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Dealing With Misbehavior at Schools in Kentucky

Theoretical and Contextual Predictors of Use of Corporal Punishment

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To test and compare theoretical explanations of the use of corporal punishment in school, the authors examine how well county-level measures of culture, socioeconomic strain, and social capital predict the prevalence and incidence of corporal punishment in Kentucky schools. Although several variables are significantly correlated with corporal punishment use, multivariate regression analyses reveal that high socioeconomic strain and low levels of social capital are the best predictors of (a) the prevalence of corporal punishment in a county's public school system(s) and (b) a high incidence of corporal punishment in those counties where it is practiced. Explanations and practical implications of these findings are discussed.

Keywords: *corporal punishment; institutional strain; school discipline*

In recent years, most school districts have moved away from corporal punishment as a disciplinary action, relying more on alternative forms of punishment such as in-school suspension, after-school detention, and a wide range of other punishments. Nevertheless, not all school districts have made that change. Twenty-one states and 26% of all public schools nationwide still allow corporal punishment (Center for Effective Discipline, 2005; National Center for Educational Statistics [NCES], 2000). *Corporal punishment* is defined as "the use of physical force with the intention of causing a child to experience pain, but not injury, for the purpose of correction or control of the child's

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behavior" (Straus & Donnelly, 2001, p. 4). This practice has been allowed in public schools by the U.S. Supreme Court case *Ingraham v. Wright* (1977); however, its use and support for its use varies significantly across different geographic, cultural, and economic characteristics.

This exploratory study expands the work of Owen (2005) regarding the relationship between social capital and use of corporal punishment in the school. Owen used data from 48 states to reveal that states with higher levels of social capital (measured in terms of state rates of social trust and participation in civic, political, and social activities) were less likely to use corporal punishment in the school. Although his work is an important contribution to the literature, he suggested a number of areas of future research. In the current study, we attempt to fill some of those voids by using sociological and criminological theory (and the relevant literature in this area) to guide the analysis of several social and demographic factors' associations with the use of corporal punishment in schools.

Literature Review

Few researchers have examined characteristics surrounding corporal punishment in the schools (see Owen, 2005, for a notable exception). However, several studies have demonstrated an association between the support and use of parent-to-child corporal punishment and various parental characteristics (i.e., religion, age, marital status, temperament, and parenting style; see Xu, Tung, & Dunaway, 2000, for review). This body of literature has uncovered a number of variables associated with corporal punishment at the societal and individual level; however, these relationships must be viewed in the context of their methodological and theoretical challenges.

First and foremost, most of the findings in this research are merely correlational results. It is rather easy to demonstrate which parents use corporal punishment and corporal punishment's correlation with other behaviors. Due to the limited use of longitudinal data, however, it is much more difficult to determine why parents use it and what effect it has on children. Because most current research only provides a snapshot of corporal punishment, students of corporal punishment are left to theoretically determine which came first: corporal punishment or the variable(s) with which it is correlated. Nevertheless, the effort to determine who uses corporal punishment is the first step in answering why and should they use it.

It is also difficult to point to any variable as a sole determinant of corporal punishment. Because so many variables that have been found to be linked to corporal punishment are also linked to one another (across and

within different studies (e.g., Xu et al., 2000), it is often difficult to determine the effect of any single variable, even with the help of regression models. Thus, the findings throughout this research support the idea of an integrated theory of corporal punishment, encompassing many different aspects of psychology, sociology, and criminology and should be read in that context.

Parent-to-Child Corporal Punishment

A significant portion of the literature surrounding corporal punishment has related a wide array of parent and child characteristics with the support and use of corporal punishment. These studies largely focus on the demographic characteristics, psychological traits, and family dynamics associated with parent-to-child corporal punishment. General support for corporal punishment (along with self-reported prevalence, incidence, and severity of corporal punishment) is considered throughout this body of literature. Overall, these studies indicate that most parents support corporal punishment in the home and use (or have used) some form of corporal punishment at some point in their child(ren)'s lifetime (e.g., Crandall, 2002; Straus & Donnelly, 1993, 2001).

Nevertheless, specific subgroups of parents support and use corporal punishment more often. Parents are more likely to support and/or use corporal punishment if they are African American (Regaldo, Sareen, Inkelas, Wissow, & Halfon, 2004; Xu et al., 2000), male (Xu et al., 2000), poor (Straus & Donnelly, 1993, 2001; Straus & Stewart, 1999; Xu et al., 2000), employed in blue-collar occupations (Wauchope & Straus, 1990), less educated (Ellison & Sherkat, 1993; Xu et al., 2000), single (Crouch & Behl, 2001; Ellison, Bartkowski, & Segal, 1996; Regaldo et al., 2004; Straus & Stewart, 1999), older (Xu et al., 2000), Conservative Protestants, and/or "Biblical-literalists" (those who have a literal interpretation of the Bible; Ellison et al., 1996; Ellison & Sherkat, 1993; Xu et al., 2000). Cross-culturally, there is also evidence that the acceptability of corporal punishment in a particular culture influences the parent's individual decision to use corporal punishment (Lansford et al., 2005).

