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# **Multistate Study of Convenience Store Robberies**

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# Multistate Study of Convenience Store Robberies

## Introduction

Homicide ranks as one of the leading types of occupational injury in the United States, accounting for over 1100 worker deaths in the most recent year. In the period 1980 - 1989, the rate of employee homicide was reported as 8.0 per 100,000 with 75 percent of these homicides resulting from gunshots. After taxicabs, convenience stores have the highest prevalence of workplace homicide (NIOSH, 1993) and also have very high rates of robbery. This has prompted leaders of the convenience store industry, public health officials, and criminal justice practitioners to search for ways to reduce these rates and enhance the safety of convenience store workers.<sup>1</sup>

A variety of reasons make convenience stores prone to robbery, which is frequently associated with injuries that can result in death. These stores are easily accessible and are located in metropolitan areas. They have available cash on hand, which makes them attractive to robbers who need a quick source of funds. In addition, prior research has documented that certain convenience stores are more subject to robbery and subsequent injury than others, which is evidence that even within this high-risk category of business, some stores are more vulnerable than others (Amandus, et al., 1994). In Maryland, for example, 63 percent of all convenience store robberies occurred in three counties (Amandus, et al., 1994), which suggests that certain convenience stores are targeted more frequently than others. This fact provides a basis for applying tested

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<sup>1</sup>For purposes of this paper, convenience store is defined as an establishment of 5000 square feet or less, operating with extended hours, and selling a variety of commodities including dairy products.

crime control strategies.<sup>2</sup> Unlike other high-risk occupations (for example, taxicab driver), convenience stores are static establishments, which may enable certain crime control strategies employed by police, the stores,<sup>3</sup> or through public ordinances<sup>4</sup> to have a deterrent effect on robbery.

This paper describes a research project conducted in five states to provide more detailed information on convenience store robberies and to identify ways in which these robberies might be reduced. The paper that follows consists of three major sections: first, a description of prior literature on convenience store robberies; second, the methodology employed in the multisite study; and finally, findings and conclusions of the research.

## **Prior Literature**

### *Experimental and Quasi-Experimental Research*

One of the earliest studies that set the foundation for subsequent studies of convenience stores was conducted by Crow and Bull (1975) in conjunction with the National Institute of Law Enforcement and Criminal Justice (NILECJ) and the Southland Corporation, then the largest owner of western 7-11 convenience stores. Crow and Bull surveyed 349 convicted armed robbers and asked them to identify store

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<sup>2</sup>See Sherman, L.W. (1992) "Attacking Crime: Police and Crime Control." In M. Tonry & N. Morris (Eds.), Modern Policing. Chicago: University of Chicago Press.

<sup>3</sup>The Southland Corporation now requires its stores to practice certain robbery prevention strategies and trains its employees in robbery prevention techniques.

<sup>4</sup>The City of Gainesville, Florida, passed an ordinance in 1987 requiring convenience stores to change certain practices.

characteristics that could influence their decision to rob a store. The robbers' responses were then used to develop a ranking of stores according to their attractiveness to robbery. Based on this scale, Crow and Bull developed several robbery prevention measures. The prevention measures consisted of: strategic placing of signs announcing a low amount of cash on hand in the store; moving cash drop boxes to make them more conspicuous; improving lighting in the parking lot; keeping the store clean; enhancing employee alertness; and greeting each person who came in.

To test these findings, Crow and Bull selected a total of 120 stores in Southern California for an experimental study. The sample was matched by stratifying the stores by previous robbery frequencies. The stores were also stratified by attractiveness to the convicted robbers surveyed. Thus, the design attempted to closely match the stores on as many characteristics as possible. Then, following a classical experimental design (Kerlinger, 1986), 60 stores were randomly chosen for treatment and 60 were chosen as the control (Crow and Bull, 1975). Physical changes to the stores consisted of installing four new types of warning sign as well as taking down all posters covering windows. Training was given to 527 employees and owners, which required them to watch a videotape on robbery prevention measures. However, there was an 80 percent employee turnover rate during the study period, making inferences about the effectiveness of the training problematic.

The experimental period lasted eight months, from January 1 to August 31, 1975. A total of 97 robberies occurred in both groups, 57 to the control stores and 40 to the experimental stores. This difference is statistically significant at the  $p < .02$  level. Thus,

Crow and Bull conclude that a "promising new strategy for reducing armed robbery has been established" (Crow and Bull, 1975). Furthermore, the effect of these prevention measures was most significant in stores that previously had been robbed frequently. Yet their study did not indicate any success through training in reducing the average dollar loss. This is not surprising considering the high employee turnover rate. Crow and Bull suggest that the lack of success in decreasing the amount of dollar loss may be due to a lack of compliance by some stores in following the cash handling procedures.

In a study similar to Crow and Bull's (1975) attempt to test crime prevention through environmental design (CPTED) strategies, Crow and Erickson (1984) conducted a field study using four sites to test the deterrent effects of other environmental changes, in particular, cameras and silent alarms. The two sites chosen for the experiment were New Orleans and Columbus. The control cities were Baton Rouge and Dayton.

Using a quasi-experimental study design, Crow and Erickson employed a one-year test period, from October 1, 1980 to September 30, 1981. To test for long-range effects, the study was continued for an additional year in Columbus, Ohio. Approximately 30 stores in each city participated. Both groups were under the same management team so it was assumed that both groups received the same amount of training in crime prevention techniques. This was stressed so that a separate measure of the effect of cameras and silent alarms could be detected. Cameras were removed from control stores that previously had them and put into experimental stores. Also, the experiment was announced publicly to make potential robbers aware of the changes.

The results of the experiment showed that there were no statistically significant

differences between experimental and control stores. In fact, robberies decreased in all sites except Baton Rouge where the increase was too minimal to be considered significant (Crow and Erickson, 1984). These results suggest that increased reliance on cameras as opposed to other robbery prevention techniques is not effective. However, there are problems with drawing inferences from this experiment since randomization was not used.

### *Nonexperimental Florida Studies*

In addition to the research that used experimental and quasi-experimental designs (Crow and Bull, 1975; Crow and Erickson, 1984; respectively), other studies have used exploratory research to estimate the causal effects of environmental design on robbery prevention. An early study conducted by Duffala (1976) examined 39 convenience stores in Tallahassee and their number of robberies for a two-year period (January 1, 1973 - April 30, 1975). Specifically, Duffala used a survey instrument to score various environmental factors to examine whether convenience stores' vulnerability to armed robbery is related to specific environmental characteristics.

Duffala proposed four hypotheses: a convenience store is more vulnerable to robbery when (1) located within two blocks of a major transportation route; (2) located on street(s) with only a light amount of vehicular traffic; (3) located in a residential and/or vacant land use area; (4) located in an area of fewer surrounding commercial activities. As is evident from these hypotheses, Duffala was concerned with the location of a store being a determinant of robbery. In particular, the belief was that a major

transportation route would provide easier escape. Similarly, light amounts of traffic, vacant land use area, and few surrounding activities would make it less likely for an offender to be identified by witnesses passing by (Duffala, 1976).

Yet using a chi-square difference between cells, Duffala found no relationship to be significant by itself. When he further divided the cells, he found that the higher the number of commercial activities, the lower the incidence of robbery, which was significant at the .04 level. However, the relatively small size of Duffala's sample makes any further differences statistically insignificant. Duffala did find that when all four hypotheses were combined together "in interaction with one another," there was a significant relationship with the number of robberies (Duffala, 1976). He suggests that this research shows that a public policy that takes land use into account can have an effect on crime prevention. (There are, however, problems with the merits of this inference which will be discussed later.)

Following a sudden increase in convenience store robberies in Gainesville, Florida, in the spring of 1985 (Goldstein, 1990), the Gainesville Police Department contracted several researchers to conduct an analysis of the robberies (White, 1986). The first researcher (White, 1986) surveyed 72 convenience stores in Gainesville as well as Alachua County. Specifically, White looked at the stores' lighting, visual obstructions to employees, and the number of clerks working. White concluded that the environmental characteristics of the stores were not significant predictors of robbery. However, he did conclude that the number of clerks on duty had the strongest relationship to robbery (White, 1986).

The Gainesville Police also employed the services of Richard Swanson to examine the problem. Swanson (1986) conducted a three-part analysis of the convenience store robbery problem. Swanson first interviewed 65 convenience store robbers incarcerated in Florida and asked them to rank in order the most desirable characteristics in choosing a store to rob. The five most desirable characteristics the robbers ranked were: (1) remote area (45%); (2) no customers (32%); (3) one clerk on duty (32%); (4) easy access/get away (25%); (5) lots of cash (25%). As suggested by Bentham's (1979) utility theory, Swanson's research suggests that convenience store robbers weigh the costs and benefits before committing a robbery. Swanson then constructed a list of 32 store characteristics and correlated them with robbery data for 40 Gainesville stores.

From these findings, Swanson concluded that the number of clerks had the largest deterrent effect, displaying a correlation coefficient of  $-.39$  significant at the  $.01$  level. Specifically, Swanson concluded that having more than two clerks on duty appeared to have a deterrent effect on robbery. In addition, the use of cameras and drop safes, as well as the presence of other nearby 24-hour businesses and closing stores at midnight were also correlated with lower robbery rates (Swanson, 1986).

The number of clerks being a significant factor in both studies is not surprising when 92 percent of robberies occurred when a single clerk was on duty (see Clifton and Callahan, 1987; Sherman, 1991). Based on the findings of White (1986) and Swanson (1986), the Gainesville Police proposed an ordinance to the Gainesville City Council in 1986 that would require convenience stores to: limit the amount of cash on hand; have a security safe; install parking lot lighting; remove visual obstructions; and have security

cameras (Clifton and Callahan, 1987). The recommendation was passed on July 14, 1986 (Clifton and Callahan, 1987). However, the robbery rate did not decline in the following months, so an addition was made to the ordinance requiring convenience stores to either employ two or more clerks between the hours of 8 p.m. and 4 a.m. or stay closed (Hunter and Jeffery, 1992). This extra clerk addition to the original ordinance was implemented in April 1987 (Hunter and Jeffery, 1992) and in the next six months police reported that the number of convenience store robberies dropped by 65 percent (Sherman, 1991). Several scholars (Goldstein, 1990; Hunter and Jeffery, 1992) state that this is an example of successful problem-oriented policing through the use of environmental design strategies.

