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Implementation of Possession Laws and the Social Ecology of Tobacco Control

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The objective of this evaluation research was to assess the impact of programs intended to support the enforcement component of a comprehensive youth tobacco control. The research method was a survey of a randomly stratified cluster sample of law enforcement officers. Results of the evaluation showed that the enforcement behaviors of officers were increased through the state programs to support tobacco enforcement activities. The study showed that support for implementing a policy is important to achieve the objectives of a policy. The results of a study of the enforcement component of a Florida tobacco control program are reported and discussed within the ecological context of previously reported enforcement-linked decreases in youth tobacco use and funding and defunding of the Florida Tobacco Control Program.

Keywords: *tobacco control; policy implementation; social ecology*

INTRODUCTION

Florida received considerable notoriety when significant annual declines in youth tobacco use followed implementation of a tobacco settlement-funded, comprehensive tobacco prevention program in 1998 (Bauer, Johnson, Hopkins, & Brooks, 2000; Centers for Disease Control and Prevention, 1999). Following significant yearly tobacco use declines in 1999, 2000, and 2001 (Florida Department of Health, Bureau of Epidemiology, 2004), funding of the enforcement component of the program was eliminated in the summer of 2001. The whole program was almost totally defunded in the following year (2002) and has continued to be virtually unfunded by the Florida legislature in the subsequent years. (A referendum to amend the Florida constitution passed in 2006, requiring funding of youth tobacco prevention.)

Investigation of this type of phenomena (tobacco use and control) is at the nexus of health and behavioral sciences research because of the influence of a wide range of social factors (Chaloupka, 2003; Sorensen, Barbeau, Hunt, & Emmons, 2004) on this major threat to health (Fiore et al., 2004; Haviland, 2004), including factors such as peer

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influence (Kobus, 2003), family influence (Avenoli & Merikangas, 2003), economic influence (Croghan, Aveyard, Griffin, & Cheng, 2003; Liang, Chaloupka, Nichter, & Clayton, 2003), socioeconomic status (Jefferis, Power, Graham, & Manor, 2004), smoking bans (Fee & Brown, 2004; Siegel, Albers, Cheng, Biener, & Rigotti, 2004), and media (Niederdeppe, Farrelly, & Haviland, 2004). The concept that a wide range of social factors influences and even determines behaviors impacting health is basic to the ecological approach to health (McLeroy, Bibeau, Steckler, & Glanz, 1988), for which all health professionals should be trained, according to the Institute of Medicine (2003). This evaluation research documents and illustrates a component of the ecological model related to youth tobacco control.

A number of evaluation studies were conducted for the Florida Tobacco Program (FTP) during the first 4 years of the project, many of them unreported in the literature. The study reported here is examined in light of the changes in youth tobacco use following funding and later defunding of the program. The primary tool for monitoring youth tobacco use, the Florida Youth Tobacco Survey (FYTS; Bauer et al., 2000; Florida Department of Health, Bureau of Epidemiology, 2004), was conducted at the beginning of the program (baseline) and every year after the program was started. The executive summary of the most recent FYTS report concluded that "The prevalence of cigarette use (lifetime, current, or frequent cigarette use) among Florida public middle and high school students decreased faster between 1998-2001 than during 2001-2004" (Florida Department of Health, Bureau of Epidemiology, 2004, p. 1). In fact, the yearly declines recorded in 1999, 2000, and 2001 were statistically significant for both middle and high school youth. Neither middle school nor high school decreases in tobacco use were statistically significant between 2003 and 2004 (Figure 1). Many of the 2002 and 2003 changes also were not statistically significant. These patterns of youth tobacco use have important implications for the impact of the program's components.

The major components of the Florida Tobacco Program were (1) media, (2) schools, (3) community, (4) enforcement, and (5) evaluation. The evaluation component provided a mechanism to study the other four components, with the FYTS measuring the ultimate outcome of the other four components, reduction in youth tobacco use. The Departments of Health (DOH) and Business and Professional Regulation (DBPR) contracted with independent third parties for the evaluation through the University of Miami, Evaluation Coordination Center for the FTP. The study described and discussed here specifically examined the impact of the FTP on law enforcement officials in enforcing a Florida law providing penalties for youth tobacco use or possession and penalties for sales of tobacco to youth. A previously reported study documented that high enforcement of the youth possession law significantly decreased youth tobacco use compared to low enforcement of the law (Livingood, Woodhouse, Sayre, & Wludyka, 2001). That study provided no insights concerning how much the FTP was responsible for the varying levels of enforcement activity.

