



Close only counts in alcohol and violence: Controlling violence near late-night alcohol establishments using a routine activities approach



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ARTICLE INFO

Keywords:

Alcohol
Crime attractors
Crime generators
Risk reduction
Super-controller

ABSTRACT

Purpose: Assess whether 5 a.m. bars and nightclubs in Little Rock, AR were in fact serving to attract or generate violence in and around their premises and what impacts a new ordinance, requiring increased guardianship, served its intended purpose to reduce the incidence of violence.

Methods: Using violent crime data from the Little Rock Police, a series of Risk Terrain Models were utilized to examine whether the influence that proximity to a risk factor (5 a.m. alcohol establishments) has on violent crime changes after the new ordinance is established.

Results: Support for the ordinance was found for yearlong risk assessment, in that requiring 5 am alcohol establishments in Little Rock to employ a minimum of two law enforcement officers in and around the establishment acted as effective strategies to alter the guardianship and reduced the relative risk of violent crime in close proximity to these establishments.

Conclusion: The establishments were serving to attract/generate violent crime in and around their vicinity; however, support was found for the effectiveness risk reduction through increasing levels of guardianship and thus, reducing relative risk for violent crime. Furthermore, depending on the temporal aggregation, results varied on the potential riskiness associated with the 5 a.m. alcohol establishments.

1. Introduction

Prior research has established a robust relationship between alcohol, crime, and place (Graham & Homel, 2008; Hakim & Rengert, 1981; Ratcliffe, 2012). One explanation for this relationship is attributable to the ability of on-site alcohol establishments to generate/attract crime in and around their locations (see Brantingham & Brantingham, 1995). From this interpretation, establishments serving alcohol could generate 'suitable' targets following the intoxication of their patrons, in turn attracting offenders. A second possible explanation is that alcohol consumption could serve to motivate patrons to act on perceived criminal opportunities ordinarily avoided while sober, thus increasing the likelihood offending. In either case, on-site alcohol establishments provide a place for targets and potential offenders to converge. Stemming from routine activities theory (Cohen & Felson, 1979), the prevalence of crime then depends upon the level of control and guardianship in and around these locations as intoxicated individuals can be both, offenders and victims.

Guardianship is often discussed in relation to the role of formal

guardians such as police and how they disrupt the convergence of victims and offenders in time and space. Research indicates that a majority of alcohol-involved incidents requiring police intervention (67%) occur between the hours of 8:00 pm and 4:00 am (Rand, Sabol, Sinclair, & Snyder, 2010). During these later hours, there are changes in routine activities and patron frequency at bars or on-site alcohol establishments, necessitating further effective guardianship to prevent crime. If the level of guardianship at on-site alcohol establishments impacts the level of violence in and around these locations, attention must be given to place managers operating at these establishments, including bouncers/security, servers, bartenders, managers, among other staff, that take on the role of guardians at these establishments and regulate acceptable non-violent behaviors (Madensen & Eck, 2008; Zawisza, Burgason, & Moak, 2012). Due to variation in the effectiveness of place managers, guardianship is unlikely to be equal across alcohol establishments; thus, resulting in risky facilities, or a subset of establishments which account for a disproportionate amount of the crime occurring in or around on-site alcohol establishments (Clarke & Eck, 2007).

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In addition to place managers, super-controllers are also theorized to play an important role in the control of crime (see Sampson & Eck, 2008). Super-controllers, such as a city or other governing body, represent a higher level of institutional organization which can influence the level of crime in and around certain facilities by organizing and incentivizing effective guardianship through management and the allocation of resources. Thus, while place managers can influence the immediate behaviors accepted at their locations (i.e. violent behaviors), super-controllers provide incentive for effective guardianship through institutional means (Sampson, Eck, & Dunham, 2010). For example, bars and alcohol establishments are typically regulated by an alcohol beverage and control department. Because these agencies control and have influence on which establishments are awarded permits to sell alcohol, on or off-site, they are able to apply pressure on place managers to exercise control and limit issues occurring within their establishments, resulting in a safer community.