In relation to these Gainesville studies, Hunter (1988) conducted a study of the entire state of Florida to determine if the application of CPTED strategies was applicable on a statewide basis. Previously, studies had either looked at only a single convenience store chain (Crow and Bull, 1975; Crow and Erickson, 1984) or a single municipality (Duffala, 1976; Swanson, 1986; White, 1986). From records provided by the Florida Department of Business Regulation, Hunter randomly selected a sample of 200 stores (Hunter, 1988). After dropping 74 stores due to their closing during the two-year study period and 19 for various other reasons, a final sample of 107 stores was selected (Hunter, 1988).

Using multivariate techniques, Hunter examined the influences of the number of clerks, land use, and amount of traffic on the robbery rate (Hunter, 1988). Multiple regression analysis showed that concealed access, gas pumps, and limiting the amount of

cash were significantly related to the robbery rate. Contrary to theory and prior evidence, cash handling procedures (limiting cash on hand) were found to have a negative effect. Although these findings are contrary to other studies (Crow and Bull, 1975), Hunter suggests that some stores may rely too heavily on cash handling policies and neglect other prevention techniques. The most consistent factor showing a relationship was the existence of a concealed access point, making escape less visible (Hunter, 1988).

However, at the district level, environmental factors varied in direction of effect as well as level of significance (Hunter, 1988). These findings suggest that target hardening practices, such as the number of clerks working, may vary in their deterrent effort between locations. Moreover, Hunter suggests that the effects of environmental factors on robbery may interact with other factors at the local level. These findings are similar to those on community policing that suggest that various strategies are effective depending on factors present in the area of deployment.

Continuing in the tradition of environmental design studies in Florida, D'Allesio and Stolzenberg (1990) conducted a study examining the effects of the physical and social factors of a convenience store on its robbery rate. The D'Allesio and Stolzenberg study departs from the other Florida studies (White, 1986; Swanson, 1986; Hunter, 1988) by including the sociodemographic characteristics of the areas surrounding the stores studied. Their study examined 30 randomly selected stores in Leon County, Florida, using a survey to measure several environmental characteristics. These characteristics included: the size of the parking lot; hours of operation; whether gas service was

available; and location of cash register. The sociodemographic characteristics of the area measured were created from 1980 census tract data using a maximum likelihood factor extraction. These sociodemographic factors were combined with the environmental characteristics as the independent variables explaining the robbery rate across all stores over the three-year period from 1981 to 1984.

D'Allesio and Stolzenberg, using a probability and weighted least squares analysis, found that the hours of operation, the size of a store's parking lot, and whether a store provided gas service were the only environmental characteristics significantly related to robbery when controlling for surrounding neighborhood demographics. Specifically, if a store operated for more hours, it was more likely to be robbed. This is consistent with the literature that shows that most robberies occur at night (Clifton and Callahan, 1987; Albence, 1994). In contrast, stores with larger parking lots experienced fewer robberies. In addition, stores that provided gas service were less likely to have robberies. These results, however, were not as strong since they were only significant at the  $p < .10$  level. The only sociodemographic factor that was related to higher robbery rates, and significant at the  $p < .10$  level, was the transience of the surrounding area. These results are consistent with both utility and routine activity theories in relation to environmental design. Stores that provide gas service and large parking lots tend to have more business traffic and therefore provide fewer unguarded opportunities for a robber to commit an act without being seen by outside witnesses. In contrast, stores in areas where people are generally transient have fewer guardians of the community who could identify a robber.

### *Other Nonexperimental Studies*

The hypotheses of situational crime prevention through environmental design were also studied by La Vigne (1991), who studied convenience store crimes in Austin, Texas. La Vigne's study consisted of a random sample of 48 stores selected from business permit records. Based on other studies' findings that most robberies occur during evening hours, La Vigne conducted observations on the sample of stores between 6:30 p.m. and midnight.

The survey instrument consisted of both external and internal characteristics. The internal characteristics used were: the level of store lighting; the presence of video games and ATMs; the number of exits and entrances; the number of parabolic mirrors; the number of clerks on duty; and the percentage of windows covered by posters (La Vigne, 1991). The external survey analyzed the lighting at the entrance and parking lot, the amount of litter,<sup>5</sup> the number of gas pumps, and whether the store had a prepay policy (La Vigne, 1991). After completing her field test, La Vigne added several other variables to the survey. She also conducted interviews with store clerks as part of the survey.

Calls for service was the dependent variable in La Vigne's analysis. In the category of robbery calls, using a log linear regression model La Vigne found that the volume of robbery calls was most influenced by outside visibility, inside visibility, internal surveillance, and attractive nuisances. Specifically, outside visibility variables, such as

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<sup>5</sup>Wilson and Kelling (1982) suggest that neighborhoods with excessive litter and other forms of social disorganization attract criminal activity. This is also mentioned in Crow and Bull's (1975) robbery study.

covered windows and a visible cash register, increased robberies by 30 and 63 percent, respectively. The regression results for internal surveillance showed that an increase in one parabolic mirror increased robbery by 21 percent, suggesting that mirrors alone may not deter robbers. The category of attractive nuisances found that stores with a greater number of loiterer customers were more likely to be robbed. Stores whose employees participated in a training program experienced fewer robberies than convenience stores that provided no training (La Vigne, 1991). With the exception of the regression results for the type of register, La Vigne's conclusions are not based on a strict adherence to the .05 level for determining statistical significance and inferring a relationship exists. However, in policy research such as this, the .10 level is often used for drawing inferences and for determining whether a relationship exists (Sherman, 1992). At the .10 level, the regression results of the various categories, such as social factors and inside visibility, indicate that the height of the register, its visibility from the parking lot, free coffee to cops, the number of loiterers, the number of pay phone with call-in numbers, single beers sold, percentage of nonwhite residents, median income, and percentage below the poverty level were all statistically significant (La Vigne, 1991). Contrary to other research (Swanson, 1986; White, 1986; Hunter, 1988), the Austin study found no relationship between the number of clerks on duty and the volume of robberies (La Vigne, 1991).

There were a total of 77 independent variables included when one adds all the log linear regression tests together. Thus, out of all the independent variables, approximately nine percent were statistically significant. Even at the .10 level, many of

these variables could have occurred by chance, or been due to spurious causes. For example, free coffee given to cops may be spuriously related to convenience stores in higher income neighborhoods where robberies are less likely to occur.

The relationship between environmental design and robbery rates in another area of Texas was studied by Calder and Bauer (1992) in San Antonio. To test the hypothesis that environmental factors explain robbery, crime data for the years 1986 to 1988 were regressed on 18 different measures of environmental security calculated from site surveys of 189 San Antonio convenience stores.

The multiple regression analysis showed that six independent variables were significantly related to the robbery rates, only two of which were in the expected direction. The six variables were: the number of employees on duty; location of the checkout counter; the number of surrounding buildings; the height of the shelving; street speed limit; and proximity to other buildings (i.e., freestanding vs. part of a shopping strip or complex). The two variables in the hypothesized direction implied that stores were less likely to be robbed if located on a corner strip or shopping complex and more than one employee was on duty. The other four significantly related variables were in the opposite direction than expected. For example, the study found that stores located on streets with speed limits greater than 35 miles per hour had fewer robberies. This was in contrast to the expected easy access/escape route hypothesis. Second, Calder and Bauer found that stores surrounded by other buildings were more likely to be robbed. This is contrary to the theory that more surrounding buildings would increase potential witnesses and reduce robberies. Third, in their sample, stores in which the

checkout/sales counter was located in the center of the store had more robberies than those in which the counter was located to the immediate left or right of the entrance. This is also contrary to other findings (Hunter, 1988) that suggest the location of the counter and cash register in the center of the store reduces the risk of robbery. Finally, the study found that stores with low product shelving had more robberies than those with high product shelving that would tend to block visibility from the outside of the store (Calder and Bauer, 1992).

More recently, an examination of environmental factors relating to robberies was conducted by Matthew Albence (1994) in Carbondale, Illinois. The Albence study examined convenience store robberies from January 1, 1986 to October 31, 1993. During the period of study, only 27 robberies occurred. Using a situational analysis, Albence attempted to compare convenience store robberies to robberies of other commercial establishments during the same time frame. Albence used a chi-square test to examine whether differences between convenience store robbery characteristics and those of other establishments were significant. Four environmental factors were also examined: (1) external environment; (2) internal environment; (3) security measures; (4) and operational procedures. However, Albence did not employ any tests of statistical significance to examine any potential differences between these factors.

Similar to other studies (Crow and Erickson, 1984), Albence found that the majority (74%) of robberies in Carbondale occurred during late evening and early morning hours. Albence also found through a situational analysis that convenience store robberies do not differ significantly from other business robberies. In addition, 96.3

percent of robberies occurred with only one clerk on duty (Albence, 1994). Yet, this study did not have any comparison stores so inferences are very difficult to make and accept. From his factor description, Albence looked at several environmental characteristics and their relationships to robberies. However, no statistical tests were performed to indicate whether any of these factors were significantly related to robbery or controlled for other confounding factors. Albence still suggests that the most important factors are the number of clerks on duty and hours of operation. Furthermore, he suggests that these findings are only valid if the socioeconomic conditions of the convenience store's neighborhood are taken into account.

#### *Summary of Prior Research Findings*

The studies presented here suggest a causal connection between some environmental influences and convenience store robbery. As a result of this research, some store chains (Crow and Bull, 1975) and municipalities (Clifton and Callahan, 1987) have instituted specific robbery prevention strategies. Specifically, having two or more clerks has received much research support (Swanson, 1986; White, 1986; Hunter, 1988; Calder and Bauer, 1992; Albence, 1994) and consequently raised the most debate from the convenience store industry (see Chambers, 1988). Good cash handling policies that emphasize limiting the amount of cash, posting signs, and using drop safes have received mixed support from the literature. (Crow and Bull, 1975; Swanson, 1986; Hunter, 1988). Research has also shown limiting concealed access or escape can prevent convenience store robberies. For example, providing a sufficient amount of light both internally and

externally, removing signs from windows, and placing cash handling in clear view of the outside seem to deter robberies (Crow and Bull, 1975; White, 1986; Hunter, 1988; La Vigne, 1991).