A major component of the FTP was support for local law enforcement agencies to implement Florida's law regulating tobacco possession, purchase, or use by underage youth. This was accomplished through the Florida Department of Business and Professional Regulation Division of Alcoholic Beverages and Tobacco (DABT) contracts to local agencies for School Proximity Tobacco Enforcement (SPTE) programs. Programs within SPTE included both retail compliance investigations and enforcement of the tobacco possession statute close to schools or in other areas where youth congregate. The DABT contracts provided funds to local enforcement agencies to carry out enforcement activities. A major emphasis of the DABT contracts was reimbursement to

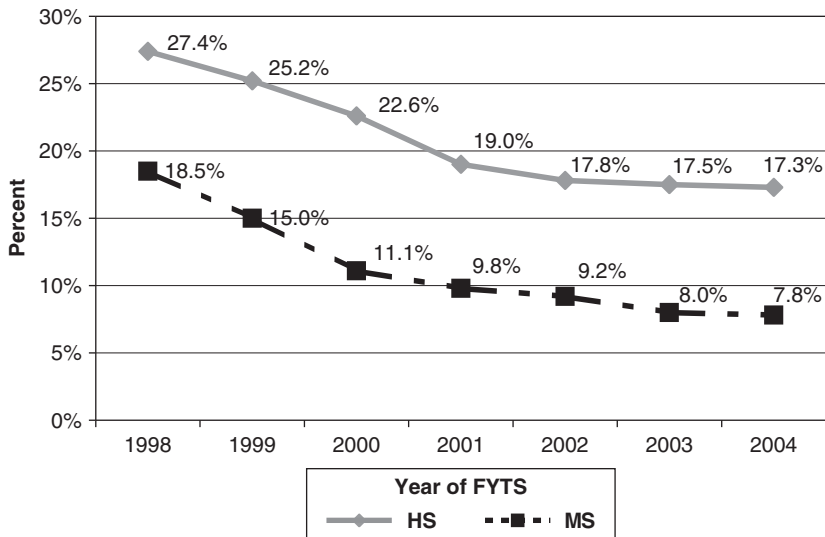


Figure 1. Percentage of Florida public middle and high school students who used tobacco on 1 or more of previous 30 days.

SOURCE: Florida Department of Health, Bureau of Epidemiology (2004).

NOTE: FYTS = Florida Youth Tobacco Survey.

the contracted agency for the costs of officers assigned to SPTE programs, including supervisory costs and clerical costs. These SPTE programs were a primary component of the enforcement program as illustrated in the logic model (Figure 2) for evaluation of the enforcement component of the FTP. Other studies (Langer & Warheit, 2001; Livingood et al., 2001) previously demonstrated a relationship between enforcement activity and tobacco use, and this study focused on the relationship between the state-funded program and the enforcement activities.

The purpose of this study was to assess the impact of the FTP on local enforcement agency involvement and support for the law designed to reduce youth access to tobacco and to discourage youth from possessing, using, or purchasing tobacco products. The study specifically examined state support for local agency enforcement using anonymous data collected from local enforcement officers during a 2-month period, prior to terminating funding of the enforcement component of the FTP. The primary emphasis of the study was to measure the effect of the DABT contract by comparing the enforcement activities of officers in contracting agencies to officers in noncontracting agencies.

METHODOLOGY

The survey approach was refined from an earlier study of officers conducted close to the beginning of the FTP. This earlier (1998) study of officers through telephone interviews with a random sample of officers found that officers were uninvolved with youth tobacco enforcement. However, the 20% response rate undermined the findings, challenging investigators to develop methods that would substantially increase the

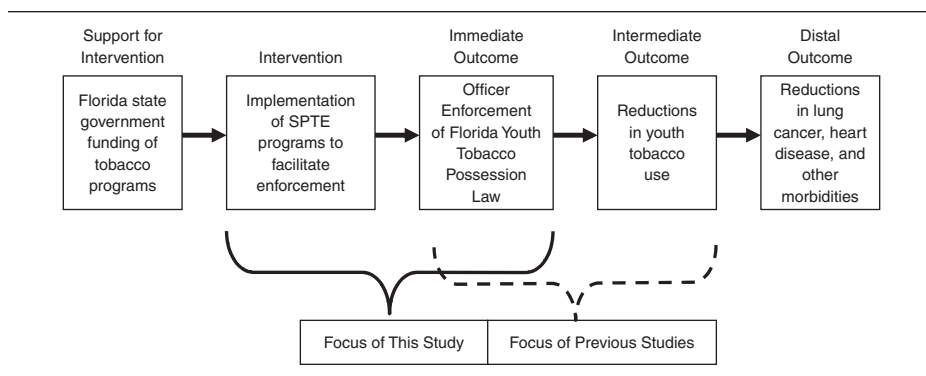


Figure 2. Evaluation logic model for Florida Tobacco Program enforcement program.
NOTE: SPTE = School Proximity Tobacco Enforcement.

response rate for this study. Improving validity of the data that compared FTP participating agencies to nonparticipating agencies was given higher priority than comparing the most recent data to “baseline.” Distributing surveys during roll call was determined to be effective in producing high response rates, and that method was selected for this study (Hoath, Schneider, & Starr, 1998).

