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A Systematic Review of the Impact of Juvenile Curfew Laws on Public Health and Justice Outcomes

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Abstract

Context

Automobile crashes cause more than 800,000 youth injuries and deaths each year. Other youth suffer the consequences from being either a perpetrator or victim of a crime. One type of law that has an effect on youth behavior is juvenile curfew laws. These laws restrict the times that youth may occupy public places or streets. We systematically reviewed studies evaluating the effectiveness of these laws to address the question: Can juvenile curfew laws be used to improve youth public health and juvenile justice outcomes?

Evidence acquisition

In 2013, we used a standardized set of keywords to search 24 databases for studies that evaluated effectiveness outcome measures of juvenile curfew laws. After applying the exclusion criteria and removing duplicate studies, 14 studies of juvenile curfews remained.

Evidence synthesis

Of the six studies examining the effectiveness of juvenile curfew laws on adverse youth health outcomes, five found a positive impact. Of the eight studies examining the effectiveness of curfew laws on juvenile crime and victimization, four found a positive impact.

Conclusions

The studies that found that juvenile curfew laws were effective at reducing adverse youth health outcomes (e.g., trauma transports), juvenile crime, and victimization were of higher quality (e.g., stronger methodologic approaches) than those finding no effects. However, given the limited number of studies and concerns with quality, we conclude that more research is needed before conclusions can be drawn about the effectiveness of juvenile curfew laws.

Context

Although more typically examined for their effects on juvenile crime, juvenile curfew laws may also prevent adverse health outcomes (e.g., injuries and fatalities) among youth. Thus, curfew laws may be considered a primary prevention strategy, as they relate to youth health outcomes. Such laws seek to provide general protection to youth and adults by restricting the times that children of certain ages may occupy public places or streets. The number of juvenile curfew laws enacted in the U.S. has varied since the enactment of the first one in Omaha, Nebraska in 1880, depending on current events and popular support or lack thereof.¹⁻³ By 2009, 84% of cities with populations of more than 180,000 had enacted juvenile curfews.^{2,3}

Cities and localities across the U.S. have enacted juvenile curfew laws to reduce juvenile crime and victimization rates⁴—two issues that impose societal costs. In 2008, youth aged 10–17 years accounted for 16% of all violent crime arrests, 26% of all property crime arrests, and around one in ten (or 1,740) of the murder victims.⁵ Although we cannot calculate an exact national cost for juvenile crime, California alone spent more than \$25 billion in 2003–2004 to fight juvenile crime, including the costs for police, prosecution, courts, probation, and incarceration.⁶ In the most recent and oft-cited systematic review of juvenile curfew laws, Adams⁷ reviewed ten studies examining the effect of juvenile curfew laws on crime and victimization rates and concluded there is insufficient evidence that these laws work in anything other than very specific circumstances.

Juvenile curfew laws potentially impact other adverse events faced by youth. In 2010, 2,726 youth aged <18 years were killed and another 808,721 were injured in transportation-related incidents.⁸ Youth drivers aged 16–19 years are three times more likely to be in a fatal crash than drivers aged ≥20 years, per mile driven.⁹ Many factors can effect the likelihood of these adverse events among youth, including age, gender, state license laws, and possible alcohol consumption. Given that one factor may be juvenile curfew laws, this article cast a wider

net and examined the effectiveness of these laws across a wide range of outcomes. Specifically, we addressed the question: Can juvenile curfew laws be used to improve youth public health and juvenile justice outcomes?

Evidence Acquisition

We conducted a systematic review of the research on juvenile curfew laws in 2013 using the Campbell Collaboration¹⁰ guidelines and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses 2009 checklist.¹¹ We decided a priori to include only those studies that:

1. examined the effect of a nighttime juvenile curfew law in the U.S. that restricted all youth from being out in public (and thus excluded studies that examined specific driving curfews as these laws only restricted youth from driving and not from being out in public);
2. made or allowed for statistical comparisons of outcome variables either before and after curfew implementation or between localities with curfews versus those without; and
3. were published in a peer-reviewed journal.

We expanded upon the search developed by Wilson et al.¹² consisting of two sets of keywords. The first set listed terms related to juvenile curfew policies while the second set measured study outcomes (e.g., traffic fatalities or arrest rates) (Table 1). These two sets of keywords were combined with a Boolean AND. We searched numerous databases (Table 2), and initially located 1,482 studies.

