

AN ABSTRACT OF THE THESIS OF

Louise Street-Muscato for the degree of Doctor of Philosophy in Public Health

**presented on April 28, 1997. Title: Evaluating Oregon's Minors and Tobacco Laws:
Assessment Of The Impact Of Tobacco Enforcement Citations On Oregon Tobacco
Retailers' Knowledge, Attitudes, Practices and Policies Towards Minors' Access**

Abstract approved: *Redacted for Privacy*

Chunheui Chi

The purpose of this study is to assess whether or not enforcement of the Minors and Tobacco Laws in the form of a citation had an impact on the knowledge, attitudes, practices and policies of over-the-counter tobacco retailers in Oregon. Demographic factors, such as store type, store size, ownership type, and location of the store that may contribute to the retailers response to receiving a citation for selling tobacco to a minor, were examined. The study examines two randomly selected groups of over-the-counter tobacco retailers in Oregon. The treatment group received a citation selling tobacco products to a minor while the control did not. A mail survey was sent to retailers selected for the study. The survey instrument measured the characteristics in each group, representing knowledge, attitudes, practices, and policies relating to the Oregon Minors and Tobacco Laws. The unit of analysis was owners or managers of retail stores. Cross-tabulation and a chi-square test statistic was used to assess and determine if there

was a significant association between selected variables. Multiple regression was employed to determine if there is a relationship between composite dependent variables representing retailers' attitudes and practices and several demographic variables. Stores that had received a citation were more vigilant in compliance practices and perceptions than stores that had not received a compliance check and citation. Retailers' believe that both negative and positive strategies are necessary to achieve retailer compliance, retailers need more educational materials for training employees, and that a training video and a device to help clerks calculate the age on a minors ID would be useful. Retailers in both groups opposed the licensing of retailers to sell tobacco. Owners and owner operated stores in country settings were found to be resistant to policies aimed at reducing minors' access to tobacco products.

**Assessment Of The Impact Of Tobacco Enforcement Citations On Oregon
Tobacco Retailers' Knowledge, Attitudes, Practices and Policies
Towards Minors' Access**

by

Louise Street-Muscato

A THESIS

submitted to

Oregon State University

**in partial fulfillment of
the requirements for the
degree of**

Doctor of Philosophy

**Presented April 28, 1997
Commencement June 1997**

Doctor of Philosophy thesis of Louise Street-Muscato presented on April 28, 1997.

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LOUISE STREET-MUSCATO, AUTHOR

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**Assessment Of The Impact of Tobacco Enforcement Citations
On Oregon Tobacco Retailers' Knowledge, Attitudes, Practices and Policies
Towards Minors' Access**

1. INTRODUCTION

The citizens of the United States have an ethical and legal responsibility to protect young children from dangerous activities that could lead to their death, disease, or disability. The rationale, in most cases, is that minors are not old enough to make decisions relating to activities which are potentially harmful to them. Children are protected by laws relating to drug and alcohol use, sexual abuse, the wearing of bicycle helmets, physical abuse and the use of cigarettes, to mention only a few. Adults are charged with protecting young children and providing them with a healthy safe environment in which they can reach adulthood. The state, in addition, has a responsibility to protect children. Every state now has laws which prohibit the purchase of tobacco products by minors.

In contradiction of these legal and moral precepts, tobacco is displayed and used in abundance in all facets of society most young people have virtually unrestricted access to tobacco products (Nobell, 1993). Selling tobacco products to a person under the age of 18 years of age in Oregon is considered an act that endangers the welfare of a minor (ORS 163.575). Young people are persuaded to experiment with tobacco by observing their peers, parents and other adult role models. Children are constantly exposed to

compelling media ads, promotions, slogans and graphics, depicting tobacco use as cool, sexy and tough. Tobacco continues to be highly visible, socially acceptable, and readily available to everyone, including children. In addition, politicians who are entrusted with the health and welfare of children receive campaign contributions from tobacco companies, compromising the ethics of their voting decisions on tobacco issues (Glantz, 1994). Parents provide their underage children with tobacco products, (Cummings, Sciandra, Pechacek, Orlandi, & Lunn, 1992), and retail clerks across the nation continue to sell tobacco products to minors. These, and other complex factors, contribute to the problem of minors' access to tobacco in the United States.

The purpose of this research is to examine the knowledge, attitudes, practices, and policies of the managers and owners of Oregon retail outlets selling over-the-counter tobacco products. This research explores this knowledge, attitudes, practices and policies in relation to current state-wide compliance checks, citations for illegal sales and overall enforcement of the Minors and Tobacco Laws. The enforcement legislation is the result of the implementation of the Synar Amendment (US, DHHS, 1993).