Because agencies where roll call surveys are conducted represent “clusters” for sampling purposes and because there are a greater number of small agencies than the proportionate number of officers they represent, a stratified cluster sample was designed to obtain maximum participation of a representative selection of officers. Two sources of data from the Florida Department of Law Enforcement were used to stratify the agencies. Initially, the size of the agencies was identified using the Florida Department of Law Enforcement’s reports, “Criminal Justice Agency Profile 1999, Sheriffs’ Offices: Law Enforcement Demographic Summary” and “Criminal Justice Agency Profile 1999, Police Departments and State Agencies Demographic Summary.” There were 359 agencies in total: 294 police departments and 65 sheriff’s offices. However, the distribution of officers was split nearly 50-50 between the two types of law enforcement agencies (16,109 in sheriff’s offices and 15,929 in police departments).

Initial stratification of the clusters was accomplished by separating the officers by agency, namely, police departments and sheriff’s offices. Agencies were then placed in quartiles according to size using “round numbers” that were as close to the true quartile breaks as possible. Because the larger agencies were similar in number to the smaller agencies but had a very disproportionate number of officers (see Figures 3 and 4), equal numbers of agencies were selected from each quartile to ensure that various sizes of the agencies were represented in the sample and the sample of officers would be proportionate to the types of agencies employing officers in Florida.

Agencies were then separated into contracted and noncontracted agencies according to information obtained from the Florida Department of Business and Professional Regulation, Division of Alcoholic Beverages and Tobacco. Only agencies that were actively involved with contracts for 2 or more years were considered contracted agencies. Contracted agencies with less than 2 years of contracts were left out of the study because they would not have shown the desired effect (2 years of DABT contract involvement) or represent noncontracted agencies. Larger enforcement agencies were broken down into additional clusters for the substations.

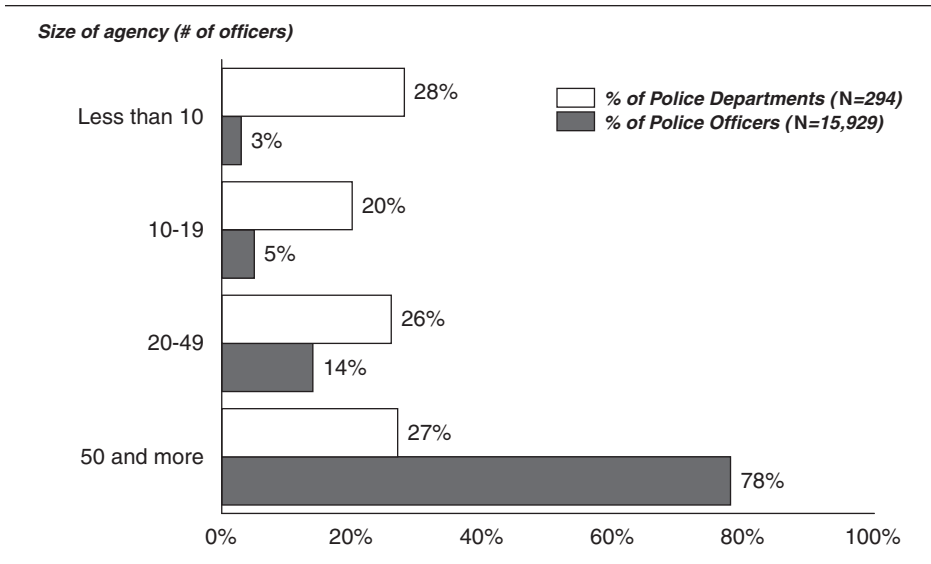


Figure 3. Distribution of police departments and police officers by quartile.

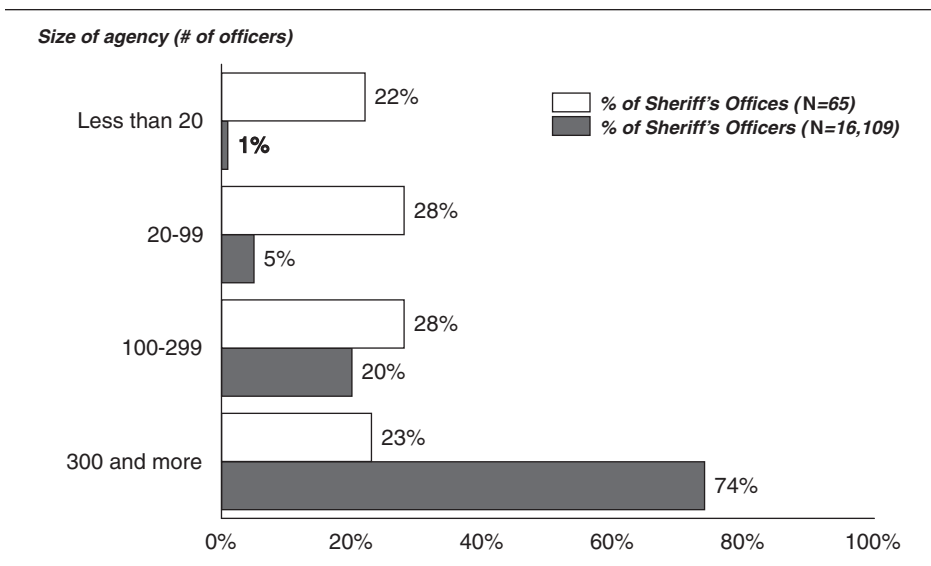


Figure 4. Distribution of sheriff's offices and officers by quartile.