School Corporal Punishment

Despite the wealth of research on corporal punishment at the individual level, there is only a small body of literature regarding predictors of corporal punishment in schools. Although the literature surrounding corporal punishment in school is scarce, the actual practice of corporal punishment

is not all that rare. Using a nationally representative sample of public schools, the U.S. Department of Education Office for Civil Rights projected that around 300,000 public school students received corporal punishment in 2002 (less than 1% of all public school students). This number is significantly lower than the yearly average of a million or so in the 1980s, however, corporal punishment is still a common practice in a number of school districts in the United States (U.S. Department of Education, Office for Civil Rights, 2005). The most recent data reported by the NCES show that 26% of public school principals across the nation report that corporal punishment is available in their school while 15% report that it is available and used in their school (NCES, 2000).

Parental factors. Although a nationally representative poll conducted by ABC News indicated that most parents (72%) disapprove of school corporal punishment (Crandall, 2002), the author of the report and Grasmick, Morgan, and Kennedy (1992) were able to point to specific subgroups for which school corporal punishment is more acceptable. Southerners and Midwesterners were more likely to support school corporal punishment in the ABC News poll (35% and 31%, respectively) than respondents from the West and the East (19% and 13%, respectively) (Crandall, 2002). In addition, Grasmick et al. (1992) found that, in an Oklahoma school district, parents who were members of Protestant denominations, male, had lower levels of education, and were younger were significantly more likely to support corporal punishment in schools. However, the homogeneity of the sample in this study made it difficult to apply these findings to any population outside of this school district.

Socioeconomic status. Although Arcus (2002) found a significant positive relationship between state poverty rates and the use of corporal punishment, no studies of which we are aware have investigated the relationship between socioeconomic status and corporal punishment at the district level. However, a new variable in the Kentucky Center for School Safety data allowed for a crude comparison between free-lunch students, reduced-lunch students, and paid-lunch students. This comparison showed the percentage of punishments that involved paddling for free-lunch students was 2.5 times higher than that percentage for paid-lunch students and 1.5 times higher than the percentage for reduced-lunch students, overall. However, these differences were much less dramatic when examining only those districts that use corporal punishment (Kentucky Center for School Safety, 2005).

Geographic setting. Corporal punishment appears to be most prevalent in “town” and “rural” settings, as 41% and 36% of principals in those settings, respectively, reported the availability of corporal punishment as compared to 20% and 15% for the “urban” and “urban fringe” principals, respectively (NCES, 2000). Southeastern and southwestern states also use corporal punishment more often than other regions of the United States (Arcus, 2002; Center for Effective Discipline, 2005; Owen, 2005).

Crime statistics. Researchers have also compared school corporal punishment rates to other statewide data on different sociological factors including criminal justice statistics. Using data from all 50 states, Arcus (2002) found that higher corporal punishment rates are associated with higher school shooting fatality rates. Hyman and Wise (1979) found that permissiveness toward school corporal punishment is positively correlated with statewide homicide rates and statewide student violence rates.

Theoretical Explanations of Corporal Punishment

Social Capital

Durkheim argued in his *Moral Education* (1925/1961) that the level of involvement in a culture by its members is indicative of the level of moral-ity in that culture. In other words, the more citizens are devoted to the altru-istic practice of shaping and improving their community, the more moral their community is. Owen (2005) called such devotion “social capital” and extended Durkheim’s arguments to school corporal punishment. He does so by first showing that school corporal punishment is a negative practice (because of its negative effects on those who receive it) and then demon-strating a significant association between the use of corporal punishment in schools and social capital—or the interconnectedness of communities as defined by the members’ social trust and civic, political, and social involve-ment. Using state-level data, he examined the relationships between social capital and three indicators of school corporal punishment: prevalence of corporal punishment in schools, incidence of corporal punishment in schools (among those states that allow it), and support for corporal punish-ment in general. He found a significant inverse relationship between social capital and all three indicators of school corporal punishment. There were also lower levels of social capital and higher levels of corporal punishment support and use in the southeastern and southwestern regions of the United

States. It is interesting to note that Xu et al. (2000) made and tested a similar argument regarding parents' use of corporal punishment. They also found a significant negative correlation between corporal punishment use and social capital, when it was operationalized as the amount of help parents received from others.

Although Owen (2005) revealed a link between social capital and the use of corporal punishment in schools, he also suggested a number of areas for future research. First, he recognized that the pronounced regional difference in the use of corporal punishment may be partially explained by social capital but may also be influenced by other factors as well. Second, he also recognized the importance of culture in explaining corporal punishment and called for further research in this area. As such, other theoretical perspectives may also be helpful in understanding corporal punishment in schools.

