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Factors influencing law enforcement decisions to adopt an evidence-based robbery prevention program

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Abstract

Homicide is the leading cause of workplace death among small retail and service businesses in the United States. Evidence-based programs have been shown to reduce robbery and robbery-related crimes in small retail businesses; however, reaching small businesses with programs has been difficult. As small businesses typically have no corporate backing or trade affiliation, police departments have been identified as potential vehicles for program dissemination. A national sample of 300 law enforcement agencies was surveyed to identify facilitators and barriers to adoption and sustainability of an evidence-based program. The questionnaire was developed using behavioral theory concepts and administered via telephone. Preliminary findings suggest the primary facilitators to program adoption included organizational capacity factors such as staff buy-in, dedicated personnel and financial support. Competing responsibilities was the primary barrier identified by agencies. Agency size and program complexity were identified as potential predictors of program adoption. Identifying agency and program-specific characteristics that influence program adoption by law enforcement agencies will be valuable for marketing programs to agencies that have the infrastructure to support and sustain program dissemination. Understanding these factors will optimize the reach of evidence-based strategies to small businesses.

Introduction

Homicide is the third leading cause of workplace death in the United States and the leading cause in the retail and service sectors [1, 2]. More than 80% of all workplace homicides are the result of a robbery [3]. Although programs to reduce the incidence of robbery and robbery-related employee injury exist [4, 5], there is little evidence that retail businesses implement program strategies on their own [6]. For example, an environmental survey of small retail and service businesses found that they were more likely to implement less effective strategies, even if these approaches were more expensive than the effective strategies [6].

With an increasing focus on community policing, law enforcement agencies have taken a lead role in delivering robbery prevention information to their business communities. Studies have shown that prevention-oriented community policing has decreased crime against property and persons, improved public–police cooperation and increased citizen involvement [7]. Law enforcement involvement in program delivery is particularly important for small, independently owned businesses that can lack central resources of a parent company or affiliations with professional associations where robbery prevention strategies are typically provided.

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Law enforcement may also be the only community group with whom small businesses have contact because they are one of the first points of contact after a robbery has occurred [8]. However, the proportion of law enforcement agencies across the nation that have robbery prevention programs is not known, and among those that do have a program, there is no standard content [9], which could compromise how and which strategies are communicated to business owners. In addition, among agencies that disseminate evidence-based robbery prevention programs, agency-level barriers have existed, including competing responsibilities and changes in priorities as command-level officers rotate positions [9, 10]. However, very little is known about the factors affecting law enforcement agencies' decisions to adopt evidence-based robbery prevention programs. A better understanding of these factors is important as evidence-based programs are packaged for agency dissemination.

Evidence-based programs to reduce retail robbery are based in part on a criminological concept called crime prevention through environmental design (CPTED), which theorizes that environments can be modified to make potential criminals feel exposed and vulnerable while bringing maximum safety at a minimum cost to the establishment [11]. In the retail environment, CPTED-based programs include employee training in crime prevention and control, good visibility into and within the business, bright interior and exterior lighting, access control into and within the business, minimum amounts of cash in the registers, and signage indicating low available cash and no employee access to safes. Although many of these robbery prevention strategies are used by law enforcement with their business communities, they may be prioritized behind such recommendations as video cameras and alarm systems, where the evidence base is much less clear [4, 9].

The benefit of any public health intervention is determined by its effectiveness, the extent to which it is correctly adopted and implemented and whether there is an impact on the health of the public [12]. Still, there is little evidence on best dissemination practices for evidence-based interventions [13, 14]. In a review of 25 studies among schools, governmental agencies, non-profit organizations and a worksite, very few looked at the role of organizational characteristics in the dissemination and implementation of interventions [15]. However, much can be learned from studies [16–18] involving the adoption of evidence-based interventions in schools. In these studies, both characteristics of the organization and intervention were identified as facilitators to program adoption.