In contrast, the deterrent effects of security devices, such as alarms and video cameras, have received mixed support. Crow and Bull (1975) found that stores employing such measures were less likely to be robbed. These findings were supported by Swanson (1986) and Hunter (1988). Yet research conducted by Crow and Erickson (1984) specifically testing the effects of cameras did not find a significant difference in robbery between stores with cameras and those without. The location of the cash register has also received mixed results (Hunter, 1988; La Vigne, 1991; Calder and Bauer, 1992). Hunter (1988) found that stores with cash registers in plain view of the outside and in the center of the store were less likely to be robbed. In contrast, Calder and Bauer (1992) found that a store with its counter and cash register in the center of the store had significantly more robberies than those with the counter to the immediate left or right of the entrance. La Vigne (1991) found stores that concealed the actual cash register from view were less likely to be robbed. The difference in findings, however, could be attributed to the geographic differences between Hunter's and Calder and Bauer's study locations. In addition, Hunter and Calder and Bauer were examining the location of the cash handling procedures, whereas La Vigne was examining the actual view of the cash register itself, which could explain the differences in La Vigne's findings. As previously suggested, these mixed findings could also be due to a difference in experimental locations. This would suggest that the effect of environmental design

strategies may differ between region.

Whether a convenience store was located on a busy street, making the robber more likely to be detected, was found to have an influence on robbery by Duffala (1976), Hunter (1988), and Calder and Bauer (1992). Finally, employee training in robbery prevention techniques such as keeping the store clean, staying alert, and safety procedures during a robbery have received support, suggesting a deterrent effect on robbery (Crow and Bull, 1975; Clifton and Callahan, 1987; Hunter, 1988; La Vigne, 1991) (see Table I).

Table I

**Research Findings On Effect Of Environmental Factors On Prevention Of Convenience Store Robberies**

Environmental Factor	Prevents Robbery	
	Yes	No
Two or more clerks	D, E, F, H, I	G
Good cash handling	D	A, F
Eliminate concealed access/escape	A, E, F, G	
Security devices in use	F, D	A, C
Placement of cash register	F, G, H	
Located on busy street	B, F, H	
Robbery prevention training	F, G	A

A. Crow and Bull, 1975; B. Duffala, 1976; C. Crow and Erickson, 1984; D. Swanson, 1986; E. White, 1986; F. Hunter, 1988; G. La Vigne, 1991; H. Calder and Bauer, 1992; I. Albence, 1994

## *Evaluation of Research*

Despite the influence of these studies on both private (Crow and Bull, 1975) and public policy (see Clifton and Callahan, 1987; Hunter and Jeffery, 1992), these studies have limitations that make drawing inferences of cause and effect of environmental design on convenience store robbery problematic. For instance, with the exception of the Crow and Bull (1975) study, none of the studies were truly experimental in the sense of employing a classical research design (see Kerlinger, 1986). Moreover, none of the studies employed the principles of eliminating potential rival hypotheses (Sherman, 1991) in their design. This is clear in the case of the two or more clerks prevention measure suggested by several of the studies (Swanson, 1986; White, 1986; Hunter, 1988; Calder and Bauer, 1992; Albence, 1994).

The most commonly cited example of the effectiveness of environmental design or target hardening is that of the City of Gainesville, Florida (see Goldstein, 1990; Sherman, 1991; Hunter and Jeffery, 1992). Following the recommendations made by the research of Swanson (1986) and White (1986), the Gainesville Police Department proposed a legislative ordinance to require an unobstructed view; limiting cash available to clerks to \$50, with signs announcing the fact; drop safes with signs stating that employees cannot open them; bright lighting in parking lots; security cameras; and training of night employees in robbery prevention (Wilson, 1990). This ordinance was adopted by the City of Gainesville on July 14, 1986, and was put into effect on November 11, 1986 (Wilson, 1990). However, robberies kept increasing during this time period. As a result, on February 2, 1987, an addition was made to the ordinance, which

became effective on April 3, 1987, requiring that any store open between the hours of 8 p.m. and 4 a.m. have at least two clerks on duty. (Wilson, 1990; Hunter and Jeffery, 1992).

Six months after the implementation of this ordinance, robberies declined 65 percent (see Clifton and Callahan, 1987; cited in Goldstein, 1990). As a result, many scholars (Goldstein, 1990; Hunter and Jeffery, 1992) cite this case as a successful example of problem-oriented policing through environmental design strategies. One cannot debate the fact the analysis conducted by the Gainesville Police "was a masterpiece of analysis in the spirit of problem oriented policing" (Sherman, 1991). With the exception of Southland Corporation, which implemented the changes recommended by the Southland/NILECJ study and experienced a 65 percent decrease in its robbery rate over a 12-year period (Crow and Erickson, 1984; cited in La Vigne, 1991), Gainesville provides the only notable example of the impact of problem-oriented policing and environmental design strategies. Thus, the Gainesville case gives social scientists and policy makers the only clear example from which to judge the impact of problem-oriented policing through environmental design research and subsequent implementation of crime control policy. Yet drawing a cause and effect from the ordinances implemented by the Gainesville City Council is problematic (Sherman, 1991).

As Sherman (1991) notes in his review of Problem-Oriented Policing (Goldstein, 1990), there are fundamental problems with using the decrease in robberies following the ordinance as proof of its effectiveness. Specifically, the effectiveness of the Gainesville ordinance is often cited (Goldstein, 1990; Hunter and Jeffery, 1992) without applying the

annual number of robberies ranged from 52 in 1981 to 33 in 1985 (Sherman, 1991). Hunter and Jeffery (1992) report<sup>7</sup> that the robberies climbed to 97 in 1986, declined to 39 in 1987, and continued to decline to 18 in 1990 (Hunter and Jeffery, 1992). Combining the statistics reported by these two sources (Sherman, 1991; Hunter and Jeffery, 1992), the average number of robberies prior to 1986 was 32.4. Following the implementation of the ordinance, the average number of robberies between 1987 and 1990 was 28.6, or about 12 percent lower than the five years preceding 1986. When looking at the effects of the ordinance in this way, they are not entirely impressive. Also, convenience store robberies in Alachua County, where Gainesville is located,<sup>8</sup> dropped from 53 in 1986 to 28 in 1987, a reduction of 47 percent (Wilson, 1990). As a result of these possible alternative explanations, conclusions about the effectiveness of the Gainesville policy seem imprudent.

While drawing definitive conclusions about the effects of problem-oriented policing and environmental design strategies on convenience store robberies is difficult, the policy implications of the Gainesville research and its subsequent ordinance are clear. In 1990, the Florida Legislature enacted Florida Statute 90-346, the Convenience Store Security Act, which requires local governments, when a death or serious injury in a convenience store occurs, to adopt many of the principles of the Gainesville ordinance, with the exception of the two clerk rule (Hunter and Jeffery, 1990). As a result, Hunter

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<sup>7</sup>Hunter and Jeffery's (1992) data come from the Florida Department of Law Enforcement.

<sup>8</sup>Since this is the county in which Gainesville is located, it provides a good comparison site. For further detail see: Jerry V. Wilson (1990). Gainesville Convenience Store Ordinance: Findings of Fact, Conclusions and Recommendations. Unpublished report, on file at the Crime Control Research Corporation: Washington, D.C.

and Jeffery (1992) conclude "Florida's robbery prevention efforts are being felt immediately" by the drop from 5.548 in 1989 to 4.904 in 1990 (Hunter and Jeffery, 1992). However, this drop is only 12 percent and hardly justifies reaching such lofty conclusions, especially when the prior research on Florida (Hunter, 1988) showed environmental design effects to be different among localities.

### **Multistate Research on Convenience Store Robberies**

Our review of literature resulted in the following observations that guided our research:

(1) Variation in the sample of convenience stores studied was an important factor. As one increases the diversity of the area studied (e.g., city to state), the findings become less consistent.

(2) Given the complexity of the factors thought to influence convenience store robberies (from five in Crow and Bull to 61 in recent studies), the importance of offender and victim perceptions needs more attention. We need to combine the early perceptual approach with the full range of factors thought to be influencing this type of crime.

(3) Since these criminal events involve face-to-face interaction between the victim and offender, research should compare how these actors perceive these events.

(4) The effect of multiple clerks on robbery and injury remains a central issue for policy and theory.

(5) No attention has been given to the possibility that offenders may vary in their

approach to convenience store robberies. Research has considered variation in stores, surroundings, and clerks, but not in offenders. Given what we know from other research on offenders, this appears to be a significant omission from this body of research.

These observations guided the research described in the next section which is multistate, perception focused, and considers the perceptions of novice and repeat offenders as well as victims. We think these characteristics of our research offer new insights into convenience store robberies and ways to conduct this type of research.

### *Methodology*

The five states involved in this research effort had previously conducted research to estimate the probability of convenience store robberies in their jurisdictions and the extent of injury in those robberies. Those results identified areas in which convenience stores were at greater risk of robbery (Amandus, et al., 1994). Based on those analyses and our review of literature in this area, it was determined that to advance research in this area, and to address the questions of injury and store characteristics that might influence the rate of robbery and injury, more detailed data would be required than were available from official records. Therefore, in the present study it was decided that interviews with convenience store robbery victims and offenders would be used as the primary source of data. This required that procedures for identifying victims and offenders be similar across all five states. To accomplish this it was decided that the primary source of information on offenders would be currently incarcerated offenders. In each state this required the analysis of currently incarcerated robbers to determine if

the robbery that they had been convicted of was a convenience store robbery. Most states' automated data did not provide enough detail about sentencing offense. Therefore, assessment of base files in each state was necessary to identify those robbers who in fact had been convicted of a convenience store robbery. Once this determination was made, each offender was asked to participate in an interview that lasted approximately 25 to 40 minutes. Appendix A is the schedule used to interview offenders. As is noted in the results, in one state only one offender was able to be identified. This reflected the difficulty of reviewing base files and the inadequacy of offense classifications in this state. In each of the other four states, up to 41 offenders were identified and were interviewed, for a total sample of 148 offenders interviewed.