Culture

The use of corporal punishment is in large part a function of culture. Changes in the organization and collective morals of society have led to the decreased use of corporal punishment in schools in much the same way they led to the abolition of corporal punishment in the criminal justice system. According to Durkheim (1895/1933), as societies grow in economic interdependence and heterogeneity of values, their division of labor grows, and their systems of punishment focus more on individual rights and practical outcomes rather than religious values and emotion. Thus, these societies are less likely to use corporal punishment because it has the potential of violating individuals' cultural mentalities and sensibilities. A logical extension of Durkheim's theory would purport that societies with a greater division of labor and low rates of religious fundamentalism and conservatism (characteristics of mechanical societies) would be less likely to use corporal punishment. This same reasoning can be applied to corporal punishment in the school. If Durkheim is correct, those societies with less sophisticated labor forces, conservative religious and political philosophies, and less religious and political heterogeneity would be more likely to use corporal punishment in the school.

To test if the theoretical assumptions made by Durkheim (1933), Owen (2005), and Xu et al. (2000) extend to the use of school corporal punishment at the county level in Kentucky, we analyzed the relationship between school corporal punishment and indicators of social capital and culture. To measure social capital at the county level, we used total church adherence rates from the Glenmary Research Center and total voter registration and

turnout percentages from the Kentucky State Board of Elections. Unfortunately more powerful measures of social capital used by Owen (2005) were not available at the county level.

The indicators for the *type* of culture included: type of religion adherence, type of political affiliation, urbanicity, population density, type of labor force, income, racial composition, and region. These variables served as proxies for the county's dominant religious, political, geographic, and social characteristics.

The type of religious adherence was derived from data collected by the Glenmary Research Center regarding the adherence rates for five major religious groups in the year 2000. Political affiliation was determined by registration and turnout statistics from the Kentucky State Board of Elections (2004) for Republican, Democratic, and "Other" political parties in the 2004 general election. Data from the 2000 U.S. Census provided measures of urbanicity (the percentage of housing units considered urban), population density (population per square mile), type of labor force (percentage of workers considered white collar or "white-collar rate"), and racial composition (percentages for White, African American, Latino, and Other). Finally, a variable representing regional culture was introduced using the U.S. congressional districts provided by the Kentucky Legislative Research Commission (2002).

The link between culture and corporal punishment can also be explained by how corporal punishment is learned from society. Murray Straus, one of the foremost modern researchers and theorists on parent-to-child corporal punishment, asserted that corporal punishment is, in part, learned from a culture of aggression. For Straus, corporal punishment is one part of a cycle of aggression. Like other forms of violence, corporal punishment can be caused an underlying culture of aggression but can also add to the culture of aggression. This occurs through a process that Straus called "cultural spillover" (Straus & Donnelly, 2001). The correlation between corporal punishment and aggressive behavior is strongly supported by empirical research; however, again, a causal relationship is difficult to identify (Crouch & Behl, 2001; Ellison et al., 1996; Regaldo et al., 2004; Sears, Maccoby, & Levin, 1957; Straus & Donnelly, 2001).

A logical extension of Straus' work would purport that schools in areas where other forms of physical aggression are present and endorsed would have higher levels of corporal punishment and vice versa. However, the evidence to support this claim is either outdated (Hyman & Wise, 1979) or is based only on state-level data (Arcus, 2002). In the current study we seek to

determine if violent crime rates and aggression in schools are, in fact, associated with school corporal punishment rates on the county level. To do so, we examined county-level child physical and sexual abuse rates, child sexual abuse rates, adult abuse rates, and spouse abuse rates provided by the Kentucky Cabinet for Health and Family Services. Using data from the Kentucky State Police's *Crime in Kentucky: 2000 Crime Report*, we also calculated crime rates to determine their association with corporal punishment in school. These included rates for (a) Part I violent offenses, (b) Part I property offenses, (c) total Part I offenses, (d) total Part II arrests, (e) offense against family arrests, and (f) total arrests.

Strain

There is ample evidence that parent-to-child corporal punishment is associated with economic and psychological strain among parents (Bronfenbrenner, 1958; Bryan & Freed, 1982; Crouch & Behl, 2000; Ellison et al., 1996; Ellison & Sherkat, 1993; Regalado et al., 2004; Straus & Donnelly, 1993, 2001; Straus & Stewart, 1999; Xu et al., 2000). Studies that correlate lower socioeconomic status with high rates of corporal punishment can be explained by Merton (1938) and Agnew's (2005) arguments that deviance from more socially acceptable patterns of behavior is often the result of a disjunction between cultural goals and an individual's means to achieve them. The use of corporal punishment among parents may indeed be the result of not having the means (e.g., time or education) to use other forms of punishment.

Like individuals, institutions can also experience strain as a result of not having the means to achieve all of society's goals. For example, although all schools have the same goal of creating a safe school environment, not all schools have the same economic or political support to use the most desirable prevention and discipline programs. Their desire to use such programs may take a back seat to their economic resources and goals set by society. Messner and Rosenfeld (2001) explained this phenomenon in their theory of institutional anomie by examining the interrelation of the four major groups of social institutions—economy, polity, family, and education. They argued that all four of these groups influence (and interact with) one another. For example, an educational policy (in this case, corporal punishment) can be influenced by the economic system through the political bodies of the school board and state legislature, with support from the family system. Educational policy may also affect the economy by how well it develops human capital, which is needed for a strong economy.