The innovations [19, 20] and policing literature [21, 22] indicate a positive relationship between organizational characteristics and the adoption of new programs [23]. The Diffusion of Innovations theory posits that diffusion and adoption of an innovation (in this study, an evidence-based robbery prevention program) is determined by characteristics of the innovation and of the adopters (in this study, law enforcement agencies) [20, 24]. Organizational development theory offers a framework for how the culture and capacity of an organization can affect program adoption. Culture refers to the deep-seated values, norms and behaviors shared among an organization's employees [25], which can affect the extent to which employees are willing to adopt new programs. Capacity is essential for an organization to operate, and is described as needing adequate and appropriate resources, developing a structure for obtaining resources and conducting work, mobilizing resource s efficiently and effectively and developing products that will sustain adoption [26].

In this study, we focus on the adoption of an evidence-based robbery prevention program by law enforcement agencies, drawing on behavioral theories to describe law enforcement attitudes toward using the program, and to identify agency-level and program characteristics that would increase the likelihood of disseminating the program to businesses at high risk for robbery.

Method

Law enforcement agencies were identified from the 2008 Bureau of Justice Statistics (BJS) Census of

State and Local Law Enforcement Agencies (CSLLEA) [27]. Census data are collected by BJS every 4 years (since 1992) from State and local law enforcement agencies operating nationwide. Agencies were eligible for Census participation if they employed full-time sworn officers and did not contract or outsource all services to another agency. In 2008, 17 985 eligible agencies participated in the census for a 93% participation response.

Among the 17 985 agencies, we excluded 2421 (13.5%) that did not categorically oversee business jurisdictions (e.g. state highway patrols, university/college campuses and transportation systems). During the pilot phase of the project, we found that the use of crime prevention programs for small businesses was outside the scope of very small agencies. We therefore excluded an additional 4472 (24.9%) agencies with fewer than six full-time sworn officers. The source population included 11 092 police and sheriff's offices in the United States that we stratified by number of full-time sworn officers (FTSO) based on CSLLEA reporting (6–49, 50–249, 250–499, $\geq$500) to develop the sampling frame. The percentage of agencies in each of the stratum was 81, 16, 2 and 1%, respectively. Agencies were also categorized by region (West, Midwest, Southwest, Northeast and Southeast). This was done to ensure a representative sample of enrolled agencies across the United States. A map of the regions is provided in Appendix A. Of the source population agencies, 12% were in the West, 11% in Southwest, 30% in Midwest, 27% in Southeast and 20% in Northeast.

Agencies within each FTSO stratum were randomly sampled and called for study participation with the goal of enrolling 75 agencies per stratum based on sample size calculations. The distribution of enrolled agencies followed that of the source population by region with the exception of the Northeast and Southeast. Northeast agencies were somewhat over-represented in the study population compared with the source population (20% versus 13%), whereas agencies in the Southeast were somewhat under-represented (27% versus 34%). Among the 769 agencies contacted for participation, 106 declined, 94 were ineligible (e.g. non-working telephone numbers, department procedures for completing interview fell outside study protocol), four withdrew and we were unable to contact an additional 265 agencies. The participation response was calculated as a function of the number of agencies eligible for participation and the proportion of agencies with unknown eligibility ($n = 265$) estimated to be eligible based on agencies we were able to contact [28]. The final participation response was 48%.

The program examined in this study was called Crime Free Business (CFB), which is a CPTED-based robbery prevention program developed by academia, law enforcement, the National Institute for Occupational Safety and Health, private security and based on the state of the evidence in workplace violence prevention in the retail sector [6, 10]. Dissemination of CFB by police and sheriff's agencies requires the following: training business owners on the program components, performing an on-site assessment of the business to determine where gaps in security measures exist, providing recommendations to business operators based on the assessment and conducting an on-site follow-up visit to examine whether business owners made the changes recommended by agency personnel. It is recommended that agency personnel disseminating the program be trained in CPTED principles. The CFB program was used because it was the only evidence-based retail robbery prevention program developed for law enforcement agency dissemination. At the time of the study, CFB was only available for research use and not available to the general public. Therefore, participating law enforcement agencies neither had access to the program nor were they using it.