The chief enforcement officer with each agency was introduced to the study through a letter from the DABT Director of Tobacco Enforcement. The Florida Department of Law Enforcement "Agency Addresses," available through the Citizens Resource Center, was used to identify the agency heads and other critical contact information. Each agency was then contacted by telephone using a screener to determine willingness to participate in the survey, how many substations the agencies had, the nature of the shift changes, and how the roll calls were conducted for the different shifts.

Data were primarily collected through surveys distributed by research agency staff during the roll call for the selected agencies. Most officers who participated were asked to complete the survey during or immediately following roll call for their regular duty assignment. In some cases, roll calls were less formal "shift changes," wherein the surveys were distributed directly to the officers as the shift changed. To ensure broad representation of the officers, additional surveys were distributed to a key contact within the agency who agreed to distribute the surveys to officers who did not attend the roll call but were on duty during the selected shifts. Arrangements were also made to similarly distribute surveys for a small number of agencies (two very small agencies) that did not conduct roll calls or have formal shift changes. Most surveys were distributed and collected by research associates, maintaining anonymity for individuals. The few surveys that were distributed through key contacts were returned in a predetermined manner that maintained confidentiality.

Survey Instrument

The survey instrument for this study was adapted from the 1998 baseline survey developed to study law enforcement officers, using an extensive review of the literature, focus groups interviews, telephone interviews, and reviews by consultants and Florida Tobacco Pilot Program coordinators (Livingood, Hallan, Sayre, & Wludyka, 1998). The 41-item instrument was further refined through pilot testing with interviewers and law enforcement personnel. The instrument was composed of Likert-type items measuring attitudes concerning tobacco control law enforcement, ordinal response items measuring self-reported behaviors and activity of others, other open-ended items measuring self-reported behaviors, and some other questions eliciting closed-ended responses that were dichotomous, yes-no alternatives. Internal (instrument) reliability of the original instrument was established through use of Cronbach alpha statistical analysis (.80 alpha) for the similarly structured closed-ended items following 1998 data collection. Internal content (instrument) validity was facilitated through rapid reconnaissance techniques and the review by Florida Tobacco Pilot Program coordinators. Rapid reconnaissance (Patton, 2002) is a qualitative process for quickly getting into the field (in this case, two focus groups with police units, five in-depth, open-ended telephone interviews, and review by an expert on tobacco enforcement recommended by the Centers for Disease Control and Prevention) to obtain relevant information concerning enforcement issues and practices. Review by Tobacco Pilot Program coordinators ensured face validity after the instrument was constructed. Because this study was designed to assess the impact of DABT support for local agencies, items were added to the original (1998) survey to measure contract-related characteristics such as self-reported assignments when issuing citations, targeted locations for enforcement, limits on tobacco enforcement, agency contract, and overtime and specific assignments for tobacco enforcement.

Data Analysis

SAS, SPSS, and Excel software were used to analyze data. Statistical analysis primarily involved SPSS cross-tabulation analysis of the various items for demographic characteristics for 2001 versus 1998 results and contracted agencies versus noncontracted agency results, using a chi-square test to determine statistical significance. Excel was used for graphing the data. Because the sampling process involved complex stratified cluster sampling, SAS 8.2 was used to conduct Taylor expansion methods of statistical

analysis (frequently associated with SUDAAN software) for comparisons of the officers in DABT contracted agencies versus noncontracted agencies. This form of statistical analysis adjusts the analysis for greater homogeneity within the clusters than what may be present in the general population.

Human Participants Protection

The protocol for this study was submitted to the University of Miami Human Subjects Institutional Review Board (IRB). The IRB also reviewed the survey instrument and the printed information provided to the officers to ensure informed consent for participation in the study. The officers participating in the study were provided clear information on the cover of the survey indicating the nature of the survey, that their participation was voluntary, and how the information would be used. The cover also encouraged the officers to call the director of the University of Miami Human Subjects IRB if they had any questions about the survey and encouraged the officers to feel free to remove the cover sheet from the survey to keep the phone number.

RESULTS

Survey Participants

A total of 1,187 enforcement personnel participated in this study from 41 agencies selected through random cluster stratification. Participants included 588 officers located in police departments and 589 located in sheriff's offices. The contracted agency participation included 482 officers, and the noncontracted agencies included 705 officers. In all, 63 agencies were contacted, with 9 refusals (7 police department and 2 sheriff's offices) and 14 not responding to repeated calls. Of the contacted agencies refusing, 1 had no chief and another had a chief on vacation with no one else in a position to authorize agency participation. In addition, 1 agency had no officers (only one part-time federal marshal) and another was closed. Finally, 1 agency would not agree to the survey methodology (self-administered surveys during roll call). The participation rate was approximately 67% for agencies, with many of the nonconsenting agencies being smaller. None of the officers in participating agencies refused to participate during the roll call process.