Place managers and super controllers come together in the case of Little Rock, AR, which recently expressed concern over place-based violence and other crime concentrated around a select few bars and nightclubs that were allowed to operate and serve alcohol until 5:00 a.m. as a result of being grandfathered in under a more contemporary law which requires all such establishments to close by 2:00 a.m. Faced with opposition, the city commission allowed these bars, nightclubs, and a strip club to maintain their usual hours of operation as long as they abided by prescribed enhanced security requirements, including enhanced place management, but would be forced to close at the same hours as everyone else if incidents continued to occur. Although at the time it was never demonstrated that violence and other crimes concentrated around these establishments, this ordinance can be conceptualized in the context of routine activities theory as a super-controller incentivizing effective place management designated to increase safety and security at the corresponding establishments. The current study examines the potential risk associated with the 5:00 a.m. bars and nightclubs before and after the passing of a new city ordinance designed to enhance guardianship in Little Rock, Arkansas.

2. Literature review

2.1. The bar/violence nexus

Given the consistent association found between alcohol and violence (Parker & Auerhahn, 1998), it is no surprise that much research has found that bars and nightclubs disproportionately contribute to the occurrence of violence, in addition to its distribution in space and time (Bernasco & Block, 2011; Brantingham & Brantingham, 1995; Homel & Tomsen, 1993; Livingston, 2011). In addition to the direct effect of alcohol on aggressive behavior, studies have examined the contextual impact of alcohol establishments on neighborhood violence (Cook & Moore, 1993; Costanza, Bankston, & Shihadeh, 2001; Lipton & Gruenewald, 2002; Roncek & Pravatiner, 1989; Scribner, MacKinnon, & Dwyer, 1995), as well as the impact of establishment characteristics on place-based violence (Graham, Osgood, Wells, & Stockwell, 2006; Quigley, Leonard, & Collins, 2003). For example, bars have been linked to heightened index crimes in the cities of Cleveland and San Diego (Roncek & Bell, 1981; Roncek & Maier, 1991; Roncek & Pravatiner, 1989), and violent crime rates in Miami and Baton Rouge, Louisiana (Costanza et al., 2001; Nielsen & Martinez, 2003). More generally, alcohol has been found to correlate with homicide rates in communities through sales figures, availability, and consumption patterns (Parker, 1995; Parker & Cartmill, 1998).

Analogous to the observation that crime is not uniformly distributed across an area, the prevalence of violent incidents is not uniformly distributed across bars. Much like the case of chronic offenders, where a minority of offenders account for a disproportionate number of offenses, there are some bars and nightclubs that more than account

for their share of violent incidents. For example, a recent study of bars in Philadelphia found that of the 1282 bars confirmed to be in operation, only 149 bars had incidents of nighttime violence officially recorded by law enforcement within their immediate premises (Ratcliffe, 2012). Furthermore, while this number increases when incidents that occur in the areas immediately surrounding the bar are considered, many of the bars studied still did not have a violent incident recorded within 85 ft of their locations (Ratcliffe, 2012). Similarly, Madensen and Eck (2008) report that violence tends to cluster around a small number of bars within the city of Cincinnati, Ohio, where one fifth of the 199 bars included in the study accounted for 75% of all violent incidents documented by police, suggesting that not only are bars and clubs potential crime generators/attractors, but some more so than others. Studies have also found that the density of bars in a neighborhood to be linked to increased levels of serious assaults (Lipton & Gruenewald, 2002; Scribner et al., 1995) and other violent index crimes (Cook & Moore, 1993).

Numerous explanations have been offered to account for this clustering of violence in and around these establishments. The most common of these explanations focuses on the patrons of these establishments, arguing that patrons possess certain traits or qualities that make violence more likely to occur following intoxication (Homel, Tomsen, & Thommeny, 1992; Lang, Stockwell, Rydon, & Lockwood, 1995; Martin, Clifford, & Clapper, 1992). For instance, bars that have a higher percentage of young men were more likely to violence within their establishments (Homel et al., 1992; Lang et al., 1995; Martin et al., 1992; Quigley et al., 2003). Further, bars and nightclubs where patrons were perceived by staff as less agreeable and conscientious, more impulsive, heavier drinkers, and more alcohol dependent, reported higher levels of violent activity (Quigley et al., 2003). It should also be noted that these findings are consistent with theories concerning age and self-control offered by Gottfredson and Hirschi (Gottfredson & Hirschi, 1990; Hirschi & Gottfredson, 1983). Last, the level of intoxication of patrons has also been directly linked to levels of violence (Graham et al., 2006).