Development of the instrument was informed by two health promotion theories: diffusion of innovations theory [20] and organizational development theory [29]. The diffusion of innovations theory was used to develop questions about characteristics of the CFB program (innovation) that may influence dissemination by police and sheriff's agencies (adopters). In line with this theory, questions were aimed at understanding the complexity and relative advantage of CFB [20].

Complexity was operationalized as how easy the program would be to disseminate and was measured on a five-point Likert scale from 1 = very difficult to 5 = very easy. Relative advantage broadly considered how agency personnel compared CFB with other crime prevention methods used in their agencies, including the proven effectiveness of the program in other communities, cost of disseminating the program and newness of the program. Each construct was measured as worse, about the same or better than what was currently used. We hypothesized that robbery prevention programs that are perceived easier to disseminate and more effective than existing robbery prevention methods are more readily adopted by agencies [30].

We also included questions about the characteristics of the adopters of CFB (police and sheriff's agencies) which centered on concern about robbery in small retail businesses, self-efficacy to disseminate the CFB program (ability) and attitudes (decisions) about whether CFB should be adopted as a robbery prevention method for small businesses. Concern was operationalized as how agency personnel prioritized robberies in small retail businesses with other types of crimes in their jurisdiction (measured on a five-point Likert scale with 1 = lowest priority and 5 = highest priority). Self-efficacy and attitude (dependent variable) were measured on a scale from 1 = strongly agree to 5 = strongly disagree.

Key concepts of organizational development theory were used to develop questions about how the capacity and culture of police and sheriff's agencies can affect their adoption of the CFB program [29]. We hypothesized that capacity, in the form of facilitators and barriers, would influence program adoption. Facilitators were hypothesized to include personnel dedicated to program dissemination, organizational-level financial support, staff buy-in (from both frontline and command staff) and department emphasis on reducing robberies in small businesses. Barriers were hypothesized to include competing responsibilities of frontline staff disseminating the program, existing agency involvement with small retail businesses and rates of retail robbery. Questions related to facilitators and barriers were phrased in the questionnaire for yes/no/don't know responses.

Culture was measured by whether agencies ascribed to a community-oriented policing philosophy. Since the 1980s, policing philosophy has shifted from traditional, reactive policing to a more problem-solving approach that involves community partnerships and prevention activities [31]. Community-oriented policing promotes strategies that focus on preventing crime, fear of crime and social disorder, whereas traditional policing philosophies are incident-specific with the primary philosophical priority being police response to calls for service. Agencies engaged in the community-oriented philosophy consider the underlying causes of crime and disorder and work with the community to identify and effectively address the issues. However, there are varying degrees to which agencies fully adopt this philosophy. To understand those nuances, respondents were asked to choose between two scenarios—one reflecting community policing and one reflecting traditional reactive policing—to describe the culture within their agency. To minimize social desirability bias, the order of response options (community policing versus reactive policing) were switched for this question, such that half of the respondents were offered community policing as a first response option and half of the respondents were offered reactive policing as a first response option.

Two versions of the data collection instrument were developed: one that was 28 questions in length and administered to line staff working directly with small businesses on robbery prevention; the other that had the same 28 questions with two additional questions administered to command staff. The additional two questions in the command staff instrument focused specifically on capacity (e.g. budgeting for resources and personnel).

The data collection instrument was pilot-tested with three command-level and six frontline staff from nine police departments participating in a study examining strategies for effectively disseminating CFB into small businesses (NIOSH Grant #: R01OH009527). Modifications to the instrument were made based on debriefing responses from the

pilot. Final pre-testing was done with a sample of six agencies from the Bureau of Justice census database to assess duration of instrument administration and to make final wording changes.