Table 1

[Table 1](#)

Search Terms Employed

Table 2

[Table 2](#)

Databases Searched

After applying the exclusion criteria and removing duplicate studies, 14 studies of juvenile curfews remained. Of these 14, Adams⁷ had previously reviewed six. We coded each of these 14 studies for characteristics such as design methods used (e.g., pre–post comparison), unit of analysis (e.g., 54 cities with juvenile curfews, 11 without), primary analytic method (e.g., least squared regression), the number of examined relations, and the type of outcomes. This article divides those 14 studies into two groups each assessing a different impact of juvenile curfew laws:

1. youth health outcomes or
2. crime or victimization rates.

Both the study outcomes and types of analytic methods used varied by article, prohibiting a meta-analysis of effects.

Evidence Synthesis

Table 3 shows the distribution of the 14 studies by their findings and methodologic approach. Within each category, the studies are listed by the strength of their methodologic approach as determined by reviewing their research designs and analytic methods. If a study conducted analyses that fell into more than one category, it was listed under the strongest analytic method used.

Table 3

[Table 3](#)

Numbers of Studies by Methodology and Basic Findings

Studies That Assessed the Effect of Juvenile Curfews on Youth Health Outcomes

Five of six studies in this category concluded that juvenile curfew laws reduced adverse youth health outcomes. Both Levy¹³ and Preusser and colleagues¹⁴ used multivariate regression analyses to examine the effect of juvenile curfew laws on driver fatalities using data obtained from the Fatality Analysis Reporting System of the National Highway Traffic Safety Administration. Levy¹³ used data on traffic fatalities for 47 states (1975–1984), and found that the imposition of a curfew for 15–17-year-olds reduced single-vehicle fatality rates by about 25% and multivehicle driver fatality rates by about 28%. However, as Levy did not differentiate between those states with general juvenile curfew laws versus those that only had specific driving curfews, we cannot ascertain how much of the reduction in traffic fatalities is due to the former set of laws rather than the latter. Other covariates included: fatalities of 25–29-year-olds, driving education requirements, and age to obtain a learner's permit.

Preusser et al.¹⁴ examined the effect of general juvenile curfew laws in 124 cities—47 that had curfews for youths aged ≤ 17 years and 77 that did not (1984–1990). Using log-linear regression models estimated for two time periods (daytime, 6am to 8:59pm; night-time, 9pm to 5:59am), Preusser and colleagues concluded that juvenile curfew ordinances were associated with 23% fewer night-time highway fatalities for 13–17-year-olds. No covariates were included in the models.

In another study, Preusser et al.¹⁵ compared three cities with juvenile curfews for youth aged < 18 years (Detroit, MI; Cleveland, OH; and Columbus, OH) to one city without a juvenile curfew (Cincinnati, OH). The states provided data on all participants involved in automobile crashes in Michigan and Ohio (1985–1987). Preusser and colleagues calculated that youth in Columbus experienced significantly fewer motor vehicle crash injuries than youth in Cincinnati during curfew hours (13–15-year-olds, 3.1% vs 7.2%, $p < 0.01$; 16–17-year-olds, 7.0% vs 14.1%, $p < 0.01$). Younger youth in Cleveland and older youth in Detroit experienced significantly fewer motor vehicle crash injuries than youth of the same ages in Cincinnati during curfew hours (13–15-year-olds, 9.0% vs 13.4%, $p < 0.01$; 16–17-year-olds, 17% vs 21.2%, $p < 0.01$). Using a dependent variable of the natural log of the number of injured persons, Preusser et al. used a general linear model to conclude that the “number of injured persons was 23% lower... for those ages and those hours in those cities when the curfew was in effect.”^{15(p395)} This corresponds to 93 fewer highway injuries per year across the three cities. No covariates were examined.

Weiss and colleagues¹⁶ used data obtained from the New Orleans Health Department (May/June 1993 and May/June 1994) and chi-square tests to conduct before and after comparisons of the impact of the New Orleans juvenile curfew law on pediatric out-of-hospital emergency medical system (EMS) responses. Although the total number of transports did not significantly differ pre- and post-curfew, they did find a significant decrease in pediatric overall and trauma transports (370 vs 406–447 and 189 vs 234–250, respectively) post-curfew. No covariates were examined.

Shatz et al.¹⁷ evaluated a juvenile curfew law in Dade County, Florida using juvenile trauma data from the state-approved trauma center in Dade County (1994–1997). There were no differences in age or mechanisms of injury between curfew and non-curfew juvenile trauma admissions, and the monthly admissions of total trauma cases were consistent over the 4 years studied. However, juvenile trauma cases during curfew hours significantly decreased from 9.5 incidents per month during pre-curfew years to 7.0 incidents per month during post-curfew years. No covariates were examined.