The identification of convenience store victims was more difficult. Using the data from our earlier study, which identified stores that had been victimized, we anticipated that these stores would be the location for victim interviews. While this occurred in a few instances, in others the turnover in store personnel or the refusal to allow access for interviews resulted in the need to explore other techniques for identifying victims. The primary strategy used in each state was to select convenience stores in potentially high convenience store robbery areas, to approach those stores for permission, and when granted, to conduct interviews with the individuals working in the stores who had been victims of convenience store robberies in which injury may or may not have occurred. Twenty such interviews were conducted in each of four of the five states participating in the study. In the fifth state, primarily for logistical reasons of distance and difficulty in gaining access to convenience stores, these interviews were not completed. This resulted

in a sample of 80 victims from four states. Once victims were identified, they were interviewed either in person or by phone depending on the distance to the store. There appear to be no differences in responses between phone and in-person interviews.<sup>9</sup> Therefore, the mode of data collection is not included in the reporting of results. Once victims were identified and agreed to participate, they were interviewed in a 20- to 25-minute interview using the instrument attached as Appendix B to this report.

The primary focus of the offender and victim interviews was on the nature of the convenience store robberies in which they participated (injury, use of weapon, time of day, and how they behaved) and the factors they think prompted the robbery. For offenders we asked how they planned the crime, what factors influenced the store selection, and what factors could have prevented them from robbing the store. The selection of these factors was based on the elements the literature suggests could influence offenders' decisions. In addition, we asked offenders about their history of robbing convenience stores to distinguish between repeat and first-time offenders.

While the procedures for conducting interviews and asking questions were very comparable from site to site, the differences in identifying victims in this study raises questions about the propriety of aggregating the victim interviews across sites. While recognizing that there were differences in interviewee selection for victims, we proceed in this paper to combine the victim interviews because we think the value of this information, even from a sample selected the way it was, outweighs the differences in sampling procedures for generating additional hypotheses and insights.

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<sup>9</sup>For data on this point, please contact the author.

Once data were collected in the individual sites, the interviews were forwarded to the central site where all coding and data entry were completed. This procedure assures comparability in coding, particularly those questions that are open-ended.

Conducting multisite research is always difficult when different teams of researchers are involved. In this effort significant cooperation and work had gone into definitions of convenience stores so that there is strong comparability across sites on this basic element of design. In addition, the selection of offenders was carried out with almost identical procedures across sites. The questions asked of offenders in those interviews were consistent across sites and close attention was given to assuring that procedures were similar. The coding of all information was done centrally to provide consistency in this dimension of the design. As noted above, the major area of concern about comparability concerns the selection of victims. Finding and gaining cooperation from victims proved to be more difficult than had been anticipated and, therefore, the claims that these victims were selected in comparable ways is open to serious question. We make no claims about being able to generalize all victims, but suggest an approach, and that the results are useful for future research.

### *Results*

Table 2 contains the frequencies and percentages for the responses of victims to the items included in the interviews.<sup>10</sup> (Victim characteristics are summarized in

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<sup>10</sup>The number of responses for both victims and offenders was different for each question. Questions for which there were few responses should be interpreted with caution.

Appendix C). As can be seen from this table, the majority of victims (51.3%) had worked in convenience stores for two years or less. Only 28 percent had worked for more than four years. Approximately 50 percent had been victims of only one robbery whereas the remaining 50 percent had been victims in two or more robberies, with 14 percent of the respondents reporting they had been robbed five or more times. The victims reported that in the robberies in which they had been involved there had been injury in 28 percent of the cases, and of those injured, 37.5 percent described the injury as moderate or extensive. Of the 22 victims who described their injuries, trauma to the head was the most frequently reported (68.2%). Based on these data, it appears that victims of convenience store robberies experience robbery frequently, and that injury occurs in over one quarter of such cases.

As to the events surrounding the most recent robbery they had experienced, most robberies occurred in the early morning hours or late evening. The respondents indicated that while at work the self protection that they had was primarily alarm systems, although 12 percent of the 74 victims who answered this question reported having a gun. Almost half of the respondents (47.2%) indicated that they used self protection during the robbery. This included activating the alarm (68%) and firing a weapon (24%). The respondents were asked to describe why they thought their store was selected for robbery and although money, drugs, and characteristics of the store were mentioned, a variety of other categories were more frequently mentioned, with the most frequent being the absence of security in the form of police or security guards at the store itself. Similarly, when individuals were asked what could be done to prevent the

robbery, they indicated changes in the store characteristics including better alarm systems and increasing police and security. The injured respondents had a particularly fatalistic approach to what could be done to prevent injury; of those responding to the question, 65 percent indicated that nothing could have been done to prevent it. The majority of respondents indicated that they had not had training prior to the incident. Those who had training indicated that it was primarily training in how to cooperate with the offender or to use the alarm and did not include other aspects of crime prevention.

Table 3 provides basic descriptive information on the responses of the offenders to the interviews. (Offender characteristics are summarized in Appendix C.) The offenders reported that the crimes that they had committed were usually committed with others (53% of the time) and that the most frequent number of other offenders that accompanied them in the commission of the convenience store robbery was one (52%). The offenders indicated that 87 percent of the time they used a weapon in the commission of the robbery and that the most frequently used weapon was a gun. However, in 71 percent of the cases, the offenders reported that the weapon was displayed only and was not used in an attempt to injure the victim. The offenders report that in 14 percent of the convenience store robberies in which they were involved, injury occurred to one or more of the employees or customers in the store.

Forty percent of the offenders indicated that they had previously robbed convenience stores. They reported that in their previous robberies, 18 percent involved injury to a store clerk or bystander. The offenders reported that at the time of committing the convenience store robbery for which they were currently incarcerated,

they were either drinking, using drugs, or using some combination of these (83% of the 111 responses). However, only 52 percent indicated that they were, in their judgment, high. The offenders said that the single most important motivation for robbing the store was money, or money for drugs, but a wide variety of other motivations also prompted their involvement. These motivations included rudeness on the part of the staff, desire for the items in the store, and unspecified reasons summarized usually as "I just wanted to do it." The offenders reported that the planning for the crime of convenience store robbery was fairly modest, having been conducted in a period of six hours or less in 64 percent of the cases (73% did not consider robbing any other store). For those who did consider robbing another store and did not, the reasons had to do with the fact that the store had a number of people around it, was in a location that they felt uncomfortable with, or they simply were not ready to commit the crime.

The offenders were asked a series of questions regarding the importance of various characteristics of the store and its environment in their decision to rob that particular store. The data, from 133 respondents, indicate that characteristics such as window location, cashier location, lighting, exit location, parking lot size, type of neighborhood, video cameras present, time of day, store being close to other stores, the hours of operation, the race or ethnic background of the owners, prior bad experience with the store, and location of the store next to a residence were not important to more than 50 percent of the offenders. Those factors that appeared to influence the decision of the offenders were the proximity of the store to major and minor roads (56%), the number of clerks in the store (59%), the existence of certain types of security,

particularly guards (53%), the proximity of the store to a police station (56%) or police presence (62%), numbers of customers in the store (67%), and the number of people outside the store (60%). Many of these characteristics reported by offenders to be important to them in store selection represent characteristics not easily manipulated by the staff or store owners.

In describing the robbery, 99 of 128 offenders (77%) who answered the question reported that they did not initially use force. When force was used it was used after the response of the clerk or customers prompted the offender to determine that, in their judgment, force was required at that point. The majority of offenders report that the monetary return from the robbery was \$200 or less. After leaving the store, the offenders report that they either went home or to work (46% of the 130 responses), went to a nearby public place (28%), most usually a bar, or stayed in the general area of the store. The majority of offenders reported that they went to and left the store by car. Over half of the offenders indicated that they were arrested the same day or next day. For those who were arrested, the primary basis for the apprehension was that they were identified by someone who was at the scene who knew them or was able to place them in a job or location. Twenty-four percent were arrested as a result of police investigation of the incident, usually very shortly after the incident itself. When asked why they committed the crime, the offenders indicated that the reason was money and money for drugs in 72 percent of the cases. As might be expected, when offenders were asked what they thought their probability of apprehension was before they committed the crime, on a scale from 0-10, 56 percent indicated the chance of being caught was zero, and 78

percent indicated that chances were 4 or less.

The offenders were asked what they thought could have been done to prevent the robbery, and they indicated that there could have been changes in characteristics of the store or improvements in police or security presence. When asked what characteristics could be changed about the store to prevent future crimes, their answers paralleled their answers regarding the basis of their selection of the store: the presence of guards (85%), the proximity of police stations (76%), the presence of police in the area (83%), and the number of individuals inside and outside of the store (72%) were cited as important characteristics that could be altered to prevent these crimes.

The above provides a general overview of responses of victims and offenders to questions concerning convenience store robberies. Now we turn to the two primary factors that motivated this research: what we can learn from these interviews about injuries to convenience store workers, and what can be done to prevent robberies and injuries to these workers.

Table 4 provides information from the victims' perspective on the injury that individuals received when they were the only clerk working or when other clerks were present. As can be seen from the victims' reports, when there was only one clerk working during the robbery, there was injury in 23.5 percent of the cases. In 76.5 percent there was no injury. When there was more than one clerk working, injury occurred in 29.5 percent of the cases. Injury did not occur in 70.5 percent of the cases. From the victims' reports it would appear that the presence of additional clerks did not reduce the probability of injury. Rather, it is the dynamics of the situation and most notably the

response of the clerks that seem to influence, at least from the offenders' perspective, whether injury will occur.