The survey collected critical descriptive information about the survey population. Generally, agencies were similar demographically. Related to tobacco use, 62.9% never used tobacco. Tobacco use varied little when comparing the types of agencies, with 62.8% of the police department officers and 63.1% of the sheriff's office officers reporting never use. The contracted agencies had a slightly higher rate of never use, 65.3% compared to 62.2% in the noncontracted agencies. Survey data revealed that 73.8% reported no smoking anywhere in their home. Survey data showed that 73.6% of police and 74.1% of sheriff officers report no smoking anywhere in the home. The contracted agency officers were very similar to the noncontracted agency officers, with 73.8% of both reporting no smoking anywhere in their home.

The primary assignment for most participants (59.7%) in the study was "patrol officer," with 63.3% patrol officers in police departments and 45.5% in sheriff's offices. Contracted agencies had 62.7% assigned to patrol officer duty, and noncontracted agencies had 58.8% assigned to patrol officer duty. Contracted agency personnel assigned

as school resource officers were very similar (5.5%) compared to the noncontracted agency personnel (6%). The similarity in proportionate assignment as school resource officers is important because of the potential impact of proximity and responsibility of these officers on school-age children. Disproportionate assignment between contracted and noncontracted agencies could have accounted for reported differences in youth enforcement activities.

Most officers were younger than 40 years of age, with 42% of officers in the age range of 30 to 39 years (largest % for 10-year range). The proportions in the 30 to 39 age range were relatively consistent across the different kinds of agencies. For type of agency, 42.5% of police officers and 41.6% sheriff officers were in the 39 to 40 age range. Similarly, 43.8% of the contract agency officers and 41.7% of the noncontract agencies were in the 30 to 39 age range. Years in law enforcement had considerably more variability within the agencies that participated in this study. Overall, 26.8% had 5 or less years of service, but 27.2% of police officers and 16% of the sheriff officers had 5 or less years of service. Within the contracted agencies 36.6% had 5 or less years of service compared to 23.5% of the noncontracted agencies.

The gender was primarily male (87.8%). Contracted agencies were very similar (87.3% male) compared to noncontracted agencies (88.0%). The predominant race was White (81.5%). Sample populations were somewhat similar for types of agencies, with 81.0% of police and 82.2% of sheriff officers being White, but contracted agencies had lower percentages of White officers (73.3%), with the difference being due to the larger number of Latino/Hispanic officers between contracted (13.4%) and noncontracted agencies (4.1%).

Findings

A primary purpose of this evaluation was to assess the impact of DABT support for local enforcement agencies as measured through the attitudes, perceptions, and behaviors of law enforcement officers. Comparison of contracted agencies with noncontracted agencies for the attitudes, perceptions, and behaviors was used to answer the major research question concerning the impact of DABT contracting with local enforcement agencies. Because Florida has two major agency structures for enforcement (sheriff's offices and police departments) and because the data were stratified to ensure representation of both types of agencies, results from the two types of agencies were also contrasted.

Contract Versus Noncontract Comparison

Most officers in both contracted and noncontracted agencies were not highly involved with enforcing the tobacco laws restricting access to or possession of tobacco by youth as measured by items assessing tobacco-related citations issued. However, comparison of the contracted versus noncontracted agencies yielded statistically significant results for many of the responses to the survey, particularly for those items that reflected desirable tobacco enforcement behaviors. Officers in the contracted agencies were much more likely to be involved with issuing citations, as indicated by self-reported behavior for issuing citations for tobacco possession and for sales of tobacco to youth. Data on behaviors were analyzed by the aggregated number of officers issuing citations and the mean number of citations issued. Data on the officers' perception of citations being issued by other officers confirm the difference in reported citation issuing behaviors between the contracted versus noncontracted agencies.

Differences in responses between contracted and noncontracted agencies to the question "How many citations have you issued to youth for possession of tobacco in the past 60 days?" were statistically significant at the .001 level of probability. Within the contracted agencies, 29.3% of the officers issued citations for possession compared to only 10.5% of the officers in noncontracted agencies, the contracted agency officers being 279% more likely to have issued a citation (see Table 1). Accounting for the 29.3% of contracted agency officers, most officers (20.1%) issued 5 or fewer citations, 6.5% issued 6 to 10 citations, 1.5% issued 11 to 20 citations, and 1.2% issued more than 20. Comparing the means (average number of citations per officer), the difference between contracted agencies versus noncontracted agencies becomes even greater. The mean number of citations for contracted agencies was 1.69 compared to a mean of 0.38 for the noncontracted agencies (much less than 1 per officer).