While the characteristics of individuals patronizing bars does appear to have an effect on the levels of violence seen in the establishment, characteristics of bars themselves have also been linked to the levels of violence on premises (Graham & Homel, 1997; Graham et al., 2006). Influencing characteristics ranging from how noisy an establishment is to whether patrons are served several drinks at closing (Graham et al., 2006) have been found to be positive predictors of aggressive behavior. The levels of smoke, cleanliness, light, temperature, and ventilation are all physical characteristics that have been found to have impacts on the frequency and severity of aggression in on-site alcohol establishments (Graham & Homel, 1997; Graham et al., 2006; Quigley et al., 2003). Bars and nightclubs that center on dancing and competitive games such as pool have also been linked to aggression (Graham & Wells, 2001; Graham et al., 2006). Furthermore, while Quigley et al. (2003) did find that violent and heavy drinking patrons did frequent bars more often than others without these tendencies, characteristics of the establishment was found to mediate the relationship between patronage and violence. They concluded that bars themselves and their characteristics were the best predictors of bar violence.

Another institutional characteristic that has been shown to have a relationship with violence is hours of operation. The research on the effects of changing service hours of taverns and bars is limited, while the majority of the examinations that have been conducted are international in nature (Vingilis, Mcleod, Stoduto, Seeley, & Mann, 2007). Despite this, this research is still informative. For example, Duailibi et al. (2007) found that restricting on-premise alcohol sales after 11:00 p.m. significantly reduced the number of homicides in the Brazilian city of Diadema. By contrast, the city of Perth, Australia allowed public houses to extend their hours of operation by obtaining a special permit. Examining trends in assaults before and after the introduction of this permitting process, Chikritzhs and Stockwell

(2002) found a significant increase in the number of assaults taking place in and around public houses which were permitted extended hours, while no change was observed for those public houses that did not change their hours. They infer that this relationship was largely accounted for by higher volumes of high alcohol content beer, wine, and distilled spirits purchased at late trading bars, in turn increasing the numbers of patrons at high levels of intoxication.

In North America, Vingilis, McLeod, Mann, and Seeley (2008) found mixed results for the impact of extending the duration of the sale of alcohol on assault arrests in two cities. Specifically, they found that for the overall time period of extension (11:00 p.m. to 4:00 a.m.) there were no impacts on assaults in either city. However, for one target city (Windsor, Ontario) there was an increase in assaults but only for Thursday through Saturday, from 2:00 a.m. to 3:00 a.m. The other city under investigation, London, Ontario, showed a significant decrease in arrests from Thursday through Saturday between 1:00 a.m. and 2:00 a.m. Additionally, Chamlin and Scott (2014) examined the effect of two city ordinances regarding alcohol sales on calls to police in San Marcos, TX. More specifically, they examined how a two-year old city ordinance of extending the closing time of taverns and bars from midnight to 2:00 a.m., and a one year increased patrol procedure effected calls to police for verbal and physical disturbances, DUI's, and public intoxication. They found that after two years of extended closing times, all of their calls for service variables were higher than prior to the city ordinance. However, they also identified a slight buffering effect associated with increased patrol during the one-year period with respect to physical disturbances, highlighting the role of increased guardianship as a possible mitigating factor.

Overall, the available research points to some bars and nightclubs as disproportionately risky places, where violence tends to concentrate. Among the factors found to be directly associated with the occurrence of violence, hours of operations is perhaps the most viable vector for control, as it is more difficult to alter the character of patrons and the atmosphere of the bar itself. Underscoring this point, Stockwell and Chikritzhs (2009) review the extant literature on changes in hours of operation among bars and other on-premises alcohol establishments. They conclude that the more methodologically rigorous studies tend to demonstrate ameliorative effects on violence and negative outcomes when business hours are constrained, and detrimental outcomes when hours are extended. Additionally, they state that further well-controlled studies are required to confirm that conclusion. However, short of alteration, late hours of operation offer a signal as to where resources may be best utilized to prevent crime, leading to a focus on guardianship in around these areas.

2.2. Current study

In addition to the conventional formulation of guardianship found in routine activities theory (Cohen & Felson, 1979), Eck (1994) expands the crime triangle to also include place managers and other controllers. Effective place managers can regulate the behaviors accepted in and around their locations, while insufficient place management can allow for acceptable unwanted behaviors (i.e. crime; see Madensen & Eck, 2008). In relation to bars and places that serve alcohol, there are a multitude of employees that can be considered place managers, influencing the behaviors/norms accepted in and around that establishment (bartenders, bouncers/security, hostess, manager, servers).