Another issue that we identified in our review of the literature for more detailed consideration was the issue of whether individuals approach convenience store robberies differently due to prior experience with these robberies. To assess this point we divided our sample of offenders into those who report no prior robberies (novice) and those who report one or more prior robberies (repeat). Table 5 begins the presentation of data from the interviews using this categorization of the offenders. Based on other research on chance crimes, the primary hypothesis is that those who had prior experience would be more rational in their approach to the crime, more organized, and would conduct the crime in ways different than the novice convenience store robber. Table 5 presents information on the behavior of the individuals just prior to the robbery. These data suggest that recidivist offenders were roughly equally likely to have been using drugs or drinking prior to the event. Fifty-one percent of novice offenders and 55 percent of repeat offenders report that they were high when the offense was committed. However, there appear to be some differences between the groups in their planning. Table 6 indicates that the recidivists were more likely to plan one day or more in advance of the crime (39.6%) than were the first-time convenience store robbers (22.4%). When asked what could be done to discourage them from committing such robberies (Table 7), two factors reached statistical significance: the location of exits and type of neighborhood. Novice offenders were more likely to judge these as important or very important characteristics than were the repeat offenders. In an effort to consider broad categories

of characteristics that would have prevented the offender from committing the crime, we collapsed their assessment of individual factors into four categories: characteristics of the clerks; characteristics of the store; presence of police or security guard; and all other factors. Table 8 presents the findings for the cross classification of these variables with whether the offender was a repeat or novice convenience store robber. Although there are slight differences in the responses of repeat and novice offenders, the differences are not significant. This suggests there may not be increased levels of sophistication in target selection among repeat offenders.

Finally, we were interested in the ways in which victims and offenders diverged in their assessment of what could be done to prevent robberies and the factors that were most important in selecting a store for a robbery. Table 9 contains the responses of victims and offenders to the question of what could be done to prevent the robbery using the broad categories of factors noted above. Responses were very similar, with 40 percent of the victims and 48 percent of offenders indicating that store characteristics could have been changed, 27 percent of victims and 23 percent of offenders indicating that police or security increases would have prevented the robbery, and 33 percent of victims and 28 percent of offenders indicating that nothing could have prevented the robbery.

### *Conclusions*

What have we learned from this multisite study of convenience store robberies? First, we have again established the value of multisite research. In this case, the small

number of convenience store robbers in custody, or otherwise available, means that any single-site study would necessarily involve very small numbers of subjects. Although we did not find any significant differences across sites, we did demonstrate that use of a multisite study can maximize the number of cases. Second, these data suggest that the number of clerks on duty is not a significant factor in explaining whether convenience store robberies result in injuries to those clerks. Far more important seems to be the interaction between victim and offender. Offenders report that the behavior of the clerk or clerks is far more important than the number of clerks in determining whether they use force in the robbery. Third, clerks appear to believe there is little they can do to prevent the occurrence of robberies and to influence whether they are injured during the robbery. In this regard their responses parallel those of robbers in that they believe only the presence of police or security can reduce the likelihood of the crime and injury occurring. While we found some factors that appear to influence offenders in the selection of stores for robbery, the data suggest a very simple selection process that is guided mostly by the offenders' perceptions of the existence of "place guardians" in the location. Traditional environmental design elements were not identified by offenders or victims as factors that influenced the occurrence of robbery. Fourth, the notion that repeat and novice convenience store robbers differ in their selection of locations, motivation for committing the crime, etc., are not supported by these data. The differences were marginal and similarities were much more prevalent than were differences. Finally, we found that planning for these offenses was minimal, the offenders were motivated by the need for money and drugs, and offenders' behavior after

the crime commission was poorly planned. These findings offer some suggestions for crime prevention efforts and for theories of robbery.

For many years the effort to prevent convenience robberies and clerk injury has focused on the environmental characteristics of the store and the number of clerks. Whether or not the number of clerks is a factor in robbers' selection of stores, our data indicate that the presence of more than one clerk may not have the desired impact on injuries that result once robbery occurs. Clerk training may be far more important at this point. The data suggest that the behavior of clerks may be the most significant factor in determining the extent of injury that results during these robberies. In our interviews, 57.1 percent of clerks had received no training or had only had the training after the crime occurred. Especially given the turnover in personnel, training must be more frequent and delivered in a manner that allows the clerks to actually receive it. The heavy emphasis offenders place on police and security as effective deterrents may cause us to reconsider our reliance on environmental factors alone. Improving police presence and response may be more important than further enhancements of the store's environment.

Routine activity theory (Felson, 1994) has suggested that the explanation of criminal events lies in understanding victim vulnerability and the level of guardianship a potential victim or place contains. Victim vulnerability refers to ways the victim behaves that increases or decreases the probability of a crime occurring. In the convenience store context, to decrease the probability of crime the focus of environmental design efforts has been to place the potential victim in a place that minimizes the attractiveness

of the victim as a target of motivated offenders. Our research suggests that offenders may not be attuned to these "target hardening" efforts. Rather, the existence of "place guardians" -- those perceived to be assigned the function of protecting the potential victim -- is more important to the offenders. This is not to say that design factors are not important. It may be that the benefit from the improvement of design characteristics has reached its peak and that design characteristics may be more important in determining the monetary loss associated with the crime than they are in affecting the likelihood of injury during these crimes. As other recent studies using routine activity theory have suggested (Eck, 1994), the person and place guardianship factors may be far more important for some types of crime. Injury-related convenience store robberies appear to be one such type of crime.

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## **Appendix A**

### **Offender Interview Instrument**

Prior to Interview Complete Case Summary Form

OFFENDER INTERVIEW

Hello I am \_\_\_\_\_ from the \_\_\_\_\_  
I am conducting research on convenience store robberies. From the \_\_\_\_\_ I have  
determined that your record indicates you are currently incarcerated for \_\_\_\_\_  
\_\_\_\_\_ which involved: (briefly describe incident – give basics; date; convicting charges)

Is this correct?

- Yes (admits robbery)
- No (If Denies and convicted)\*\*
- No (Charges pending – Terminate)
- No (wrong person)
- refuses interview

Do you understand and have you signed the consent form?

- Yes
- No (if "no," explain consent form and obtain signature before proceeding.)

I would like to begin by asking you some questions about the incident:

1. Did you do the robbery by yourself or were others involved?

- Self (go to question 4)
- Others (if "no", go to question 2)

2. How many others were involved? \_\_\_\_\_

3. Were they (answer for each person)

	Accomplice 1	Accomplice 2	Accomplice 3
Close Friend	_____	_____	_____
Acquaintance	_____	_____	_____
Relative	_____	_____	_____
Partner for this Crime	_____	_____	_____

4. What weapons were used (include displayed or implied) in this crime? (Check all that apply)

- gun (go to question 5) Type:  Longgun  Handgun
- knife (go to question 5)
- blunt object (go to question 5)
- other (go to question 5) (specify \_\_\_\_\_)
- none (go to question 6)

5. How was the weapon used? (ask for each weapon in question 4)

- displayed only
- not displayed but threatened
- used (specify \_\_\_\_\_)

\* use locally developed introduction

\*\* If this occurs some questions will need to be rephrased.

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5. If more than one person involved in the crime. who used the weapon?

- Me
- Accomplice(s)
- Both

7. Was anyone other than you (or accomplices) injured during this event?

- Yes (go to question 8)
- No (go to question 10; be sure to probe since all of those interviewed should have victims with injury).

8. How many were injured? \_\_\_\_\_ (number)

Were they employees \_\_\_\_\_ customers \_\_\_\_\_ both \_\_\_\_\_?

9. What kind of injuries did they receive? (for each person injured)

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10. Had you previously robbed any simiiar kinds of stores?

- Yes (go to question 11)
- No (go to question 14)
- refuses (go to question 14)

11. How many? \_\_\_\_\_

12. Were any people injured in those?  Yes  No  don't know

13. Were you caught?  Yes  No Convicted  Yes  No  
If convicted, what sentence did you receive? \_\_\_\_\_

14. At the time you committed the robbery for which you are now serving time were you:

- drinking
- using drugs
- both

Were you "high"?  Yes  No  Don't know

15. What were you doing in the hour or two just before the robbery took place?

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16. Thinking about the robbery that resulted in the sentence you are now serving: (in A-C explore for partners role if there was more than one person committing the crime)

A. Why did you decide to rob a store that day? (If accomplice probe for role in decision)

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B. How far in advance did you plan the robbery? (If accomplice probe for role in decision)

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C. Did you consider robbing any other store besides the one selected?

- Yes (robbed the store)  
 Yes (did not rob the store)  
 No

If yes, why did you decide not to rob that store.

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D. Please describe how important each of the following were to you in making the decision to rob that particular store.

5= very important 4=important 3=Moderately Important 2=Slightly Important 1=Not Important At All

- Window location (or lack of)
- Cashier location
- lighting (both inside and out)
- exit locations
- parking lot location
- close to major or minor roads
- type of neighborhood, economic and racial
- number of clerks
- video camera
- other types of security
- time of day
- weather
- reputation of store as containing a lot of money or easy to rob
- close to a police station
- perceived police presence in the area
- number of customers
- number of people outside the store
- store's close to other stores
- store's hours of operation
- race or ethnic background of owners or clerks
- prior bad experience with the store or store's employees
- location of the store to the robbers residence

E. Now I would like you to describe in detail what exactly took place after you entered the store(step by step explanation)

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How much cash did you get from the robbery? \_\_\_\_\_ (\$)  
Anything else (describe)

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F. How was the victim(s) injured? (If subject denied injury in question 7 ask how injury was avoided?)

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G. What did you do when you left the store? Where did you go? How did you travel there?

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H. When were you apprehended? (relative to the robbery)

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I. Where were you apprehended?

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J. How were you apprehended?