Messner and Rosenfeld also argued that although the other groups of social institutions are important, American culture is primarily determined by its capitalistic and materialistic nature. This, in turn, causes economic goals to take precedence over all others. Not only does American society devalue noneconomic goals it also pushes economic goals into noneconomic institutions with little resistance from those institutions (Messner & Rosenfeld, 2001). This precedence of economic goals is evident in the dominance of the budget in the educational system today. Schools often determine their educational policies based on the policies' affordability and economic efficiency. Messner and Rosenfeld also asserted that American society fosters an environment where individuals and institutions will strive to achieve goals by any means necessary. As such, to achieve their economic goals, districts with fewer financial resources may continue the use of corporal punishment, even if it is not the most effective or beneficial punishment because it is financially efficient and keeps the student (and his or her assigned tax dollars) in the school.

Messner and Rosenfeld's hypotheses are supported by the link between poverty rates and school corporal punishment at the state level (Arcus, 2002). To determine whether or not institutional economic strain is associated with corporal punishment use at the county level, we examined several socio-economic variables that may cause institutional strain in a county. County-level median household incomes, poverty rates, percentages of households that have a single householder (single-parent rate), and percentages of residents with a high school education or above percentages (educational attainment) that were derived from the 2000 U.S. Census data and the county's unemployment rate (reported by the Kentucky Cabinet for Health and Family Services, 2000) served as indicators of institutional strain in the current study.

Purpose of the Current Study

Guided by the extant literature and theoretical perspectives, in the current study, we attempt to determine the macrolevel predictors of the prevalence and incidence of corporal punishment in Kentucky public schools. We explore three theoretical explanations of corporal punishment by examining a wide range of factors theoretically and empirically linked to the use of corporal punishment in the home and/or in the school. Such an effort adds to the

understanding of a largely underresearched practice in American public education by (a) providing a profile of those counties in Kentucky that use corporal punishment and those that do not and (b) identifying factors that influence the frequency with which they use it. Although the data analyzed allow only for correlational inferences, this effort is the first step in determining what actually causes policy makers and parents to support and implement corporal punishment in the school.

Method

Sample

The 120 counties in Kentucky constituted the sample in the current study. Although this is a small sample size, it is rather high compared to other states. Kentucky has the fourth most counties in the United States and one of the highest county-to-population ratios. There is a school district for every county in Kentucky plus an additional 56 independent school districts. Data from these 56 districts were combined with the data from the other district(s) in the county in which they sit to create a county-wide index of corporal punishment. Most of these independent school districts are relatively small and matched the county district in corporal punishment policy (Kentucky Center for School Safety, 2005).

Dependent Variables

As part of the Kentucky Center for School Safety (KCSS) annual data reporting process, each of the more than 1,200 public schools in Kentucky submitted data in July 2005 that enumerated the number of expulsions, out-of-school suspensions, and corporal punishments they had within that school in the 2004-2005 academic year. Approximately one third of the 176 districts reported at least one use of corporal punishment in 2004-2005 (McCoy-Simandle, May, & Chen, 2005).

From these data, two dependent variables were created. The first dependent variable, prevalence, was a dichotomous variable measuring whether or not the county had any instances of corporal punishment in the 2004-2005 school year. Those 44 counties that had at least one instance of corporal punishment were coded (1). The second dependent variable, incidence, measured the rate at which counties used corporal punishment—the number of corporal punishment incidents divided by the public school enrollment in that

county (obtained from the Kentucky Department of Education). This variable was an interval/ratio level variable whose scores ranged from 0 (*no instances of corporal punishment*) to 15.83 (*rate of corporal punishment per 100 students*).

Independent Variables

Although the literature reviewed above suggests that there are no studies that have examined the use of corporal punishment within a state using the county as the unit of analysis, a number of studies suggest that there are social and demographic factors that are associated with the use and support of the use of corporal punishment by individuals. As such, data were collected from numerous state and federal sources on a wide variety of social and demographic variables that might be associated with the use of corporal punishment. These variables and their sources are discussed below.

U.S. Census Bureau Data (2000). The Census Bureau provides county-level data on several variables that will be used in this analysis. The data that constitute the variables representing median household income, urbanicity, population density, poverty rate, and educational attainment were obtained from the 2000 U.S. Bureau of the Census' data set. The total population of each county was also used to create rates in other categories (e.g., crime rates; U.S. Census Bureau, 2000).