Based on guardianship expectations, the current study seeks to understand first if the late night bars and nightclubs were truly risky. Operating under the assumption that these establishments do in fact produce crime and are risky during late night hours, the city of Little Rock, in its role as super-controller, established a new ordinance aimed at enhancing the safety and security in and around 5:00 a.m. alcohol establishments to reduce violent crime. Therefore, the second goal of this study extends the application of risk terrain modeling to policy evaluation by testing whether this new ordinance produced the

intended impact by comparing the relative risk before and after it went into effect.

The city of Little Rock has had historic problems with violent crime. While the situation has improved, violence remains a safety concern as Little Rock has remained in the top 10 most violent cities with a population over 100 k in recent years (Sauter, Sauter, Stebbins, & Frohlich, 2016). Despite its history, it is not clear as to whether the city council was motivated by a real or perceived problem of violence when it sought to re-evaluate the ordinance which allowed a select few bars and clubs to remain open until 5:00 a.m. However, given the late hours of operation, these bars were popular destinations for both employees in the service industry who were getting off work at 2:00 a.m. as well as the patrons from other establishments who were not yet ready to return home for the night. Thus, these bars and nightclubs served to attract a potentially riskier clientele in the after-hours, given the relationship between inebriation and violence, which would seemingly validate the concerns of the city council. Still, systemic study has not demonstrated this to be the case.

2.3. Little Rock ordinance

In general, the state of Arkansas requires a permit for all establishments that wish to sell alcohol on-premises. Included among the various permits were two that allowed private clubs to sell alcohol to its members, denoted class A and class B. The operative difference between these two permits had to do with the hours that the permit holder could operate. While the overall number of hours was the same, class A permits were restricted to cease sales by 2:00 a.m., while class B could maintain the sale of alcohol until 5:00 a.m.

In the early 2000s, when the city of Little Rock sought to revise the local ordinances regulating the sale of alcohol, the class B private club permit was effectively eliminated, but current permit holders were allowed to maintain operations as well as their hours of operation, and were thus grandfathered in. Currently, there is only a handful class B Private Clubs in operation. It should be noted that although these establishments are referred to as “private clubs” in the language of the city ordinance, this designation is to a large degree superficial in nature as the bars and clubs operating under these licenses allow anyone to become a member.

In 2014, the city of Little Rock again sought to revise the rules concerning private clubs, specifically seeking to create a uniform closing time of 2:00 a.m. for all establishments serving alcohol for consumption on premises, citing a declining taxable revenue and commenting that “basic public safety statistics show we'd be better served by an earlier closing time” (Hardy, 2014). This proposed measure proved controversial, and was ultimately defeated, but not without other compromises aimed at promoting public safety in and around these clubs by increasing security, thus promoting capable guardianship.

Specifically, Article IV Section 4–141 Part (a) of Ordinance NO. 20,940 states that any class B private club that operates past 12:00 midnight on Friday and Saturday nights, and on state-recognized holidays and during special events, must retain a minimum number of two (2) individuals, who are certified by the State of Arkansas to act as a law enforcement officer, to be present on and around the exterior premises of the club from 12:00 midnight until closing on those above-designated nights for the purpose of providing security and ensuring the safety of the employees and patrons of the club. Part (c) continues that in addition to the two individuals, any such club shall also employ an adequate number of individuals to work as security on the inside of the club. Additionally, Section 4–142 Part (d) includes that all class B clubs shall install and/or maintain adequate exterior lighting and video surveillance equipment, on property owned or legally controlled by it and shall consult with the chief of police in determining adequate lighting and video surveillance, and signage to prohibit loitering.

In addition to increased security, the ordinance also provides

penalties for failing to comply with its mandates, in addition to penalties for continued criminal and violent incidents taking places in or around their premises. In particular, Section 4–142 Part (a) gives the chief of police the authority to intervene in the event that law violations continue to occur. The ordinance grants the chief the power to suspend and eventually revoke class B status for up to two months for the initial violation, and for at least two months for a second violation within a year if violations are unable to be controlled. However, rather than instituting a 2:00 a.m. closing time for violation, the ordinance requires they close earlier than 5:00 a.m., but no earlier than 3:00 a.m. In other words, the private club itself is, to a degree, held responsible for frequent unlawful activity.