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17. Why did you commit this crime? (probe -- i.e. if the response is money ask why it was needed; why get it this way)

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18. Before you committed this crime how likely did you think it was that you would get caught? (10=absolutely sure to be caught; 0=absolutely no chance of being caught)  
\_\_\_\_\_ (0-10)

19. In your opinion, what could have been done in the store to prevent you from robbing it?

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20. Assuming someone was going to rob a convenience store, what could be done for the store to discourage that person? (Rate as #16D)

5= very important 4=important 3=Moderately Important 2=Slightly Important 1=Not Important At All

- \_\_\_ Window location (or lack of)
- \_\_\_ Cashier location
- \_\_\_ lighting (both inside and out)
- \_\_\_ exit locations
- \_\_\_ parking lot location
- \_\_\_ close to major or minor roads
- \_\_\_ type of neighborhood, economic and racial
- \_\_\_ number of clerks
- \_\_\_ video camera
- \_\_\_ other types of security
- \_\_\_ time of day
- \_\_\_ weather
- \_\_\_ reputation of store as containing a lot of money or easy to rob
- \_\_\_ close to a police station
- \_\_\_ perceived police presence in the area
- \_\_\_ number of customers
- \_\_\_ number of people outside the store
- \_\_\_ store's close to other stores
- \_\_\_ store's hours of operation
- \_\_\_ race and ethnic background of owners or clerks
- \_\_\_ prior bad experience with the store or store's employees
- \_\_\_ location of the store to the robbers residence

21. What could be done to prevent injuries to employees's during a convenience store robbery?

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22. To be completed by interviewer at conclusion of interview.

Length of interview? \_\_\_\_\_ (minutes)

Where did it occur? \_\_\_\_\_

Rate the interviewee on the following:

Cooperativeness  
\_\_\_ Excellent      \_\_\_ Fair      \_\_\_ Poor

Completeness of answers  
\_\_\_ Excellent      \_\_\_ Fair      \_\_\_ Poor

Comprehension of Questions  
\_\_\_ Excellent      \_\_\_ Fair      \_\_\_ Poor

Honesty of responses  
\_\_\_ Excellent      \_\_\_ Fair      \_\_\_ Poor

## **Appendix B**

### **Victim Interview Instrument**

ID# \_\_\_\_\_

Interview Method (check)

Phone \_\_\_\_\_

In Person \_\_\_\_\_

Prior to Interview Complete Case Summary Form

### VICTIM INTERVIEW

Hello I am \_\_\_\_\_ from the \_\_\_\_\_. I am conducting research on convenience store robberies.\*

A. Do you understand and have you signed the consent form?

\_\_\_ Yes

\_\_\_ No (if "no," explain consent form and obtain signature before proceeding.)

B. How long have you worked at this store (where robbery occurred)? \_\_\_\_\_ (months)

C. How many times has this store been robbed when you were working? \_\_\_\_\_ (#)

D. During those (that) robberies (y) were you ever injured?

\_\_\_ Yes (if "yes", go to question E)

\_\_\_ No (if "no", go to question 1)

E. What type of injuries did you receive?

\_\_\_ none -- no medical treatment required

\_\_\_ slight -- treatment at store or later by doctor or other

\_\_\_ moderate -- treatment and released at hospital

\_\_\_ extensive/ required stay in hospital

Please describe the injuries for each event.

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I would like to talk about (select the event with the most injury) identify the event.

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\* Use locally developed introduction

1. When did it occur? (Date and time)

2. Were you the only person working?

Yes (go to question 5)

No (go to question 3)

3. How many others were working? \_\_\_\_\_ (#)

Was that person (any of them) injured?

Yes

No (go to question 5)

4. What were the extent of their injuries?

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5. As a result of these injuries:

a. Were you hospitalized

Yes  No

b. If yes how long \_\_\_\_\_ (days)

Yes  No

c. Did you file a workmen's compensation request?

Yes  No

d. Did you miss any days of work?

Yes  No

If yes how many? \_\_\_\_\_ (days)

6. Please describe what happened and how the injury occurred (probe on what occurred just prior to the injury).

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7. When this occurred did you have any kind of self protection available to you?

- gun
- knife
- chemical sprays
- protective vest
- alarm
- other
- none (go to question 10)

8. Did you use it?

- Yes
- No (go to question 10)

9. How was self protection used (e.g. fired weapon, threatened use, yelled, used alarm) ?  
(probe on whether used before or after injury)

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10. Why do you think your store was selected for the robbery?

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11. What could have been done in the store to prevent the robbery? (probe: lighting, cameras, security personnel, traffic, access, safes).

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12. What could have been done to prevent the injury you (and your co-workers) received?

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13. What do you do differently at work as a result of this event?

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14. Did this experience affect you in any other way (probe for emotional, physical or behavioral impacts).

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15. Were there any changes in store policy, practices, design, or security after this event?

Yes

No

If yes, please describe

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16. Did you consider quitting your job after this happened?

Yes Did you quit?  Yes  No (go to question 17)

No (go to question 18)

17. Why didn't you quit?

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18. Why not?

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19. Did you receive training before this incident on how to prevent or respond to a robbery?

Yes

No

Please describe the training.

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Was the training useful in this instance?

Yes

No

Explain

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20. Ascertain the following characteristics.

A. Age \_\_\_\_\_  
Gender \_\_\_\_\_ (SUBJECT)  
Race \_\_\_\_\_  
Ethnicity \_\_\_\_\_

B. Age \_\_\_\_\_  
Gender \_\_\_\_\_ (OTHER 1)  
Race \_\_\_\_\_  
Ethnicity \_\_\_\_\_

C. Age \_\_\_\_\_  
Gender \_\_\_\_\_ (OTHER 2)  
Race \_\_\_\_\_  
Ethnicity \_\_\_\_\_

21. To be completed by interviewer at conclusion of interview.

Length of interview? \_\_\_\_\_ (minutes)

Where did it occur? \_\_\_\_\_

Rate the interviewee on the following:

Cooperativeness  
\_\_\_\_\_ Excellent      \_\_\_\_\_ Fair      \_\_\_\_\_ Poor

Completeness of answers  
\_\_\_\_\_ Excellent      \_\_\_\_\_ Fair      \_\_\_\_\_ Poor

Comprehension of Questions  
\_\_\_\_\_ Excellent      \_\_\_\_\_ Fair      \_\_\_\_\_ Poor

Honesty of responses  
\_\_\_\_\_ Excellent      \_\_\_\_\_ Fair      \_\_\_\_\_ Poor

## **Appendix C**

### **Offender and Victim Interview Data Tables 2 - 9**

**Table 2****Victim Responses<sup>1</sup>**

<u>Variable</u>	<u>Labels</u>	<u>Frequency</u>	<u>Percent (%)</u>
Time worked	< 1 year	17	21.3
	1-2 years	24	30.0
	2.5-4 years	15	19.0
	4.5 + years	22	27.8
How many times victim of robbery?	1 time	39	49.4
	2 times	13	16.5
	3 times	12	15.2
	4 times	4	5.1
	5 times	5	6.3
	5+times	6	7.7
Victim injured?	Yes	22	27.8
	No	57	72.2
Type of injury	No medical	6	25.0
	Slight	9	37.5
	Moderate	7	29.2
	Extensive	2	8.3
Describe injuries	Injury to body	4	18.2
	Trauma to head	15	68.2
	Gunshot wound	3	13.6
Describe cause of injuries	Struck in face/body	7	53.8
	Cut with knife	3	23.1
	Gun shot	3	23.1
Time of robbery	12-3am	19	25.3
	>3am-9:30am	13	17.3
	10am-2pm	9	12.0
	2:30pm-6:30pm	8	10.7
	6:45pm-9pm	14	18.7
	9:15pm-12am	12	16.0
Victim only person working?	Yes	35	44.3
	No	44	55.7

<sup>1</sup>Note: some variables have missing cases. In addition some percentages are slightly off due to rounding error.

VICTIM INTERVIEW (continued)

Number of others working	One	35	79.5
	Two	7	15.9
	Three	1	2.3
	Four	1	2.3
Other worker(s) injured?	Yes	3	6.8
	No	41	93.2
Extent of injuries to other worker(s)	Slight	3	100.0
Victim hospitalized?	Yes	4	6.7
	No	56	93.3
Days hospitalized	One day	4	100.0
Victim file workers comp?	Yes	2	3.3
	No	58	96.7
Victim miss work?	Yes	8	12.9
	No	54	87.1
Day missed	1-7 days	6	75.0
	14 days	1	12.5
	30 days	1	12.5
How injured?	Held	1	5.6
	Resisted	7	38.9
	Accidental	1	5.6
	Unprovoked	9	50.0
Self protection	Gun	9	12.2
	Alarm	35	47.3
	Other	3	4.1
	None	27	36.5
Self protection used?	Yes	25	47.2
	No	28	52.8
How self protection used?	Hit alarm	17	68.0
	Fired weapon	6	24.0
	Retaliated	2	8.0
Why store selected?	Money \$	3	4.1
	Drug \$	3	4.1
	Store charact.	21	28.8
	Other	46	63.0

## VICTIM INTERVIEW (continued)

What to prevent?	Store charact.	31	40.3
	Increase		
	Police/secur.	21	27.3
	Other	1	1.3
	Nothing	24	31.2
What to prevent injury?	Nothing	13	65.0
	Per. defense	1	5.0
	Cooperate	3	15.0
	Two employees	1	5.0
	Keep distance	2	10.0
Do differently?	Store changes	9	11.5
	Work habits	31	39.7
	Other	38	48.7
How affected?	Anxiety	40	52.6
	Work habits	2	2.6
	Other	34	44.7
Policy changes?	Yes	33	41.8
	No	46	58.2
Describe changes?	Training	3	9.1
	Secur. devices	18	54.5
	Policy	12	36.4
Consider quitting?	Yes	28	35.9
	No	50	64.1
Did quit?	Yes	6	15.8
	No	32	84.2
Why didn't quit?	Money	13	61.9
	Willing risk	5	23.8
	Other	3	14.3
Why not?	Money	24	49.0
	Willing risk	16	32.7
	Other	9	18.4
Prior training?	Yes	33	42.9
	No	44	57.1
Describe training?	Cooperation	27	84.4
	Use of alarm	5	15.6

VICTIM INTERVIEW (continued)