Moscovitz and colleagues¹⁸ used data on EMS transports obtained from the Washington, DC Fire and Police Departments and two local hospitals for the 3 months immediately post-curfew enactment (1995) and for a corresponding 3-month period pre-curfew enactment (1994). They found no significant difference in the number of curfew-aged youth killed by homicide or transported for assaults or motor vehicle collisions before versus after the implementation of the curfew. No covariates were examined. Moscovitz et al. acknowledged that their study directly contradicted results reached by Weiss and colleagues,¹⁶ but differentiated their study because they

were able to isolate assault injuries and examine them separately from motor vehicle crash injuries; they also included a comparison to an older cohort.

In summary, six studies examined whether juvenile curfew laws effectively reduced youth health outcomes. Five of those found that juvenile curfew laws effectively reduced the number of juvenile traffic injuries and fatalities, the number of pediatric transports, and the number of juvenile trauma cases, whereas the sixth found no effect. Of the four studies with stronger analytic approaches, each found that juvenile curfews effectively reduced adverse youth health outcomes. Of these four studies, three used pooled cross-sectional time series data and one used a pre–post comparison. The length of the panel of data varied from 3 to 10 years. Two of the studies also compared areas with juvenile curfews to areas without.

However, four of five studies lacked covariates. Additionally, all of these studies have potential endogeneity issues (e.g., unaccounted for relations between variables). Reverse causality occurs when the association found between cities with curfew laws and their crime rates is due to crime rates influencing the enactment of the curfew and not because the curfew decreased the cities' crime rates. Omitted variable bias occurs when the association found between cities with curfew laws and their crime rates is instead due to a third omitted variable.

Studies That Assessed the Effect of Juvenile Curfews on Crime or Victimization

Four of eight studies concluded that juvenile curfew laws reduced crime and victimization. McDowall et al.¹⁹ used panel data (1976–1996) from the Federal Bureau of Investigation (FBI) Uniform Crime Reporting and the National Center for Health Statistics for 57 major cities in the U.S. (42 with curfew laws, 15 without) and ten cities that each encompassed an entire county (referred to as “city–counties”) to examine ten different types of crimes. Using a pooled cross-section and time-series design and an ordinary least squares regression with a dependent variable measuring juvenile arrest or victimization rates and an independent variable measuring the presence or absence of a curfew law, McDowall and colleagues found that juvenile arrests for burglaries, larcenies, and simple assaults showed statistically significant decreases (each around 14%) after cities had implemented or revised existing juvenile curfew laws. Among city–counties, juvenile arrests for larcenies decreased by around 21%. No covariates were examined.

Interestingly, McDowall et al.¹⁹ also found a 36% increase in juvenile arrests for homicides in the city–counties post-curfew enactment. Cities often adopted juvenile curfew statutes as part of a larger effort to reduce juvenile crime and that effort may potentially have led to increased police presence, which in turn may have led to more arrests for homicides. Arrest rates as the dependent variable (versus crime rates) can be problematic, as they may be affected by factors unrelated to the implementation of the juvenile curfew law and may not fully capture how well a city enforces its law.

Using data on 4,688 individuals (most aged <18 years) from the National Longitudinal Survey of Youth (1997), Gius²⁰ estimated a probit regression model with dependent variables including whether the person had committed a criminal act or been arrested. Other covariates included gender, race, school enrollment, gross household income, urban environment, and peers' use of drugs, cigarettes, or alcohol. Gius found that although juvenile curfew laws did not reduce the level of self-reported criminal activity, they did reduce the total number of youth arrests by 44.3%. However, the data on criminal activity were self-reported. It is also unclear whether Gius removed people aged >18 years from the study. Therefore, we cannot tell whether the youth responding to the questions were subject to the juvenile curfew if one existed in their city.