Kentucky Cabinet for Health and Family Services. The Kentucky Cabinet for Health and Family Services' Epidemiology and Health Planning Data Branch provides county health profiles for each county in Kentucky. These profiles provide information across a wide spectrum of demographic variables. The variables used in the current analysis were: unemployment rates, spouse abuse rates, adult abuse rates, child sex abuse rates, and child neglect rates (Kentucky Cabinet for Health and Family Services Division of Epidemiology and Health Planning, 2000).

Kentucky State Police. Data regarding crime incidents were collected from the Kentucky State Police's *Crime in Kentucky: 2000 Crime Report* (2001). These data were combined with county population data from the U.S. Census to create rates for: (a) Part I violent offenses, (b) Part I property offenses, (c) total Part I offenses, (d) total Part II arrests, (e) offense against family arrests, and (f) total arrests.

Glenmary Research Center. In 2000, the Glenmary Research Center conducted a comprehensive study of church adherence in America. This project collected adherence rates for denominations in 149 religious bodies across the United States. A total county-level adherence rates was obtained from this data set, as well as adherence rates for the following groups of denominations: Evangelical Christian, Mainline Protestant, Catholic, Jewish, Muslim, and Other (American Religion Data Archive, 2000).

Kentucky State Board of Elections (KSBE). The KSBE publishes party registration and voter turnout data after each national election. The data from the 2004 General Election were used in the current analysis. Overall voter turnout and voter registration percentages were calculated, along with percentages for Democrat, Republican, and Other categories provided in the data (Kentucky State Board of Elections, 2004).

Kentucky Legislative Research Commission. Counties were divided into five regions using U.S. Congressional Districts provided by Kentucky's Legislative Research Commission Geographic Information Systems Office. Although there are six congressional districts in Kentucky, only five were used in the current analysis as Jefferson County comprises the entirety of congressional district 3 and was combined with district 2 to allow for regional comparisons. These districts were renamed Western Kentucky (District 1), Mid-western Kentucky (Districts 2 and 3), Northern Kentucky (District 4), Eastern Kentucky (District 5), and Central Kentucky (District 6). Those counties that do not lie entirely in one congressional district were placed in the district that included the majority of its landmass (Kentucky Legislative Research Commission, 2002)

Results

After the data were collected and coded, bivariate correlation models were estimated to determine if the independent variables were correlated with the prevalence and/or incidence of corporal punishment in each county's schools. These results are presented in Table 1. Those variables that demonstrated a statistically significant relationship with prevalence and/or incidence were then included in multivariate logistic regression models to examine predictors of prevalence of corporal punishment and linear multivariate regression models to examine predictors of the incidence of corporal punishment in those districts that used it. Because of the small

Table 1
Bivariate Pearson Correlations Between All Independent Variables
and the Prevalence and Incidence of Corporal Punishment

	Corporal Punishment	
	Prevalence	Incidence
Culture variables		
Evangelical adherence rate	-.009 (.922)	-.115 (.458)
Mainline Protestant adherence rate	-.212 (.020)*	.074 (.632)
Catholic adherence rate	-.288 (.001)**	-.221 (.150)
Jewish adherence rate	-.124 (.179) ^a	
Muslim adherence rate	-.094 (.307)	.005 (.975)
2004 Democrat registration rate	-.022 (.816)	-.047 (.764)
2004 Republican registration rate	.061 (.508)	.064 (.681)
2004 Other registration rate	-.367 (.000)***	-.275 (.071)*
2004 Democrat turnout rate	-.349 (.000)***	-.462 (.002)**
2004 Republican turnout rate	-.345 (.000)***	-.477 (.001)**
2004 Other turnout rate	-.403 (.000)***	-.456 (.002)**
White-collar rate	-.242 (.008)**	-.173 (.262)
Urbanicity	-.207 (.023)*	-.228 (.137)
Population density	-.195 (.033)*	-.211 (.168)
White	.151 (.100)*	.087 (.575)
African American	-.120 (.190)	-.064 (.681)
Latino	-.194 (.034)*	-.232 (.130)
Other	-.241 (.008)**	-.197 (.199)
Child physical abuse rate	.085 (.356)	-.056 (.718)
Child sexual abuse rate	-.019 (.838)	-.084 (.588)
Child neglect rate	.271 (.003)**	.180 (.588)
Spouse abuse rate	.141 (.126)	.135 (.382)
Adult abuse rate	-.090 (.327)	.030 (.848)
Total arrest rate	.043 (.638)	.212 (.167)
Violent offense rate	-.214 (.019)*	-.060 (.701)
Property offense rate	-.129 (.159)	.082 (.598)
Part I offense rate	-.141 (.124)	.106 (.495)
Part II arrest rate	.041 (.657)	.204 (.183)
Offense against family offense rate	-.183 (.046)*	-.230 (.133)
Social capital		
Total church adherence rate	-.209 (.022)*	-.112 (.468)
2004 Total registration rate	-.012 (.896)	.043 (.781)
2004 Total turnout rate	-.356 (.000)***	-.454 (.002)**
Strain variables		
Median household income	-.454 (.000)***	-.482 (.001)**
Poverty rate	.455 (.000)***	.450 (.002)**
Unemployment rate	.393 (.000)***	.084 (.588)
High school education rate	-.417 (.000)***	-.427 (.004)**
Single parent rate	.041 (.657)	.385 (.010)**

a. No Jewish adherence in counties that use corporal punishment.