The final data collection instrument used a semi-structured format and was administered over the telephone by trained research staff to either a command-level or frontline staff member. Command-level staff was sworn officers who made agency-level decisions about crime prevention programing and priorities and frontline staff was either sworn or civilian employees who were responsible for disseminating programs into the community. Interviews were completed with command-level and frontline staff from the agency's crime prevention unit or unit responsible for crime prevention programs.

Command-level and frontline designations were randomly assigned to each of the eligible agencies prior to contacting the agencies for participation. Individual respondents were self-selected for participation. Once the command-level or frontline respondent was identified and agreed to participate, verbal informed consent was administered. Interviews were completed between July 2011 and February 2012 and took approximately 15–20 min to administer. Interviews were completed with 158 (53%) command-level and 142 (47%) frontline staff from 300 police and sheriff's agencies throughout the United States.

Chi-square analyses were used to examine the association between characteristics of the CFB program (innovation) and size of the agency (measured as the number of full-time sworn officers) and to examine the association between agency-level facilitators and barriers to using the CFB program and size of the agency. Agency size was used as a proxy for resources departments would have available to deliver the CFB program. All variables measured on a Likert scale were categorized at the median due to skewed distributions toward 1 and 5. Logistic regression was used to estimate odds ratios (ORs) for the associations between innovation and adopter characteristics and police and sheriff's agencies decision to use CFB as a robbery prevention method for small retail businesses, adjusting for potential confounding variables. We used the change-in-estimate criterion to identify sets of potential confounding variables for each association between the innovation- and adopter- characteristic and the respondent's decision to use CFB. Variables were included as confounders if adding them changed the OR of a selected adopter or innovation exposure variable more than 10%. Sampling weights were used to account for the distribution of the source population of agencies by size. Command-level and frontline staff interview responses did not vary for the variables used in the analyses. Therefore, we did not stratify by the respondent's agency rank.

Results

Proven effectiveness was the program characteristic that respondents stated would most influence their agency's decision to use an evidence-based robbery prevention program like CFB (72%) (Table I). Approximately, half of the respondents also said that program cost and ease-of-use would influence program use. In both cases, the size of the agency had no influence on responses.

Two-third of the respondents stated that staff buy-in from both command-level and frontline staff would be a top facilitator in deciding to use CFB (Table II). About half the respondents identified having personnel dedicated to program dissemination (53%) and agency-level financial support (49%) as top facilitators to program use. There were no differences across agency size in the facilitators respondents identified, suggesting that the availability of departmental resources would not play a role in program use. The majority of respondents (67%) stated that competing responsibilities would be a top barrier in deciding to use an evidence-based robbery prevention program (Table II). Although less than half (40%) of the respondents stated that low retail robbery rates would be a barrier to program use, a greater proportion of respondents from smaller agencies (<250 full-time sworn officers) identified this as a barrier, compared to respondents from larger agencies (≥250 full-time

Table I. *Frequency of top two program characteristics that would influence agencies' decisions to adopt the CFB robbery prevention program, by agency size (number of full-time sworn officers)*

Top two program characteristics	Total *N* (%)	Number of Sworn Officers 5–49 *N* (%)	50–249 *N* (%)	250–499 *N* (%)	≥500 *N* (%)	*P*-value
Total	300	75	75	75	75	
Whether program was proven effective in other communities						
Yes	206 (73)	53 (73)	50 (71)	56 (78)	47 (68)	0.96
No	78 (27)	20 (27)	20 (29)	16 (22)	22 (32)	
Cost of program						
Yes	146 (54)	43 (64)	37 (55)	31 (45)	35 (51)	0.19
No	125 (46)	24 (36)	30 (45)	38 (55)	33 (49)	
Ease-of-Use						
Yes	146 (51)	32 (44)	40 (56)	35 (49)	39 (56)	0.15
No	139 (49)	40 (56)	31 (44)	37 (51)	31 (44)	
Newness of program						
Yes	30 (12)	9 (15)	3 (5)	8 (12)	10 (17)	0.04
No	222 (88)	53 (85)	60 (95)	59 (88)	50 (83)	