3. Data and methods

The focus of the current study is on violent crime, particularly which occurs near the bars and clubs that hold a permit permitting alcohol sales until 5:00 a.m. in Little Rock, Arkansas. Permit data were obtained from Arkansas Beverage Control (ABC). Of the licensees, only seven establishments were regularly open (i.e. every weekend). The analyses, therefore, focus on these seven establishments to determine their potential influence on violent crime pre- and post-ordinance. Violent crime data from 2013 through 2015, the most recent available, were acquired through Little Rock Police Department. The reported violent crimes included: aggravated assault, robbery, rape, and homicide. Given the temporal element of this, the data were limited to crimes reported between 12:00 a.m.–5:00 a.m., Saturday and Sunday mornings, as the ordinance specifically sought to control crime between these hours.¹

3.1. Analytical steps

The ordinance went into effect November of 2014. To assess the influence alcohol establishments potentially had on violent crime, RTMDx (Caplan & Kennedy, 2013) will be utilized. RTMDx is a spatial diagnostic tool often utilized to determine relationships between features of the landscape (i.e. bars, grocery stores, liquor stores) and crime. This process usually includes multiple features of the environment to determine if there is an elevated risk based on multiple types of different generators/attractors collocating in space. However, given that the focus is on the operative role of these particular establishments, the application of the RTM procedure is limited to estimating the risk associated with a single factor, the late night 5:00 a.m. bars and nightclubs.

The software automates many of the analytical steps, however, requires parameters to be set.² RTMDx allows for testing of whether the presence (proximity) of a risk factor influences crime or if the clustering of a certain type of risk factor in space influences crime (density). Based on the average nearest neighbor analysis, and only examining seven establishments, proximity to the 5:00 a.m. establishments was tested. That is, given that the seven establishments do not cluster in Little Rock, designating only proximity will decrease the model run time. The argument could be made that being within close proximity to one of these establishments, creates a riskier environment for violent crime.

Next, the spatial influence of the alcohol establishments was examined up to 4-blocks at half-block increments, creating 8 variables (216 ft., 432 ft., 648 ft., and so on). These 8 variables were tested to determine which operationalization, if any, was significantly related to

the occurrence of violent crime in Little Rock. Output from RTMDx indicated the 'best' operationalization of the risk factor, spatial influence, and the relative risk value. For example, if RTMDx identifies that the presence of the 5:00 a.m. alcohol establishments influence violent crime in the surrounding 3-blocks and have a relative risk value (RRV) of 8, this suggests that being within 3-blocks of a 5:00 a.m. alcohol establishment is 8 times riskier than being at places beyond 3-blocks of their locations. It is entirely possible that RTMDx finds a null model, signaling that the 5:00 a.m. alcohol establishments are not significantly related to the occurrence of violent crime.

The analysis is focused on three different temporal periods to explore the potential influence the ordinance change had on the riskiness associated with the alcohol establishments. Multiple time periods were explored to take into account issues surrounding the Modifiable Temporal Unit Problem (MTUP) discussed by Cheng and Adepeju (2014). In short, depending on the temporal period selected, the resulting clustering or patterning could be influenced by aggregate, segmentation, or boundary the ordinance change while based on routine activities, the movement of people in Fall/Winter months differs from Spring/Summer, so results could vary for these specific months (i.e. null models). Next, we extended the temporal period to six months, May through October 2014, and compared the findings to the same months of 2015, controlling for seasonally variability by selecting the same months. Extending the temporal period provides another approach to understanding the risk associated the 5 am alcohol establishments.

Finally, a yearlong post-ordinance model was compared to pre-ordinance findings. Specifically, violent crime data were limited from November 2013 through October 2014 for the pre-ordinance RTM and November 2014 through October 2015 for the post-ordinance RTM. The yearlong examination accounts for the seasonal effects of crime patterning and clustering. Based on the ordinance change, we would expect a decrease in relative risk associated with the 5 am alcohol establishments in the post-ordinance RTM based on the changes made to mitigate risk at the locations. If the pre-ordinance RTM indicates the establishments are significantly related to violent crime, the post-ordinance RTM can assist in identifying if the establishments are no longer significantly related to violent crime (i.e. null model) or if the risk decreased (e.g. RRV decreases from 100 to 45).