Kline²¹ used arrest data from the FBI's Unified Crime Reporting files (1984–2002) to examine arrest behavior of various age groups within a city before and after curfew enactment compared with cities with no curfews for 65 cities across the U.S. (54 that had enacted juvenile curfew laws and 11 that had not). Kline estimated an ordinary least squares model, with a dependent variable of the log of total arrests. No covariates were examined. When he plotted the coefficients from the regressions, he found that “arrests drop by nearly 15% in the year after [curfew] enactment and then appear to revert slowly after that to a new steady-state level 10% below baseline.”^{21(p14)} Using a regression analysis of the 3 years post-curfew enactment, Kline found decreases in

overall crime (11%, $p < 0.05$), violent crimes (10%, $p < 0.10$), property crimes (11%, $p < 0.05$), and severe violent crimes (13%, $p < 0.10$). Over the 6 years post-enactment, Kline also found reductions in overall crime (11%, $p < 0.05$), violent crimes (7%, $p < 0.10$), property crimes (12%, $p < 0.05$), and severe violent crimes (13%, $p < 0.10$).

Fritsch and colleagues²³ used data from the Dallas Police Department (1995–1997) to examine the impact of the Dallas Anti-Gang Initiative—which included aggressive curfew enforcement in five targeted areas—on gang-related violence using a difference-in-means analytic method comparing these areas with four control areas. No covariates were examined. After the aggressive curfew enforcement began, gang-related violence in three target areas had larger reductions (e.g., ranging from 64% to 73%) than in the control areas. Fritsch et al. postulated that the two other target areas did not have significant decreases in gang-related violence because police officers in those areas focused more on saturation patrol than curfew enforcement. Although the researchers found that the number of arrests for criminal mischief or weapons offenses—crimes more often committed by juveniles—decreased significantly, increased officer presence did not lead to a decrease in offenses reported to the police. Police used many strategies and we cannot tease out the effect due solely to aggressive curfew enforcement. Moreover, this citywide curfew law was “strictly enforced whenever suspected gang members were encountered.”^{23(p124)} Arrest rates may have differed if this curfew had been aggressively enforced with all juveniles aged < 17 years.

Four studies found that juvenile curfew laws had no effect on juvenile crime and victimization. Using victim and juvenile arrest reports from the New Orleans Police Department (June 1993 to May 1995), Reynolds et al.²² estimated regressions for five dependent variables: property and violent victimizations of juveniles and people of all ages, and juvenile arrests. They included enforcement hours as an independent variable. They found that the enactment of the juvenile curfew law did not significantly reduce victimization, juvenile victimization, or juvenile arrests during curfew hours. Although property victimization during curfew hours for all ages and for juveniles increased significantly after the curfew was enacted, juvenile property victimization decreased again after enforcement was reduced. Reynolds and colleagues concluded that the “changes in victimization during curfew hours are abrupt and mainly temporary.”^{22(p219)} Owing to the limited time period that was studied, we cannot know whether property victimizations during curfew hours had been increasing for years and were thus unrelated to the enactment of a juvenile curfew. This seems likely given that property victimizations also increased during non-curfew hours.

Sutphen and Ford²⁴ used data from the city police department in a U.S. city (1992–1998) to conduct a difference-in-means analysis and found no statistically significant differences in juvenile arrest rates overall or by category of crime when comparing means pre- and post-curfew enactment. They did find that African Americans were over-represented in the population receiving curfew violations and that more violations occurred in the warm weather months from May to August. In a quarter of the cases, youth were “hanging out” in public places and no other crimes, weapons, adults, or previous curfew violations were implicated. Other variables examined included offender characteristics, situational factors (e.g., presence of adults or alcohol), and additional filed charges.

The Washington, DC curfew was enacted (1995, B1), overturned by the court (1996, A2), and then reinstated (1999, B2). This allowed Cole²⁵ to use monthly juvenile arrests (October 1993 through September 2001) in Washington, DC to compare the pre-curfew enactment (A1) with B1 and A2 with B2. Neither the visual inspection of the data, autocorrelation of each phase, nor the two-SD band approach and *t*-test revealed any significant effect of the juvenile curfew law on the reduction of juvenile crime arrests during the A1B1 period. During the A2B2 period, the visual inspection suggested a reduction in juvenile arrests when the curfew laws were not in effect (A2) and stabilization in the number of arrests when the curfew law was reinstated (B2). Cole concluded that overall the D.C. curfew law did not reduce juvenile arrests. No covariates were examined.