Was training useful?	Yes	26	54.2
	No	22	45.8
Explain how training useful	No victims	12	50.0
	Cooperated	9	37.5
	Other	3	12.5
Victim age	18-30 years	31	41.3
	31-40 years	25	33.3
	41+ years	19	25.3
Victim gender	Male	58	74.4
	Female	20	25.6
Victim race	White	18	22.8
	Black	32	40.5
	Asian	24	30.4
	Other	5	6.3
Victim ethnicity	White American	9	17.0
	African-Amer.	12	22.6
	Other	32	60.4
Cooperative answers	Excellent	60	75.9
	Fair	19	24.1
Completeness of answers	Excellent	46	59.0
	Fair	26	33.3
	Poor	6	7.7
Comprehension of questions	Excellent	38	48.7
	Fair	36	46.2
	Poor	4	5.1
Honesty of responses	Excellent	65	82.3
	Fair	14	17.7
State of interview	Georgia	20	25.0
	Massachusetts	20	25.0
	Maryland	20	25.0
	South Carolina	20	25.0

**Table 3****Offender Interviews<sup>2</sup>**

<u>Variable</u>	<u>Labels</u>	<u>Frequency</u>	<u>Percent (%)</u>
Robbed by self or with others	Self	65	47.1
	Others	73	52.9
How many others?	One	38	52.1
	Two	28	38.4
	Three	7	9.5
Accomplice 1	Close friend	47	66.2
	Acquaintance	24	33.8
Accomplice 2	Close friend	14	41.2
	Acquaintance	20	58.8
Accomplice 3	Close friend	3	50.0
	Acquaintance	3	50.0
Weapons used?	Gun	101	73.2
	Other	19	13.8
	None	18	13.0
Weapon 2	Gun	5	35.7
	Other	6	42.9
	None	3	21.4
How was weapon one used?	Displayed only	84	71.2
	Not displayed	20	16.9
	Assaulted	14	11.9
How was weapon two used?	Displayed only	4	50.0
	Not displayed	2	25.0
	Assaulted	2	25.0
Who used weapon one?	Me	60	66.7
	Accomplice(s)	25	27.8
	Both	5	5.6
Was anyone injured?	Yes	18	14.1
	No	110	85.9
How many people injured?	One	13	72.2
	Two	4	22.2
	Three	1	5.6

<sup>1</sup>Note: some variables have missing cases. In addition some percentages are slightly off due to rounding error.

**OFFENDER INTERVIEW (continued)**

Who was injured?	Employees	13	72.2
	Customers	2	11.1
	Both	3	16.7
Injury victim one	Trauma	10	55.6
	Gunshot	6	33.3
	Cuts	2	11.1
Injury victim two	Trauma	4	80.0
	Gunshot	1	20.0
Previously robbed?	Yes	55	39.9
	No	81	58.7
	Refuses	2	1.4
How many others previously robbed?	None	13	20.0
	1-10	35	53.8
	10+	17	26.2
Were any injured?	Yes	12	17.6
	No	55	80.9
	Doesn't know	1	1.5
Were you caught?	Yes	27	40.3
	No	40	59.7
Were you convicted?	Yes	27	47.4
	No	30	52.6
What sentence received?	1-4 years	4	16.0
	1-15 years	12	48.0
	7.5-20 years	3	12.0
	20-30 years	6	24.0
At time of robbery	Drinking	23	20.7
	Using drugs	29	26.1
	Both	40	36.0
	Neither	19	17.1
Were you high?	Yes	54	51.9
	No	48	46.2
	Doesn't know	2	1.9
Why rob store?	Money \$	42	31.1
	Drug Money \$	43	31.9
	Store charact.	7	5.2
	Other	43	31.9

**OFFENDER INTERVIEW (continued)**

How far in advance planned?	Six hours/less	85	64.4
	Same day	9	6.8
	One day +	38	28.8
Consider robbing another store?	Yes, robbed	15	11.2
	Yes, didn't	21	15.7
	No	98	73.1
If yes, why not rob?	Police nearby	1	4.8
	Bad location	7	33.3
	Not ready	5	23.8
	Lot of people	8	38.1
Window location	Not	90	68.5
	Slightly	8	6.0
	Moderately	6	4.5
	Important	14	10.5
	Very important	14	10.5
Cashier location	Not	91	68.4
	Slightly	11	8.3
	Moderately	6	4.5
	Important	5	3.8
	Very important	20	15.0
Lighting	Not	92	69.2
	Slightly	7	5.3
	Moderately	8	6.0
	Important	14	10.5
	Very important	12	9.0
Exit locations	Not	72	54.1
	Slightly	10	7.5
	Moderately	8	6.0
	Important	13	9.8
	Very important	30	22.6
Parking lot size	Not	78	58.6
	Slightly	10	7.5
	Moderately	9	6.8
	Important	9	6.8
	Very important	27	20.3

**OFFENDER INTERVIEW (continued)**

Close to major/minor roads	Not	59	44.4
	Slightly	7	5.3
	Moderately	13	9.8
	Important	13	9.8
	Very important	41	30.8
Type of neighborhood	Not	91	68.4
	Slightly	6	4.5
	Moderately	6	4.5
	Important	14	10.5
	Very important	16	12.0
Number of clerks	Not	55	41.4
	Slightly	9	6.8
	Moderately	8	6.0
	Important	23	17.3
	Very important	38	28.6
Video cameras	Not	78	58.6
	Slightly	6	4.5
	Moderately	1	.8
	Important	7	5.3
	Very important	41	30.8
Other types of security	Not	62	46.6
	Slightly	8	6.0
	Moderately	9	6.8
	Important	19	14.3
	Very important	35	26.3
Time of day	Not	76	57.1
	Slightly	6	4.5
	Moderately	11	8.3
	Important	11	8.3
	Very important	29	21.8
Weather	Not	109	82.0
	Slightly	4	3.0
	Moderately	2	1.5
	Important	10	7.5
	Very important	8	6.0

**OFFENDER INTERVIEW (continued)**

Reputation of store having lots of \$	Not	69	51.9
	Slightly	9	6.8
	Moderately	7	5.3
	Important	14	10.5
	Very important	34	25.6
Close to police station	Not	59	44.4
	Slightly	5	3.8
	Moderately	17	12.8
	Important	9	6.8
	Very important	43	32.3
Perceived police presence	Not	50	37.6
	Slightly	5	3.8
	Moderately	15	11.3
	Important	12	9.0
	Very important	51	38.3
Number of customers	Not	44	33.1
	Slightly	5	3.8
	Moderately	10	7.5
	Important	24	18.0
	Very important	50	37.6
Number of people outside store	Not	53	39.8
	Slightly	4	3.0
	Moderately	10	7.5
	Important	29	21.8
	Very important	37	27.8
Store is close to other stores	Not	83	62.4
	Slightly	9	6.8
	Moderately	20	15.0
	Important	16	12.0
	Very important	5	3.8
Store's hours of operation	Not	81	60.0
	Slightly	4	3.0
	Moderately	10	7.5
	Important	14	10.5
	Very important	24	18.0

**OFFENDER INTERVIEW (continued)**

Race or ethnic background of owners	Not	114	85.7
	Slightly	5	3.8
	Moderately	3	2.3
	Important	5	3.8
	Very important	6	4.5
Prior bad experience with store	Not	120	88.9
	Slightly	5	3.7
	Moderately	4	3.0
	Important	4	3.0
	Very important	2	1.5
Location of the store to residence	Not	74	55.6
	Slightly	9	6.8
	Moderately	7	5.3
	Important	12	9.0
	Very important	31	23.3
Describe what took place #1	No force	99	77.3
	Force	6	4.7
	No response	6	4.7
	Response	7	5.5
	Theft,force	6	4.7
	Theft,no force	4	3.1
Order of events #2	No force	79	66.4
	Force	7	5.9
	No response	10	8.4
	Response	4	3.4
	Theft,force	4	3.4
	Theft,no force	15	12.6
Order of events #3	No force	46	46.9
	Force	5	5.1
	No response	12	12.2
	Response	5	5.1
	Theft,force	7	7.1
	Theft,no force	23	23.5
Order of events #4	No force	29	43.3
	Force	4	6.0
	No response	9	13.44
	Response	1	1.5
	Theft,force	5	7.5
	Theft,no force	19	28.4

**OFFENDER INTERVIEW (continued)**

Order of events #5	No force	17	37.8
	Force	0	0.0
	No response	8	17.8
	Response	5	11.1
	Theft.force	1	2.2
	Theft.no force	14	31.1
How much money?	\$0-60	23	18.5
	+\$60-100	31	25.0
	+\$100-200	24	19.4
	+\$200-800	25	20.2
	+\$800	21	16.9
What else taken in robbery?	Food/beer/cig.	35	85.4
	Other	6	14.6
Extent of injury to victim	No injury	80	86.9
	Minor	6	6.5
	Serious	6	6.5
What did you do when you left the store?	At store	34	26.2
	Nearby pub. place	36	27.7
	Home or work	60	46.2
How did you travel there?	By car	73	64.6
	By foot	36	31.9
	By cab	2	1.8
	By bus/train	2	1.8
When were you apprehended?	That day	58	39.5
	Next day	14	9.5
	One week	8	5.4
	+One week	48	32.7
How were you apprehended?	On scene ID	60	46.9
	Police invest. of incident	31	24.2
	Police invest. of other incident	19	14.8
	Other	18	14.1
Why did you commit the crime?	Money \$	51	40.2
	Drug money \$	40	31.5
	Other	36	28.3

**OFFENDER INTERVIEW (continued)**

If money, why get it this way?	Easy	34	51.5
	It is what I do	7	10.6
	Other	25	37.9
Before you committed this crime how likely did you think you were to get caught? (1-10)	0	72	55.8
	1	6	4.7
	2	11	8.5
	3	8	6.2
	4	3	2.3
	5	13	10.1
	6	2	1.6
	7	2	1.6
	8	2	1.6
	9	0	0
What could have been done to prevent robbery?	Charact. clerks	9	7.0
	Charact. store	53	41.4
	Police/security	30	23.4
	Other	36	28.1
What could have been done to prevent robbery? #2	Charact. clerks	9	20.5
	Charact. store	23	52.3
	Police/security	10	22.7
	Other	2	4.5
What could have been done to prevent robbery? #3	Charact. clerks	1	7.1
	Charact. store	12	85.7
	Police/security	1	7.1
Window location	Not important	61	46.9
	Slightly	11	8.5
	Moderately	14	10.8
	Important	17	13.0
	Very important	27	20.8
Cashier location	Not important	64	49.2
	Slightly	11	8.5
	Moderately	13	10.0
	Important	12	9.2
	Very important	30	23.1