Supporting the self-report data on citations to underage youth for possession, differences in officer perceptions of other officers in their department issuing citations for underage possession were statistically significant at the .001 level of probability. Officers in the contracted agencies were much more likely (36.1%) to report other officers issuing citations always or frequently compared to the noncontracted agency officers (14.9%). Similar to youth tobacco possession citations, in response to the question "How many citations have you issued for the sale of tobacco to youth in the past 60 days?" differences between contracted and noncontracted agencies were statistically significant at the .001 level of probability. Within the contracted agencies, 7% of the officers issued citations compared to 1.8% of the noncontracted agencies. The mean number of citations, although low for both types of agencies (less than one per officer), was much higher for the contracted agencies. These low numbers reflect the reality that law enforcement officers are primarily involved with other priority enforcement issues, providing further evidence that special support may be necessary for enforcement of health-related policies.

Additional analysis using more sophisticated statistical procedures that compensate for homogeneity that may accompany clustering provided further verification of the statistical significance of the results. In particular, the SAS 8.2 analytic procedures, which account for stratification and clustering similar to the procedures used with SUDAAN software, showed that the p values for the differences between contracted and noncontracted agencies were .0001 for possession citations being issued and .0089 for sales to underage youth citations. These p values indicate an exceptionally low probability that the differences were due to chance or sampling error. These statistical software packages use Taylor expansion methods (using linearization) to compute a standard error adjusted for stratification and clustering.

The importance of special assignments for tobacco enforcement is reflected by officers not always issuing citations when they observed tobacco use by underage youth. Even when assigned to tobacco enforcement, only 14% of the officers in contracted agencies indicated that they always issued citations for possession compared to 9.4% of the noncontracted agencies ($p = .001$).

Support for Tobacco Enforcement

Assignment to tobacco enforcement appears to be critical for enforcement to take place. The proportion of officers who indicated that they issued citations for underage possession while on other than tobacco enforcement details was equivalent (not statistically significant) for contracted and noncontracted agencies. Officers in contracted

Table 1. Comparison of Contracted Agencies' and Noncontracted Agencies' Survey Item Responses (%)

	Contracted	Noncontracted
1. Responses for citations issued		
Officers issuing citations to youth for possession of tobacco in the past 60 days	29.3	10.5
Officers issuing citations for retail sales to underage youth in the past 60 days	7	1.8
Report other officers always or frequently issuing citations for possession	36.1	14.9
2. Responses for assignments when issuing citations		
Officers who are always on tobacco enforcement assignment when issuing citations for possession	14	9.4
Officers who issued citations for underage possession while always or some of the time being assigned to other than tobacco enforcement duties ($p = .000$)	43	38
Officers who report being assigned to tobacco enforcement with youth around schools ($p = .000$)	27.4	12.1
Officers who report being assigned to tobacco enforcement with stores that sell tobacco ($p = .003$)	18.2	11.8
Officers who were provided overtime for tobacco enforcement around schools ($p = .000$)	36.3	11.7
Officers who were provided overtime for tobacco enforcement with stores ($p = .000$).	27.7	12.1
3. Items related to agency support		
Agree or strongly agree adequate personnel assigned to youth tobacco enforcement	54.8	26.1
Agree or strongly agree tobacco enforcement not a high priority	56	62.1
Supervisors rarely or never encourage work with local community to reduce youth tobacco use	38.5	58
System rarely or never tracks and provides follow-up	40.2	56.2
Judges always or frequently apply penalties	28.4	16.2
Other officers always or frequently issue citations for possession by underage youth	38.1	15.6
Other officers always or frequently issue citations for sales to underage youth	27.1	9.2
Supervisors rarely or never encourage strict enforcement of tobacco laws	35.1	55.7

agencies were much more likely to report being assigned to tobacco enforcement with youth around schools (27.4% vs. 12.1%, $p = .001$), assigned to tobacco enforcement with stores that sell tobacco (18.2% vs. 11.8%, $p = .003$), provided overtime for tobacco enforcement around schools (36.3% vs. 11.7%), and provided overtime for tobacco enforcement with stores (27.7% vs. 12.1%, $p = .001$).

Supervisors in noncontracted agencies (55.7%) were twice as likely to never or rarely encourage strict enforcement of youth tobacco control laws as supervisors in contracted agencies (25.1%, $p = .001$). Officers in contracted agencies found that (their) department makes adequate personnel assignments to enforce the youth tobacco at

twice the rate (54.8%) of agreement (strongly agree or agree) compared to noncontracted agencies ($p = .001$). Officers (60.5%) in contracted agencies also indicated that their supervisors always, frequently, or occasionally encouraged law enforcement officers to work with local community and school activities to reduce youth tobacco use compared to the noncontracted agency rate of 40.2% ($p = .001$).

Other Comparisons

Comparison of these survey results to the 1998 survey results yielded interesting but inconclusive findings due to the low response rate of the 1998 survey, major differences in motivation required for participation in the two surveys, and substantial differences in the proportional representation by types of assignments. More conclusive but of less relevance, few statistically significant differences were observable between the sheriff's office and police department agencies, and none were as pronounced as the differences between contracted and noncontracted agencies.