* $p < .10$. ** $p < .01$. *** $p < .001$.

Table 2
Cross-Tabulations Between Region and Prevalence
of Corporal Punishment (CP)

Region	Counties Using CP	Counties Not Using CP	Total Counties
Western	13 (40.6%)	19 (59.4%)	32
Midwestern	4 (19.0%)	17 (81.0%)	21
Northern	6 (26.1%)	17 (73.9%)	23
Central	3 (18.7%)	13 (81.3%)	16
Eastern	18 (64.3%)	10 (35.7%)	28
Total	44	76	120

$\chi^2 = 15.541$ ($p = .004$), Lambda (λ) = .098 ($p = .179$), Goodman & Kruskal tau_{yx} = .130 ($p = .004$).

sample size under study ($N = 120$), those correlations with a probability level of .10 or less were included in the multivariate models. To avoid redundancy and issues of multicollinearity, in cases where sets of variables demonstrated a high correlation with one another ($r = .70$ or above), only one variable from the set was entered into the multivariate models.

To test for regional differences in the prevalence of corporal punishment, we conducted cross-tabulations and tests for association. These results are presented in Table 2. To test for regional differences in the incidence of corporal punishment, we conducted a one-way ANOVA test and post hoc tests using the regions described above. Although there were no significant regional differences in the incidence of corporal punishment (results not presented here), there were moderate regional differences in the prevalence of corporal punishment. The proportion of counties that used corporal punishment was highest in the Western Region (40.6%) and the Eastern Region (64.3%).

The second stage of analysis involved the estimation of the two multivariate regression models alluded to above. Those variables that demonstrated a significant correlation with the prevalence of corporal punishment were included in two multivariate logistic regression models. In the first model, the independent variables that demonstrated a significant correlation with the prevalence of corporal punishment were entered in one stage. Given the findings presented in Table 2, to control for cultural and geographic regional differences, the regions in which the county was located were used to create four dummy variables (West, Midwest, Central, and North) with the Eastern region used as the reference category.

Table 3
Results From Multivariate Logistic Regression Model
Regressing Prevalence of Corporal Punishment on Variables
Demonstrating a Significant Bivariate Correlation in Table 1

Variable	Enter Method			
	B	SE	Wald	Exp(B)
Median household income	.000	.000	3.092	1.000*
Unemployment rate	.176	.127	1.918	1.192
Population density	-.009	.010	.899	.991
Rurality	.043	.020	4.808	1.044*
White-collar rate	-.036	.067	.296	.992
Violent offense rate	-.514	.491	1.093	.598
Total church adherence rate	.000	.002	.015	1.000
Catholic church adherence	-.008	.006	1.567	.992
2004 Total turnout rate	.077	.078	.983	1.081
2004 Other registration rate	-.121	.238	.259	.886
Western region	-.441	.927	.227	.643
Midwestern region	-.606	1.053	.331	.546
Northern region	-.449	.942	.227	.639
Central region	-.479	1.087	.194	.620
Constant	1.145	3.745	.094	3.144
χ^2	42.981***			
-2 Log Likelihood	114.737			
Nagelkerke R^2	.412			
Results from multivariate stepwise forward conditional logistic regression model				
Median household income	.000***	.000	21.243	1.000
Constant	4.429***	1.064	17.319	83.846
χ^2	30.532***			
-2 Log Likelihood	127.186			
Nagelkerke R^2	.307			

* $p < .10$. *** $p < .001$.

In an effort to estimate the most efficient model, we then ran a logistic model using the forward stepwise method in which only the variables with the strongest effects were retained in the model (Knoke, Bohrnstedt, & Mee, 2002). Those results are presented in Table 3. Although several variables were correlated with the prevalence of corporal punishment in the county in the original model, median household income and rurality were the only

variables to survive the stepwise logistic regression model. Although there were significant differences across the different regions of Kentucky in the prevalence of corporal punishment in Table 2, the lack of a significant effect in the regression analyses shows that factors other than regional culture, namely median household income and rural setting, better predict the use of corporal punishment.

The incidence of corporal punishment was then regressed on those independent variables that had demonstrated a statistically significant bivariate correlation ($p < .10$) with incidence of corporal punishment in Table 1 in a linear regression model. Because we analyzed variance in the predictor variables independent of whether or not the county allows corporal punishment, we included only those counties with at least one incident of corporal punishment in this analysis.