**OFFENDER INTERVIEW (continued)**

Lighting	Not important	59	45.4
	Slightly	7	5.4
	Moderately	17	13.1
	Important	11	8.5
	Very important	36	27.7
Exit locations	Not important	50	38.5
	Slightly	8	6.2
	Moderately	13	10.0
	Important	24	18.5
	Very important	35	26.9
Parking lot location	Not important	59	45.4
	Slightly	11	8.5
	Moderately	13	10.0
	Important	18	13.8
	Very important	29	22.3
Close to major or minor roads	Not important	53	40.8
	Slightly	11	8.5
	Moderately	15	11.5
	Important	29	22.3
	Very important	22	16.9
Type of neighborhood	Not important	65	50.0
	Slightly	7	5.4
	Moderately	13	10.0
	Important	28	21.5
	Very important	17	13.1
Number of clerks	Not important	37	28.5
	Slightly	8	6.2
	Moderately	17	13.1
	Important	24	18.5
	Very important	44	33.8
Video cameras	Not important	44	33.3
	Slightly	7	5.3
	Moderately	7	5.3
	Important	17	12.9
	Very important	57	43.2

**OFFENDER INTERVIEW (continued)**

Other types of security	Not important	20	15.3
	Slightly	2	1.5
	Moderately	9	6.9
	Important	23	17.6
	Very important	77	58.8
Reputation of the store having cash	Not important	48	37.2
	Slightly	9	7.0
	Moderately	10	7.8
	Important	18	14.0
	Very important	44	34.0
Close to police station	Not important	32	24.2
	Slightly	2	1.5
	Moderately	15	11.4
	Important	17	12.9
	Very important	66	50.0
Perceived police presence in area	Not important	22	16.8
	Slightly	5	3.8
	Moderately	11	8.4
	Important	22	16.8
	Very important	71	54.2
Number of customers	Not important	37	28.2
	Slightly	4	3.1
	Moderately	16	12.2
	Important	33	25.2
	Very important	41	31.3
Number of people outside store	Not important	37	28.2
	Slightly	7	5.3
	Moderately	18	13.7
	Important	28	21.4
	Very important	41	31.3
Store is close to other stores	Not important	58	44.6
	Slightly	16	12.3
	Moderately	20	15.4
	Important	21	16.2
	Very important	15	11.5

**OFFENDER INTERVIEW (continued)**

Store's hours of operation	Not important	63	48.5
	Slightly	10	7.7
	Moderately	9	7.0
	Important	24	18.4
	Very important	24	18.4
Race or ethnic background of owners	Not important	104	80.0
	Slightly	10	7.7
	Moderately	3	2.3
	Important	4	3.1
	Very important	9	6.9
Location of the store to residence	Not important	66	50.8
	Slightly	11	8.5
	Moderately	15	11.5
	Important	16	12.3
	Very important	22	16.9
What can be done to prevent injuries? #1	Cooperate	117	88.0
	Physical security	8	6.0
	Other	8	6.0
What can be done to prevent injuries? #2	Cooperate	27	58.7
	Physical security	10	21.7
	Other	9	19.6
Cooperative	Excellent	103	79.2
	Fair	22	16.9
	Poor	5	3.8
Completeness	Excellent	82	63.1
	Fair	37	28.5
	Poor	11	8.4
Comprehension	Excellent	94	72.3
	Fair	33	25.4
	Poor	3	2.3
Honesty	Excellent	84	65.1
	Fair	34	26.4
	Poor	11	7.5

**OFFENDER INTERVIEW (continued)**

Number of offenders	One	57	48.3
	Two	41	34.7
	Three	17	14.4
	Four	1	.8
	Nine	1	.8
	Eleven	1	.8
Number of victims	One	86	80.4
	Two	18	16.8
	Three	1	.93
	Four	1	.93
	Nine	1	.93
Weapons used	Gun	86	74.8
	Other	14	12.2
	None	15	13.0
Number of injuries	None	73	81.1
	One	13	14.4
	Two	4	4.4
Injuries to first victim	Trauma	9	56.3
	Gunshot	5	31.3
	Cuts	2	12.6
Prior robberies	Yes	68	30.6
	No	34	76.9
Number of prior felonies	None	4	5.6
	One	13	18.1
	Two	19	26.4
	Three+	36	50.0
Number of prior robberies	None	28	32.2
	One	28	32.2
	Two	7	8.0
	Three+	24	27.6
Number of personal felonies	None	30	44.1
	One	16	23.5
	Two	3	4.4
	Three+	19	27.9

**OFFENDER INTERVIEW (continued)**

Number of misdemeanors	None	23	34.8
	One	7	10.6
	Two	12	18.2
	Three+	24	36.4
Age of offender	10-25 yrs.	71	51.8
	+25-35 yrs.	51	37.2
	+35 yrs.	15	10.9
Race of offender	White	42	32.8
	Black	77	60.2
	Hispanic	9	7.0
Sex of offender	Female	1	.8
	Male	128	99.2
Ethnicity of offender	Not available	42	32.6
	American	84	65.1
	Latin American	3	2.3
State	Georgia	1	.7
	Massachusetts	28	19.0
	Maryland	41	27.9
	Michigan	41	27.9
	South Carolina	36	24.5

**Table 4**

**Number Of Clerks and Robbery-Related Injury: Victim Reports**

<b>Injury?</b>	<b>One Clerk</b>	<b>More Than One Clerk</b>	
<b>Yes</b>	8 (23.5%)	13 (29.5%)	21 26.9%
<b>No</b>	26 (76.5%)	31 (70.5%)	57 73.1%
<b>Total</b>	34 43.6%	44 56.4%	78 100%

**Table 5**

**Prior Robberies and Behavior Before Crime**

<b>Behavior at the Time of Robbery</b>	<b>Prior to Robbery</b>	<b>Committed Prior Robberies</b>	<b>No Prior Robberies</b>	
	<b>Drinking</b>	6 (13.6%)	16 (24.2%)	22 20%
	<b>Using Drugs</b>	10 (22.7%)	19 (28.8%)	29 26.4%
	<b>Both</b>	19 (43.2%)	21 (31.8%)	40 36.4%
	<b>Neither</b>	9 (20.5%)	10 (15.2%)	19 17.3%
	<b>Total</b>	44 40%	66 60%	110 100%

<b>Were You High?</b>	<b>Prior to Robbery</b>	<b>Committed Prior Robberies</b>	<b>No Prior Robberies</b>	
	<b>Yes</b>	22 (55%)	32 (50.8%)	54 52.4%
	<b>No</b>	18 (45%)	29 (46.0%)	47 45.6%
	<b>Don't Know</b>	0	2 (3.2%)	2 1.9%
	<b>Total</b>	40 38.8%	63 61.2%	103 100%

**Table 6**

**Prior Robberies and Robbery Planning Time**

How Far in Advance Did You Plan?	Time Frame	Committed Prior Robberies	No Prior Robberies	
	Shortly (>6 Hrs)	28 (52.8%)	56 (73.7%)	84 65.1%
	Same Day	4 (7.5%)	3 (3.9%)	7 5.4%
	More Than 1 Day	21 (39.6%)	17 (22.4%)	38 29.5%
	<b>Total</b>	53 41.1%	76 58.9%	129 100%

**Table 7**

**Prior Robberies and Importance of Store Characteristics**

		<b>Committed Prior Robberies</b>	<b>No Prior Robberies</b>	
<b>Exit Locations</b>	<b>Not Important</b>	20 (37.7%)	30 (40%)	50 39.1%
	<b>Slightly</b>	7 (13.2%)	0	7 5.5%
	<b>Moderately</b>	6 (11.3%)	7 (9.3%)	13 10.2%
	<b>Important</b>	8 (15.1%)	16 (21.3%)	24 18.8%
	<b>Very Important</b>	12 (22.6%)	22 (29.3%)	34 26.6%
	<b>Total</b>	53 41.4%	75 58.6%	128 100%

**Type of Neighborhood,  
Racial and Economic**

	<b>Committed Prior Robberies</b>	<b>No Prior Robberies</b>	
<b>Not Important</b>	27 (50.9%)	39 (50.7%)	65 50.8%
<b>Slightly</b>	5 (9.4%)	1 (1.3%)	6 4.7%
<b>Moderately</b>	10 (18.9%)	3 (4.0%)	13 10.2%
<b>Important</b>	5 (9.4%)	22 (29.3%)	27 21.1%
<b>Very Important</b>	6 (11.3%)	11 (14.7%)	17 13.3%
<b>Total</b>	53 41.4%	75 58.6%	128 100%

**Table 8**

**Prior Robberies and Prevention Measures**

		<b>Committed Prior Robberies</b>	<b>No Prior Robberies</b>	
<b>What to Prevent Robbery?</b>	<b>Clerks (# and Behavior)</b>	3 (5.8%)	6 (8.2%)	9 7.2%
	<b>Store Characteristics</b>	23 (44.2%)	29 (39.7%)	52 41.6%
	<b>Increased Police and Security</b>	9 (17.3%)	20 (27.4%)	29 23.2%
	<b>Other</b>	17 (32.7%)	18 (24.7%)	35 28.0%
	<b>Total</b>	52 41.6%	73 58.4%	125 100%

**Table 9**

**Differences Between Victim and Offender Responses on Robbery Prevention**

**What to Prevent Robbery?**

	<b>Victim</b>	<b>Offender</b>	
<b>Store Characteristics</b>	31 (40%)	62 (48.4%)	93 45%
<b>Increased Police/Security</b>	21 (27%)	30 (23.4%)	51 25%
<b>Nothing</b>	25 (33%)	36 (28.2%)	61 30%
<b>Total</b>	77 38%	128 62%	205 100%