Table II. *Frequency of top two agency-level facilitators and barriers to agencies' decisions to adopt the CFB robbery prevention program, by agency size (number of full-time sworn officers)*

	Total *N* (%)	Number of full-time sworn officers 5–49 *N* (%)	50–249 *N* (%)	250–499 *N* (%)	≥500 *N* (%)	*P*-value
Top two facilitators						
Total	300	75	75	75	75	
Staff (command and line) buy-in						
Yes	194 (66)	41 (56)	47 (64)	53 (71)	53 (73)	0.29
No	101 (34)	32 (44)	27 (36)	22 (29)	20 (27)	
Dedicated personnel						
Yes	149 (53)	45 (63)	40 (56)	32 (45)	32 (46)	0.25
No	134 (47)	26 (37)	31 (44)	39 (55)	38 (54)	
Financial support						
Yes	141 (49)	38 (52)	35 (47)	33 (46)	35 (49)	0.80
No	149 (51)	35 (48)	39 (53)	39 (54)	36 (51)	
Department placing emphasis on robberies in small businesses						
Yes	102 (35)	22 (31)	24 (33)	29 (39)	27 (39)	0.88
No	186 (65)	49 (69)	49 (67)	45 (61)	43 (61)	
Top two barriers						
Competing responsibilities						
Yes	182 (67)	39 (58)	48 (69)	42 (62)	53 (80)	0.17
No	89 (33)	28 (42)	22 (31)	26 (38)	13 (20)	
Low robbery rate in small businesses						
Yes	116 (40)	50 (69)	38 (51)	18 (25)	10 (14)	<0.01
No	174 (60)	22 (31)	36 (49)	54 (75)	62 (86)	
Having not previously worked with small businesses						
Yes	47 (16)	14 (19)	15 (20)	8 (11)	10 (14)	0.87
No	241 (84)	59 (81)	59 (80)	63 (89)	60 (86)	

sworn officers) ($P < 0.01$). This is consistent with smaller departments in the study having lower commercial robbery rates than the larger departments.

Agencies were more likely to use the CFB program as a retail robbery prevention approach if the respondent considered the program easy to disseminate compared to those who considered the program difficult to disseminate [OR = 3.43, 95% confidence (CI) = 1.43–8.22] (Table III). Most respondents felt that CFB was better or at least about the same as their agency's current commercial robbery prevention methods (83%), and most felt their agency would have the ability to disseminate it (70%). Findings suggest that agencies would be more likely to use a program like CFB if they considered it to be better or about the same, compared to worse, than the robbery prevention methods they were currently using or if the agencies had the ability to disseminate it. However, these findings did not reach statistical significance.

Discussion

We found that characteristics of an evidence-based robbery prevention program (innovation) and police and sheriff's agencies (adopter) may influence an agency's decision to disseminate the program to retail and service businesses, specifically small, independently owned businesses.

Most agency respondents identified proven program effectiveness as a characteristic that would influence their agency's adoption of an evidence-based program like CFB. This suggests that mechanisms for educating departments of the program's research base would be an important component in how the program is packaged for law enforcement. We also found that respondents who felt their agencies had the ability to disseminate CFB were more likely to adopt the program. The ability to disseminate CFB was operationalized by an agency's conjecture about their ability to implement the phases of the program: recruiting businesses, training business

Table III. *Association between CFB (innovation) and police and sheriff's agency (adopter) characteristics with the decision that agencies would adopt CFB*