CONCLUSIONS AND DISCUSSION

Policy has been recognized as a major tool of health promotion and disease prevention for decades, reflected in PRECEDE-PROCEED (Green & Kreuter, 1991) and ecological approaches (McLeroy et al., 1988). Policy development is also increasingly recognized as a core public health function (Hann, Kean, Matulionis, Russell, & Sterling, 2004; Institute of Medicine, 1988). However, there is a void in research on how the implementation of health-related policy can vary and how differences in policy implementation can produce varying results. Policy research tends to deal with policy as a dichotomous variable, either being or not being in place. Previous research on differences in enforcement demonstrated that differing levels of enforcement of the same policy had differing levels of impact on youth tobacco (Langer & Warheit, 2001; Woodhouse, Jopling-Sayre, & Livingood, 2001). This study examined the extent that specific interventions designed to increase enforcement of policy actually increased enforcement activity (policy implementation; Hill & Hupe, 2002; Pressman & Wildavsky, 1984).

In addition to the implications for tobacco control policy, this study has important implications for the study of policy. The study had value in demonstrating how to effectively increase survey participation of law enforcement officers. Public health issues such as HIV/AIDS prevention (Tyndall, 2003), drug abuse prevention (Courtwright, 2004; Muldrew, 2004), pedestrian safety (Van Houten & Malenfant, 2004), automobile safety (Chaudhary, Solomon, & Cosgrove, 2004; Williams & Wells, 2004), environmental quality (Shults, Nichols, Dinh-Zar, Sleet, & Elder, 2004), intentional injury prevention (Tully & Mattson, 2004), alcohol abuse (Dent, Grube, & Biglan, 2005), and prevention of sex crimes against minors (Glick, Lating, & Kotchick, 2004) have enforcement components (either negatively or positively impacting the problem) that may be influenced by the attitudes and practices of law enforcement personnel. To study these law enforcement populations, effective survey techniques are required. The survey methodology (surveys during roll call) used for this study substantially increased participation of law enforcement personnel and enhanced the external validity of the results. The previous survey providing baseline data for this study had a very poor response rate (20%) even though police consultants were used to develop the process and incentives were used to encourage participation.

Self-selection and the lack of a randomized control group for DABT contracting posed a limitation for drawing conclusions about the impact of contracting. Because agencies self-selected for DABT contracts, differences in enforcement performance of the contracted versus noncontracted agencies could reflect a predisposition of officers to engage in tobacco enforcement. Other characteristics of agencies such as the type of agency (with different geopolitical boundaries—police being metropolitan and sheriffs being county) or differences in demographic make-up in agencies could have influenced self-selection and enforcement activities of the officers. However, most demographics of officers were similar for both types of agencies (contract vs. noncontract), and stratification of the sampling process ensured very similar types of agencies related to size and type of agency for both contracted and noncontracted agencies. Most important, the statistically similar use of tobacco products and the similar attitudes about the priority of tobacco enforcement among both contracted and noncontracted agency officers (attitude that other enforcement activities should take priority over tobacco enforcement) substantially removes a predisposing bias of officers toward enforcement activity within the contracted agencies. A major factor that did differ between contracted and noncontracted agencies was the proportion of enforcement-linked assignments, which were directly enhanced through the DABT contracts. The stratification of sampling and measurement of attitudes that would reflect a bias without showing statistically significant differences reduces the potential for a prior bias as much as possible without a randomized controlled design, which is not practical for these kinds of community interventions.

Although the use of randomized controlled assignment (RCA) may be considered ideal for assessing a cause-and-effect relationship, it may not be optimal for this type of community-level policy research. Related to tobacco control, the United States has undergone a major change from a culture that enabled and supported tobacco use in the 1960s to a culture of growing intolerance and restrictions on tobacco use, linked and supported by policy change. However, the recent National Institutes on Health (2006) consensus conference on what we know about tobacco control reflected a paucity of research on this major transformation of the U.S. culture, primarily concentrating on cessation research that is amenable to RCA. Research on the impact of policy, culture change, and other elements of the social ecology of health-related behavior may require research that uses other than RCA designs. This type of research has not typically been funded by major research institutions; consequently, much of the change in tobacco use lacks research that provides insights about what works most effectively to reduce tobacco use.

Implications for Practice

The study was particularly important for tobacco control policy. The policy, in this case the law in Florida, was constant throughout Florida with the state statute preempting local laws. However, the law was enforced differently by enforcement agencies at the local level. This study demonstrated that policy enforcement could be increased with specific interventions designed to increase enforcement and that enforcement can be very dependent on these types of interventions. Practitioners and advocates may commit a serious error if they rely on changes of policy to produce the intended effect without addressing policy implementation. Enforcement was very low without the interventions, and enforcement activity increased substantially, particularly targeted enforcement, with the policy implementation interventions. Although most law enforcement

officers were not involved with tobacco enforcement, key officers that had contact with children were more likely to be involved, particularly those in critical locations such as around schools and shopping malls.