4. Results

In 2013, there were 199 violent crimes that occurred during our temporal restrictions based on hour and day. There was about a 22% decrease in violent crimes in 2014 ($n = 154$) from 2013. As a reminder, the ordinance went into effect in November of 2014. The decrease of violent crime in 2014 was further followed by a decrease in violent crime in 2015 ($n = 119$). There was a 40% reduction in violent crime from 2013 to 2015 and a 23% reduction from 2014 to 2015. While these decreases provide descriptive information surrounding the nature of violent crime from 12:00 a.m. and 5:00 a.m. on Saturday and Sunday mornings, the descriptives do not provide context about the risk of violent crime, or the extent to which it is associated with the 5:00 a.m. alcohol establishments.

Our first analysis focused on the risk for violent crime associated with the 5:00 a.m. alcohol establishments in the two months before and after the ordinance was established. RTMs were run for September–October 2014 to develop an understanding of the risk associated with the establishments leading to the ordinance change and compared to November–December to identify change. Neither RTM returned results, indicating that the presence of these establishments was unassociated with violent crime in the two months before and after the ordinance. Supplemental RTMs were run for the same months of 2013 and 2015, resulting in four additional RTMs. No model indicated a correlation. The violent crime n ranged from 20 to 40 across the six RTMs run to identify if risk was associated with the 5:00 a.m. alcohol

¹ For violent crime that had a multiple hour window of occurrence, if the start time occurred between 00:00–05:00am, the incident was included in the analysis. There were a total of 482 violent crimes based on those stipulations, of which, 472 were geocoded (97.9%).

² The study area was set to Little Rock with a cell size of 216ft (mean block-length = 432ft). We are also concerned with the potential aggravating influence the alcohol establishments have on crime.

establishments. Keep in mind the crime data were limited to late night hours and based on the months being analyzed, this could be related to the change in activity patterns during fall and winter months.

Before estimating yearlong models, RTMs that examined the six-month period before and after the ordinance was established for 2014 and 2015 were estimated. Specifically, RTMs were estimated for violent crimes occurring between May and October for the respective years. The 2014 RTM for violent crime occurring between May and October indicating that being with a half-block (216 ft.) of a 5 a.m. alcohol establishment was about 474 times riskier compared to places beyond a half-block.³ With the shortest possible spatial influence, this suggests that violent crime was occurring in or adjacent to the establishments (e.g. parking lot, street, sidewalk, etc.). By comparison, the 2015 results indicated that the risk slightly increased, to being 478 more risky, while the spatial influence remained half a block. This was less than a 1% increase in risk from 2014 to 2015 while the spatial influence remained the same. Furthermore, an additional 2013 RTM was run on the same time period, however, a null model was found (i.e. no correlation). This result could be attributable to change in public opinion in 2014 leading up to the change in the ordinance, since the 2013 analysis did not return a significant model. Change in reporting by citizens and police strategies could contribute to the change in risk for 2014 and 2015. Although a decrease in risk from 2014 to 2015 was expected, this temporal frame is still only a snapshot versus a yearlong model which accounts for seasonal variation.

The yearlong RTMs provide an understanding of the social/public build-up surrounding 5:00 a.m. alcohol establishments while taking into account a greater amount of crime over the course of a year. The pre-ordinance RTM was constructed from violent crime occurring from November of 2013 through October 2014. Results indicate that 5:00 a.m. alcohol establishments were significantly related to violent crime with a RRV of about 533. When increasing the temporal period by 6 months from the previous model, the RRV increased from 474 to 533, supporting the supposition on the part of the city council that 5:00 a.m. alcohol establishments were actually risky places for violent crime. To determine if the ordinance had any effect on the associated risk, a post-ordinance yearlong model from November 2014 through October 2015 was estimated for comparison. The post-ordinance model resulted in a null model, indicating that over the year following the ordinance, the 5:00 a.m. alcohol establishments were not significantly related to violent crime. While the 6-month post-ordinance RTM did indicate significance, when doubling the temporal frame for a full-year model, thus increasing the number of violent crimes, and altering the spatial patterning of violent crime, the 5:00 a.m. alcohol establishments were no longer significantly related to violent crime occurrence. A longer time frame allows for the potential effects of the ordinance change to be examined and for the increased level of guardianship to disrupt the convergence of offenders and targets at these locations throughout Little Rock.