Innovation and adopter characteristics	Total *N* (%)	Adjusted OR (95% CI)	*P*-value
Complexity of disseminating CFB			
Easy	173 (60)	3.43 (1.43–8.22)[a]	<0.01
Difficult	116 (40)	Reference	
Relative advantage of CFB over other robbery prevention methods being used			
Better/about the same	233 (83)	1.60 (0.49–5.16)[b]	0.43
Worse	48 (17)	Reference	
Concern about robberies in small businesses			
High priority	192 (66)	0.98 (0.44–2.17)[a]	0.95
Low priority	99 (34)	Reference	
Have ability to disseminate CFB			
Agree	204 (70)	1.30 (0.52–3.27)[c]	0.57
Disagree	87 (33)	Reference	
Community policing philosophy			
Yes	165 (57)	0.94 (0.43–2.03)	0.86
No	125 (43)	Reference	
Agency size			
>250 full-time sworn officers	144 (49)	1.14 (0.68–1.92)	0.62
<250 full-time sworn officers	149 (51)	Reference	

[a]Adjusted for ability to disseminate CFB
[b]Adjusted for ability to disseminate CFB, complexity of disseminating CFB
[c]Adjusted for complexity of disseminating CFB, relative advantage of CFB over other methods.

owners, conducting an onsite security assessment and providing recommendations and following up within 3 months to assess compliance to the recommendations. Law enforcement leaders propose that crime prevention efforts may become a lower priority in an agency because of a lack of understanding and training in how to effectively implement and evaluate their efforts [32]. Our findings suggest that including resources in CFB program packaging, such as CPTED materials and training opportunities, may improve the likelihood that agencies would adopt CFB.

Respondents identified that program buy-in from both command-level and frontline staff would be a top facilitator for using an evidence-based robbery prevention program like CFB, regardless of the size of the agency. This is consistent with research done by Golaszewski *et al*. (2008) [33] which describes acceptability of worksite health promotion innovations by both organizations and employees as important for effective adoption. It is also consistent with the policing literature that suggests buy-in, particularly from the command level, is important for the adoption of innovations that challenge agency norms [34]. From a health behavior perspective, command-level staff would be the champions of the CFB program within law enforcement culture and critical for successful adoption in an agency [34].

Competing responsibilities of agency personnel required to disseminate a program like CFB was identified as a top barrier to disseminating the program. Overall, low robbery rate was identified by less than half the respondents as a top 2 barrier, although it was more of an issue in smaller agencies. Respondents from larger agencies, in particular, identified competing responsibilities as an issue. This may be due to larger agencies' struggles with balancing personnel and the service demands of reactive and preventive policing strategies, some of which may be considered a luxurious use of police resources by civic and public safety leaders. Additionally, robbery rates are higher in jurisdictions overseen by larger police and sheriff's departments. These factors may create an environment in which prioritization of activities and competing needs pose a greater challenge compared with smaller agencies. Therefore, identifying community partners to assist with program dissemination could improve a larger department's ability to offer a retail robbery prevention program. This approach is also in-line with the community-oriented policing philosophy of engaging stakeholders in the community to address criminal activity [8]. Engaging stakeholders in an effort to increase awareness and promote a sense of shared responsibility around the issues and solutions surrounding small retail business crime could reduce pressures of law enforcement's competing responsibilities. In addition, incorporating CFB into existing law enforcement crime prevention programs and community outreach efforts such as neighborhood, beat team or problem-oriented deployment strategies, may also reduce these pressures.

Respondents felt the CFB program has a low level of complexity for dissemination to their retail business communities and that this would influence their use of the program. Despite understanding that the program has three phases of implementation at the business level (i.e. training, baseline security assessment, compliance assessment), respondents still felt the program had a low level of complexity and that their agencies would have little difficulty providing the program to businesses in their communities. Our findings are consistent with studies in schools that also found program complexity, lack of training and support and inadequate district and state support to be barriers to adoption of evidence-based programs [16–18].

