alcohol use adjusted by school characteristics and family support in Chicago adolescents.

	Model 4	Model 5	Model 6
Intercept	0.408 ***	0.34 ***	0.396 ***
<i>Family support</i>			
Low family support	2.665 ***	4.87 ***	2.766 ***
Some family support	1.611 ***	2.061 ***	1.617 ***
<i>School characteristics</i>			
Percent low income	0.835 **	0.836 **	0.888
School size	1.653 ***	1.651 ***	1.643 ***
Public	0.572 **	0.737	0.597 ***
<i>Cross level interactions</i>			
Low family support x Public		0.495 *	
Some family support x Public		0.736	
Low fam. support x prent low income			0.762 *
Some fam. support x prent low income			0.927
Age slope	1.441 ***	1.507 ***	1.503 ***
<i>Family support</i>			
Low parental support	0.896 *	0.903 *	0.911
Some parental support	1.013	1.017	1.019
School characteristics			
Percent low income	0.996		
School size	0.967 **	0.972 **	0.973 **
Public	1.067		
Random effects for intercept			
<i>Between students</i>	0.64 **	0.63 **	0.63 **
<i>Between schools</i>	0.65 ***	0.65 ***	0.64 ***

Significant difference across groups: $p < .10$,

* $p < .05$,

** $p < .01$,

*** $p < .001$. ($n = 2205$). For the case of models with parental support the analysis are only for public schools ($n = 1849$).