5. Discussion and conclusion

Efforts to reduce violence and other types of crime and disorder stemming from the on-premises sale of alcohol have typically focused on restricting the hours during which alcohol can be sold or in some cases extending said hours (Bouffard, Bergeron, & Bouffard, 2007; Humphreys, Eisner, & Wiebe, 2013; Stockwell & Chikritzhs, 2009). Although assessments of these approaches have produced mixed results, their implementation is carried out at the expense of the proprietors of these businesses, as well as the majority of patrons who are law-abiding. Addressing their own concerns over alcohol-related crimes occurring in and around late-night Class B clubs, the city of Little Rock instead sought to increase capable guardianship over these spaces by

transferring part of the onus of crime control outside of their establishments onto the owners and operators of the respective bars/clubs. By leveraging the natural pre/post-design that followed implementation, this study sought to determine if the requirements mandated by this new ordinance had any appreciable effect on the commission and distribution of violent crime around these clubs.

Like prior research (Graham & Homel, 2008; Hakim & Rengert, 1981; Ratcliffe, 2012) which has identified a relationship between the spatial availability of alcohol establishments and violent crime, the analyses presented here confirms that proximity to these establishments during late-night weekend hours was significantly related to the violent incidents in both 2014, before the ordinance change, and in the six-month 2015 post-ordinance model. Further, when the temporal period was extended for to a year, the 5:00 a.m. alcohol establishments remained risky for 2014, while in 2015 they were not found to be significantly related to violent crime. The version of the ordinance ultimately enacted is consistent with routine activities theory, and its extensions by Eck (1994) and Sampson and Eck (2008) which included the concept of place managers and super-controllers with idea that they impact the opportunity of crime, through ineffective managing and/or being absent from the place.

Following passage, the results of this study find initial support for the ordinance. Meaning, that the statutory requirement that 5:00 a.m. alcohol establishments in Little Rock to employ a minimum of two law enforcement officers in and around the establishment and maintain adequate exterior lighting, video surveillance, and signage to prohibit loitering (the latter items were not assessed) acted as effective strategies to alter the guardianship at these establishments, reducing the 'suitability' of targets. However, it should be noted that there is no guarantee that these effects will persist into the future, and longer-term evaluations are necessary.

Although further replication is required to determine the generalizability to other localities, the results of this study suggest the utility of increased guardianship as a crime control strategy around bars and clubs. By comparison, Little Rock is a relatively small city, and has fewer than a dozen bars and clubs which operate into the early morning hours, creating a situation where a portion of the late-night alcohol enthusiasts who wish to continue imbibing are funneling toward these locations. This can defuse some issues that occur around closing time at other bars, while also making control of these areas more manageable due to this consolidation into a number of limited locations, which may not be possible in larger cities, or cities with a large number of similar establishments. Therefore, it is plausible that such an approach may only be effective in similarly situated cities, however further research is necessary.

These results are also consistent with prevailing routine activities theory and police as a form of formal capable guardians. More generally, this study highlights the use of RTM as both a means of risk identification and as a policy evaluation tool on change in risk before and after intervention (Kennedy, Caplan, & Piza, 2011). Law enforcement is often tasked with crime reduction strategies, but as this study demonstrates, this responsibility can be approached from multiple agencies. The city, as super-controller, can approach place managers of other alcohol establishments to become more involved in creating a safer environment while policy-makers can target establishments to increase/encourage accountability of management for risk reduction purposes. Combining the crime reduction effort of the police, with the risk reduction efforts on the part of establishments owners allows for a dual focus of both crime and risk reduction.

As a super-controller, the city of Little Rock passed much of the responsibility for the control of crime occurring outside of their bars and clubs, onto the owners themselves by threatening to revoke their competitive advantage over other bars and clubs. While a theoretically sound approach (Sampson & Eck, 2008), the specific statutory requirement that the retained security guards must be certified by the State of Arkansas to enforce the law is worthy of comment. Contrastingly, law

³ The total area constitutes less than 1% of the land area in Little Rock.

enforcement officers are probably better able to de-escalate a volatile situation compared to the average security guard given their training. They are also able to utilize resources not ordinarily accessible to private security, and may carry more authority as well. On the other hand, the fact that it is the responsibility of private business to retain officers as security creates a clear conflict of interest, and the possibility of corruption which bears further consideration as public policy. At the same time, recent high-profile cases involving police misuse of force might lead some to question whether private security might be better able to maintain order in these circumstances. Though it would appear unlikely at first, this is of course an empirical question.