In those counties that use corporal punishment, every variable other than the rate of single-parent households in a county that was significantly correlated with the incidence of corporal punishment demonstrated multicollinearity with median household income. Thus, these variables (poverty rate, educational attainment, and 2004 voter turnout) were excluded from the linear regression model. After removing those variables, median household income and the rate of single-parent households in a county were the only variables that demonstrated a significant bivariate correlation with incidence of corporal punishment. These variables were then entered into the linear regression model using the enter method. To determine the strength of the effects of these variables on the incidence of corporal punishment, we then ran a forward stepwise regression model. After the first step in this model, only median household income remained with a significant effect. The results of these models are presented in second model in Table 4.

The first linear regression model revealed that median household income and the county single-parent household rate had a significant effect on the incidence of corporal punishment. However, median household income was the only variable to survive the forward stepwise regression model. The county single-parent household rate did not meet the criteria to be entered into the model. Thus, the regression models under study here demonstrate that median household income is the strongest predictor of the prevalence and incidence of corporal punishment in the state of Kentucky.

Discussion

Although most school districts in Kentucky have abandoned the use of corporal punishment, many continue to use it to deal with problem behavior.

Table 4
Results From Multivariate Linear Regression Model
Regressing Incidence of Corporal Punishment on Variables
Demonstrating a Significant Bivariate Correlation in Table 1

Variable	Enter Method			
	B/SE	Beta	<i>t</i>	Significance
Median household income	.000/.000	-.388	-4.593	.000***
Single-parent rate	.083/.048	.144	-1.7.2	.091*
Constant	1.659/1.227		1.353	.179
Listwise <i>N</i>	44			
<i>F</i>	13.953			
<i>R</i> ²	.193			
Results from multivariate stepwise linear regression model				
Median household income	.000/.000	-.415	-4.961	.000***
Constant	3.513/.569		6.179	.000***
Listwise <i>N</i>	44			
<i>F</i>	24.615			
<i>R</i> ²	.173			

p* < .10. **p* < .001.

Although several variables had significant bivariate correlations with the prevalence of corporal punishment, the factor that best predicted the prevalence of corporal punishment in a multivariate context was median household income. Those counties that had higher median household incomes were significantly less likely to use corporal punishment than those counties with lower median household incomes. Even when controlling for regional culture, median household income still predicted the prevalence of school corporal punishment. Also, after removing those districts that prohibit the use of corporal punishment, median household income predicted the incidence of corporal punishment. Those districts that had higher median household incomes were less likely to use corporal punishment, even though their school board policy allowed its use.

It is important to consider the multicollinearity between median household income, poverty rate, educational attainment, and total voter turnout (which was also multicollinear with Republican and Democrat turnout). Such multicollinearity and the strength of median household income's

effect on corporal punishment in the regression models supports the idea that overall socioeconomic status and social capital are associated with the use of corporal punishment.

At least two alternative explanations for the relationship between median household income and corporal punishment use in a school district exist: Messner and Rosenfeld's institutional strain theory and reproduction theory. According to Messner and Rosenfeld (2001), the strong relationship between median household income and corporal punishment use extends the theory of institutional anomie to the school setting. Those counties with the most economic strain were most likely to use corporal punishment and use it often. These districts may indeed be attempting to attain societal goals of budget efficiency and school discipline through a cost-efficient punishment. They may also be more apt to reject evidence that corporal punishment can have negative psychological effects on children and does not reduce behavior problems any better than other forms of punishment. As such, Messner and Rosenfeld's theory may also apply in how economics affects school policy; the school board, or polity of the school system, seems to act as the intermediary between educational and economic systems.

Alternatively, the finding that schools in districts with lower median household incomes use corporal punishment more often lends some support to hypotheses suggesting that school discipline procedures are reflective of broader social stratification, a finding that may be more readily explained by reproduction theory. Reproduction theorists would argue that curriculum, discipline, and other classroom procedures used in schools not only help produce the values and belief system of the larger community but also serve to reaffirm and thus sustain these larger social values (Anyon, 1980, 1981a, 1981b, 1981c; Bowles & Gintis, 1976, 2002; Willis, 1981, 2003). For example, in observing schools of different socioeconomic levels, Anyon found that schools in lower socioeconomic areas are dominated by routine, mechanical curricula, and those curricula are designed to prepare students for the same types of procedures characteristic of blue-collar occupations.

Consequently, the mechanisms through which school districts maintain classroom order may be reflective of this larger process as well. As such, school boards in low socioeconomic status, blue-collar areas may allow the use of coercive discipline procedures that demand conformity and compliance, not only as a method of reproducing the values of the lower socioeconomic community but also as a method of preparing students to accept those values and reproduce them in the next generation. The cyclical nature of this process and the lack of counter-forces make change difficult and slow.

Because we could not identify the direction of the income–school corporal punishment relationship, it is also possible that corporal punishment legitimates the stratification mentioned above and grooms children to accept not only the hard-nosed values of the working class but also their place in the working class. School corporal punishment is even more powerful because it adds to the stratification effects of corporal punishment in the home evidenced in previous research (e.g., Straus & Donnelly, 2001). Thus, some children are receiving the message from their family and their school that corporal punishment is suitable for them, but not other children.