Although the increases in enforcement may be considered modest because less than a majority of officers were involved in enforcement even after the intervention, these modest changes are actually quite profound when considering the demands of law enforcement. Clearly, law enforcement is not going to take away resources from major crime prevention and control or even traditional injury prevention such as traffic enforcement to support youth tobacco control or other health-related policies. The DABT agency contracts provided dedicated funds to supplement tobacco enforcement, which was accompanied by reported increases in tobacco-related enforcement. These increases are even more profound when the targeted nature of enforcement is considered. The enforcement was in areas where youth congregated, which had the important effect noted from a previous enforcement-related study (Livingood et al., 2001; Woodhouse et al., 2001) of reducing the high-profile role modeling that appears to lead some young people to conclude that "all the kids do it" or the "cool kids do it."

For practitioners concerned with policy development and change in general, an insight from this study is that adoption of a policy may only be the beginning. These studies appear to indicate that simply passing a law providing for enforcement did not result in large-scale enforcement. Public health programs relying on police enforcement may need to take into account that other policing demands will take priority over public health initiatives unless the programs include components that enable and reinforce the enforcement activities.

Another important implication for practice is the importance of the ecological context of the study and the potential for erroneous conclusions about enforcement's impact on tobacco control without the context. These results should not be interpreted without the context of Florida's comprehensive program and without the context of broader social change related to tobacco. Florida's success followed successful advocacy and legal efforts to restrict advertising through the tobacco settlements. It is not known if Florida's comprehensive program or any of its components would have been successful if the tobacco industry was able to continue to target youth with advertising campaigns the way they were prior to the settlement agreements. Various studies have also found that other components of the Florida program have been successful, with the media efforts (Chaloupka, 2003; Thrasher et al., 2004) and youth empowerment efforts (Holden, Messeri, Evans, Crankshaw, & Ben-Davis, 2004) being given particular attention. The earlier enforcement study (Livingood et al., 2001) also pointed to the complementary and potential interactive effects of the other components in producing the declines in youth tobacco use, which could be attributed to enforcement activities. There is no evidence to support a conclusion that tobacco enforcement alone could produce the desired effects as these studies were all completed within the context of comprehensive programs. The profound success of the Florida program was initially attributed to the comprehensive nature of the program (Centers for Disease Control and Prevention, 1999), which included the multicomponents of media, school-based, and youth empowerment approaches in addition to policy and policy enforcement. This comprehensive approach reflects an ecological approach that is typically not reflected in single-faceted approaches.

The issue of possession enforcement's effect on youth tobacco use remains controversial, mostly due to a paucity of studies. Critics of the youth possession enforcement strongly object, primarily on moral grounds (Carol, 1992; Wolfson & Hourigan, 1997).

Some even question the focus of prevention efforts on youth (Bayer & Kiesig, 2003). Although there is a large body of evidence related to the impact of sales enforcement (Forster et al., 1998; Jason, Bert, Schnopp-Wyatt, & Talbot, 1999) and the impact of environmental enforcement (Institute of Medicine, 2003), the impact of possession enforcement appears to be rarely studied. Relatively rare data-based articles on tobacco enforcement are frequently inconclusive, and they focus more on the relationship of the threat of punishment to attitudes and behavioral intent (Gottlieb et al., 2004; Unger et al., 1999), neglecting the social ecology of policy and targeted policy enforcement's potential to decrease role modeling by reducing the number of older children smoking in high-visibility locations as a result of enforcement. Clearly, possession enforcement (Langer & Warheit, 2001; Livingood et al., 2001; Woodhouse et al., 2001) studies are too limited to be conclusive, but evidence does show potential for an impact on reduction in youth tobacco use as part of a comprehensive youth tobacco control program, without much in the way of contradictory evidence. The experience in Florida also points to the need to support these comprehensive youth tobacco control efforts, which were all terminated to shift funds to other legislative priorities.

This evaluation of the enforcement component of the Florida Tobacco Program designed to prevent youth tobacco use confirmed that the program was having its intended effect. The reductions in youth tobacco use associated with enforcement components of the program (Langer & Warheit, 2001; Livingood et al., 2001) and the subsequent loss of those declines following withdrawal of funding (FYTS, 2004) further confirmed the effectiveness of the Florida Tobacco Program, including the enforcement components. Decreases in youth awareness of other youth being cited for tobacco possession have been reported from FYTS data since 2002. Awareness of other youth being fined was previously linked to the effectiveness of enforcement on youth tobacco use. These decreases in youth-observed enforcement activities would be expected if critical external support for agency enforcement was withdrawn, thus further demonstrating a relationship of the DABT agency support to enforcement. Although the gains in reducing youth tobacco consumption from the Florida program in the late 1990s have not been lost, the elimination of funding for the comprehensive tobacco program shows gradual erosion of some of the more proximal outcomes linked to the reduction in youth tobacco use, providing evidence that (1) Florida may be accomplishing much less than could be accomplished if Florida had the comprehensive program of the late 1990s, and (2) continued erosion of immediate outcomes associated with the Florida program of the late 1990s could eventually lead to reversals of Florida's achievements in reducing youth tobacco use.

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