Males and Macallair²⁶ used data from the California Department of Justice’s Law Enforcement Information Center (1978–1997) on youth aged 10–17 years to conduct six sets of correlation analyses. Greater curfew enforcement statewide was associated with significantly higher absolute rates of misdemeanor arrest rates for whites, Hispanics, Asians, and all youth in aggregate; with higher rates of violent crime for Asian youth; and

with higher rates of all types of arrests (except for curfew violations) for white and Asian youth. Among the 12 most populous counties in California, higher rates of juvenile curfew enforcement were not associated with lower levels of youth crime rates; reported rates of violent homicide, property, and arson offenses; or violent death rates among youth. Only one county had an association between stronger curfew enforcement and lower youth overall crime or youth homicide rates. Males and Macallair found no significant results when they compared crime rates for 21 major cities in Los Angeles and Orange Counties (1990–1996). Lastly, they examined San Francisco and San Jose in the mid-1990s. San Francisco had vigorously enforced its juvenile curfew and then nearly abandoned it between 1995 and 1997 but did not experience an increase in youth crime or juvenile violent deaths. San Jose only began to enforce its juvenile curfew between 1995 and 1997 but did not experience a decrease in youth crime or juvenile violent deaths. The researchers concluded that curfew enforcement “has no effect on crime, youth crime, or youth safety no matter what the time period, jurisdiction, or type of crime measure studied.”^{26(p17)} No covariates were examined.

This study only used correlational data and compared localities with curfew enforcement (defined as places that had issued citations for curfew violations) to places with less enforcement. Additionally, we cannot tell how the localities enforced these laws because the study used curfew enforcement rather than crime rates.

Overall, four of the eight studies found that juvenile curfews effectively reduced juvenile crime and victimization with three using multivariate regressions and one using a difference in means or chi-squared distribution to analyze the data. Three used pre–post comparisons with the length of the panel of data varying from 6 to 20 years, whereas one study used time series data from 2 years. Only one study compared an area with a curfew with an area without. Three studies found that juvenile curfew laws did not effectively reduce juvenile crime and victimization with one using a multivariate regression and two using difference-in-means or chi-squared distributions. The final study used correlations to examine the effect of enforcement, finding no effect.

The majority of these eight studies had weak methodologic approaches. Only three of eight studies used nationally representative data. Five of eight studies included no covariates, and, again, endogeneity is a concern.

Discussion

This systematic review examined recent studies and extended the analyses conducted by Adams⁷ to examine the effect of juvenile curfew laws on a broader range of youth outcomes. Given the limited quality and number of studies, we concluded that more rigorous research is required before we can draw conclusions regarding the effectiveness of juvenile curfew laws as a primary prevention strategy.

Only six studies used multivariate regressions and less than a third used national representative samples. Additionally, the majority of studies did not examine any covariates other than the presence of a curfew law. One would expect that other variables (e.g., zero tolerance laws, measures to reduce gang activity, poverty rates) could have an effect on public health and juvenile justice outcomes. These studies have two potential endogeneity problems: reverse causality and omitted-variable bias.

Half of these studies^{13,19–22,24–26} included overall crime, arrest, or traffic injury or fatality rates and did not limit their outcome variables to crimes or arrests that happened specifically during curfew hours. This over-inclusion of data likely attenuated their findings and may have affected their overall conclusions. However, it is important to note that this methodologic flaw occurred in both studies that found impacts of juvenile curfew laws and those that did not.

Further research needs to be conducted employing stronger analytic approaches. For example, future research could employ randomized designs or designs with stronger quasi-experimental approaches (e.g., difference-in-difference models). Studies should draw on nationally representative databases rather than focusing on single or few sites. Curfew laws are just one strategy employed by cities and may interact with other population characteristics, so researchers need to consider inclusion of covariates. Possible covariates may include measures of gang activity, poverty, family stability, and school drop out rates, among others. This is especially

important for studies comparing cities with and without curfew laws, as the existence of a curfew law is just one of the many differences that may exist between these cities. Lastly, the times and ages restricted by juvenile curfew laws vary depending on the city or locality enacting it. Researchers could examine the characteristics of the juvenile curfew laws to determine if these differences moderate the effectiveness of the laws.

There is also a large difference between enacting a juvenile curfew law and actually enforcing it. Unfortunately, it is difficult to accurately measure curfew enforcement and few quantitative variables of enforcement are readily accessible. Therefore, although it is understandable that the majority of these studies did not include any enforcement variable, it may have affected the study findings. Developing strategies to assess the level of enforcement would also strengthen the research related to juvenile curfew laws.

Conclusions

The available evidence suggests that juvenile curfew laws appear to have a broad impact by reducing or preventing health-related and criminal outcomes of youth. However, the number and quality of the studies available limit these conclusions. More rigorous research is required before conclusions can be drawn as to the potential of juvenile curfew laws to serve as a primary prevention strategy to enhance youth outcomes.

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Footnotes

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