Finally, these findings support Owen's (2005) extension of Durkheim's theory of cultural involvement to school corporal punishment. Although median household income had the highest correlation with school corporal punishment, bivariate correlations showed that median household income, poverty rate, educational attainment, and voter turnout were almost statistically inseparable. Thus, these findings support the idea that social capital may also be linked to school corporal punishment. Future research should further explore this issue.

On the other hand, the use of corporal punishment had only a weak association with those variables that would represent the culture of a county. The religious, political, labor, and geographic type of a county did not have a significant impact on its use of corporal punishment. It appears that the characteristics one would associate with a mechanical society (conservative, literalist, blue-collar, rural, racially homogenous) did not predict the use of school corporal punishment. Likewise, indicators of physical aggression (abuse and crime rates) had only a mild relationship with school corporal punishment. Thus, neither the explanation of corporal punishment as a characteristic of mechanical societies nor the explanation of corporal punishment as a result of a "culture of violence" was supported.

The evidence suggested above suggests that use of corporal punishment in school seems to create a cycle where it shapes and is shaped by (a) economic stress, (b) broader stratification, and (c) social capital. Thus, the implications of the current study focus on how to slow down or stop this cycle. In our view, this change can include forces within and outside the educational system.

First, by choosing not to use corporal punishment in school, teachers can create a ripple effect in their students that reduces not only its use in the home but also the negative social effects of its use in the home and the school. As Bowles and Gintis (2002) suggested, the school system is a unique entity in that students are exposed to individuals (teachers) who are

often unrepresentative of the parental population, and these people occupy "privileged positions" in the school system. Thus, when a teacher decides to use a form of punishment other than those to which the student has been exposed at home, some children may break out of the reproductive cycle of corporal punishment by choosing to use other forms of punishment with their own children (or, in extraordinary cases, convince their parents of the efficacy of alternative forms of punishment). These children often continue to live in (and become influential members of) the next generation in that community, perhaps occupying positions as school board members and teachers. These "privileged" positions then give these former students the power to make change in their own communities.

Second, to reduce corporal punishment in school, change must also occur outside the classroom. This includes improving broader social systems; however, it also includes improving the knowledge and discussion among educational policy makers at the school board and state level. Wauchope and Straus (1990) reviewed research that suggests that peer pressure may have the greatest influence on punishment among parents. Exposure to differing forms of punishment often prompts discussions between parents about the effectiveness and morality of the forms they use. Knowing that there are other forms of punishment that may be more effective (and that there are negative effects of corporal punishment) is often the first step in stopping its use. Theoretically, this same idea should work among policy makers as well. If school board members, superintendents, and legislators from districts that do not allow the use of corporal punishment were to have frank, informed discussions about the effectiveness, morality, and justifications of the punishments they use, these discussions might lead them to reconsider their discipline policies and implement those policies that best serve the student and the school. Most states have an association that represents school boards and one that represents superintendents; these discussions could be fostered through these organizations or even through the legislative process. Although some districts may not change their discipline policies, they will have at least been exposed to alternative punishments and given the best information possible about the ones they use. This, in turn, might influence school board policy in the future.

It is important to note that the current study is not without limitations. First and foremost, the data used in the current study regarding the prevalence and incidences of corporal punishment were derived from officially reported data from the schools. This fact may have introduced a "social desirability bias," as school administrators may underreport the incidence of corporal punishment

in their schools to the Kentucky Center for School Safety (as a police agency may underreport crime) to improve its image in the community. Second, although socioeconomic strain, social capital, and the use of corporal punishment are related, the data considered here do not allow for a causal link to be drawn between any variables in the current study. Instead, we have identified four variables (median household income, poverty rate, educational attainment, and voter turnout) that covary with one another and with the use of school corporal punishment. Establishing a linear pattern of interaction between these variables was not possible given the limitations of the data. However, demonstrating that these variables covary is a first step in determining the existence and direction of a causal link between them, or if there is a common cause for all three phenomena, and serves as a springboard for future research.

To establish a causal link between corporal punishment and any of the four variables mentioned above, future research should follow two guidelines. First, researchers should use longitudinal data to match trends in a given variable to trends in school corporal punishment. This effort may help separate the variables that were so closely related in the current study and identify any linear relationships with corporal punishment. An added benefit of longitudinal research would be its propensity to measure the effectiveness of school corporal punishment, as researchers would be able to match trends in corporal punishment use with trends in problem behavior. Second, it is important that this research be extended to the district and individual level. School districts should be analyzed because some districts in the same county differ greatly in their social and demographic characteristics and in their corporal punishment use. Also, district-level data may provide more direct measures of the concepts used in the current study.

Finally, although research at the aggregate level may identify strong predictors of a county or district's use of corporal punishment, counties and school districts are not living, breathing entities. Superintendents and school board members who establish district policy, however, are. Asking these policy makers why they use, do not use, or have stopped using corporal punishment in their district would help determine the predictors of corporal punishment as a policy at the individual level.

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