We recognize limitations of the study. First, none of the agency respondents had used the CFB program and therefore the study relies on the perceptions of individuals. Although interviewers provided respondents with detailed descriptions of the program components and dissemination requirements, they were answering about the hypothetical use of CFB. Owing to this, we might expect social desirability bias to have influenced their responses, such that they may have overestimated their expected use of or ability to implement CFB. However, we found similar responses among department personnel disseminating the program as part of a large-scale research study (NIOSH Grant # R01 OH010102). Second, constructs informed by organizational

change concepts like agency climate were excluded because they require more extensive questioning to properly measure than was available in our brief telephone interview. Finally, the participation response was relatively low (48%). This was due in part to the large number of agencies ($n = 265$) where we were unable to schedule an interview with the appropriate respondent but nonetheless needed to include the agency in calculating the response rate. Excluding these agencies, the response rate would have been 71%. Although we have representation of agencies across the nation, by agency size, it is impossible to know how agencies not interviewed may have differed from those interviewed with respect to factors influencing adoption of an evidence-based robbery prevention program. The authors do not have reason to believe, however, that agencies interviewed would differ from those not interviewed.

In conclusion, workplace violence is a public health threat and evidence-based programs like CFB provide a solution to this threat. Findings suggest increasing facilitating factors such as staff buy-in and addressing barriers such as officers' competing responsibilities may increase CFB program adoption. Moreover, increasing agencies' perceived ability to implement CFB, streamlining training so that the program is perceived as easy to use and highlighting its relative advantage over current crime prevention methods may also increase CFB adoption. This information is valuable for marketing the program to agencies that have the infrastructure to support and sustain CFB program dissemination and may ultimately offer the best chances of disseminating evidence-based strategies to small retail businesses. Ultimately, the public health benefits of effective robbery prevention programs, both in monetary terms of preventing injury and in terms of lives saved, warrant further research.

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Conflict of interest statement

None declared.

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Appendix A

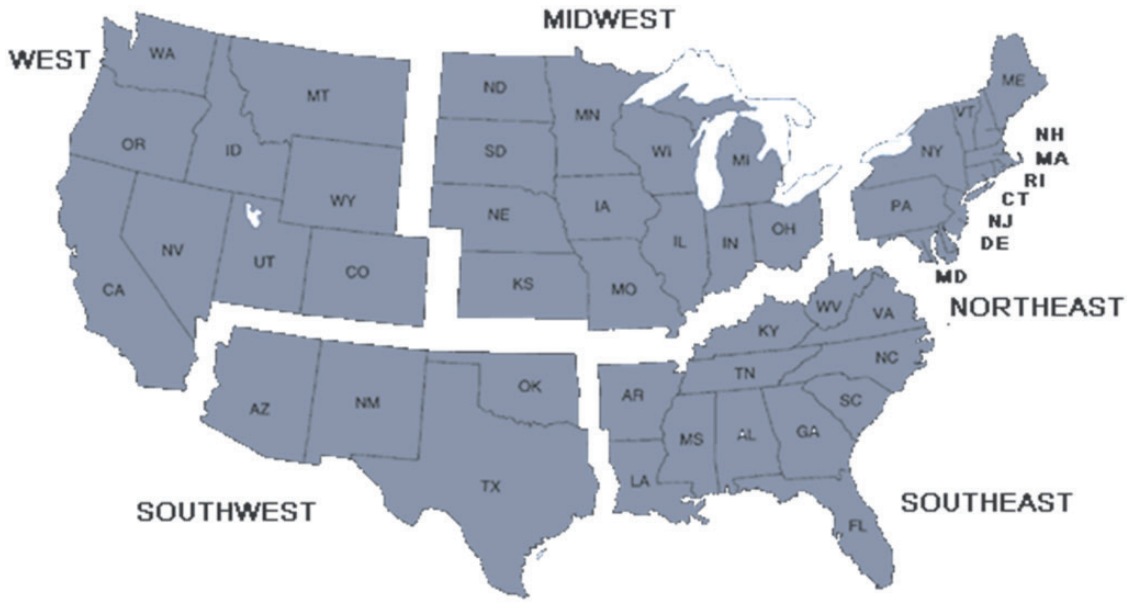

Fig. A1. United States Regional Map.