The current study is not without its limitations. First, the crime data obtained for the study was officially reported data.⁴ Based on the hours being examined and the nature of the crime, there is the potential for crime to be underreported. However, while it is possible, there is little cause to believe that underreporting on the part of the general public differentially occurred over the years of data examined here. That is, there is little reason to believe that effectiveness of the ordinance is attributable to underreporting following its implementation. On the other hand, it cannot be ruled out that the law enforcement officers serving as security, as dictated by the ordinance, were not themselves handling informally the incidents that continued to occur unaltered (i.e. officer discretion). In other words, while official statistics were lower, the number and type of incidents were not necessarily changing, many could be handled informally. While previous research has alluded to bouncers and security guards handling incidents informally (Costanza et al., 2001), due to the serious nature of the offenses examined (homicide, robbery, aggravated assault, and forcible rape) it is unlikely that law enforcement officers would do the same. In any case, future studies examining ordinance changes could be made more robust by attempting to gather a baseline observation of residents' views, including data on calls for service. This is especially true if future research includes violations outside the realm of violence, such as property damage, disturbance, and other petty offenses. Additionally, with the focus on the reported crime and knowing off-duty officers were present at the establishments, we did not measure or account for changes to the surrounding environment (i.e. CPTED) aimed at creating safer environments or changes in policing tactics from year to year. This data were not readily available, however, the ordinance outlined prevention strategies to create safer environments. We expect CPTED and policing tactics to influence the riskiness of the bars and nightclubs and future research should attempt to capture these contextual variables.

Evident in our study is the influence the MTUP (see Cheng & Adepeju, 2014) had on our findings. Based on the temporal aggregate, 2 to 12 months, the findings changed dramatically. In the 2-month pre-post RTMs, no significant models were returned for 2014 or in supplemental analyses on 2013 and 2015. Expanding the temporal aggregation to 6 months then 12 months resulted in significant models, allowing for comparisons. With crime data, there are seasonal patterns, indicating that findings should change depending on the aggregation period. This is why we extended our temporal period up to a year, allowing for a more general risk assessment of the 5 am alcohol establishments. This is not to say the 5 a.m. alcohol establishments were not risky throughout 2015, because they were in shorter aggregate periods (6 months), but over the course of an entire year, they are not significantly related to violent crime occurring between 12:00 and 5:00 a.m. on the weekends. Stemming from our findings, the city could develop/amend the ordinance to take into account change in risk based on the time of the year, requiring more or less additional security to offset the change in routine activities. Previous research (Berthelot, Brown, Drawve, & Burgason, 2015) focused on the same city has demonstrated that other types of late-night alcohol distributors can serve as crime generators/attractors (CGAs). However, the present

analysis focused exclusively on the area immediately surrounding the criterion businesses, overlooking the possibility that nearby establishments altered routines of potential offenders and other associated locality-based risk factors. This is a concern to the degree that these nearby establishments operated at variable hours before and after the passage and implementation of the ordinance. Unfortunately, the hours of operation of other potential CGAs is difficult to establish, so the possibility that these other CGAs contributed to the reduction in risk cannot be ruled out. Alternatively, the benefits of increased security and street presence brought on by the new ordinance are potentially being diffused to these surrounding businesses, thus altering risk in complex ways. Future research is necessary to disentangle these relationships.

All places may pose a risk of violent crime but, because of the level of guardianship and the behaviors accepted at certain establishments/facilities, some places are riskier than others. The current study gave weight to the concerns of some of the council members and citizens in that the 5 a.m. alcohol establishments were in fact serving to attract and/or generate violent crime in and around their vicinity making them risky places for violent crime. As the evolution of routine activities has demonstrated (Eck, 1994), effective place managers can serve to significantly reduce risk. Support for the effectiveness of a super-controller (city passing an ordinance) can have on risk reduction by increasing the level of guardianship was supported in the current study.

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⁴ In 2015, LRPD updated their RMS.

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