1.1 The Consequences of Unchecked Youth Access to Tobacco

As addiction to tobacco has become more understood and the serious health consequences associated with cigarette use have been identified, cigarette smoking has been labeled by medical and public health professionals as the number-one health problem facing Americans. Once people become addicted to nicotine (the addictive agent in tobacco products), it doesn't matter how disciplined, strong-willed or committed to

quitting they are, free will and choice are gone. A Minnesota Tobacco-Free Youth Project found that the earlier a child starts using tobacco, the more likely it is he/she will be unable to quit (Tobacco Free Youth, 1992). The best time to keep people from entering the lifelong struggle with tobacco is while they are young, before they start. That is why abolishing minors' access to tobacco is so important.

The following path diagram illustrates the long-term consequences of unimpeded youth access to tobacco products.

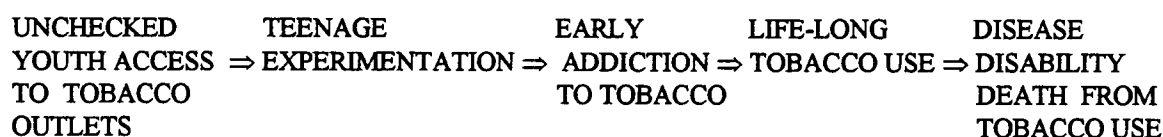


Figure 1.1 Path Diagram. Long-Term Consequences of Minors' Access to Tobacco

The initial phase of the path diagram illustrates the problem addressed in this research, unchecked youth access to tobacco products through retail outlets. In order to reduce and eventually eliminate access to tobacco products by minors through convenience stores, gas stations, and larger stores, strategies to achieve increased levels of compliance with the Minors and Tobacco Laws must be developed using the front-line experience of retail outlet employees. Without strict enforcement of the Minors and Tobacco Laws and the cooperation of retail outlets, minors will continue to access and experiment with tobacco.

Experimentation frequently leads to addiction. In 1988, the Surgeon General, classified nicotine an addictive drug (US DHHS, 1988). Eighty percent of current adult smokers became addicted to nicotine before the age of 18, the legal age to purchase (US DHHS, 1994). Never intending to become lifelong smokers, they were unable to quit smoking when they wanted to because of the addictive nature of nicotine. In addition, tobacco, alcohol and marijuana are considered gateway drugs. Children who experiment with and become cigarette smokers are more likely to go on and use marijuana, cocaine or other illicit drugs. In addition, adults who start smoking as children are more likely to use licit and illicit drugs (Center on Addiction and Substance Abuse, 1994).

Cigarette smoking is currently the number-one preventable cause of death in the United States. Over 400,000 people die each year in the United States from diseases caused by smoking; such as, lung cancer, heart disease, and respiratory disease (Centers for Disease Control and Prevention, 1993). When youth access to tobacco products is minimized or stopped, the destructive cycle of nicotine addiction, which leads to life long tobacco use and ensuing disease, disability and death, will be broken (see Figure 1). One answer to the problem of nicotine addiction is legislation to impede minors' access to tobacco products. However, the laws must be enforced.

1.2 The Synar Amendment

In reaction to the problem of a lack of interest in enforcement of the tobacco-distribution laws at the state and local level and continued unimpeded minors' tobacco access, President George Bush signed Public Law 102-321 in July 1992, called the Synar

Amendment. This law is an amendment to the Alcohol, Drug Abuse, and Mental Health Administration Reorganization Act. Section 1926 (PL 102-321) requires that states receiving federal drug and alcohol block grant money for substance abuse prevention and treatment must adopt and enforce laws prohibiting the sale or distribution of tobacco products to youth under the age of 18. The Synar Amendment requires enforcement of the Minors and Tobacco Laws in every state. In addition, Synar stipulates that trained, underage, decoy buyers must attempt to purchase tobacco products in random unannounced compliance checks conducted in a scientifically sound manner and that annual reports be submitted to the U.S. Department of Health and Human Services verifying that these checks took place and their results. The report must show that illegal sales do not exceed more than 50% during the first applicable fiscal year, 40% during the second applicable fiscal year, 30% during the third applicable fiscal year, and 20% during the fourth applicable fiscal year and subsequent fiscal years. If these access rates are not achieved, the Department of Health and Human Services is authorized to withhold up to 40% of a state's federal substance abuse funds. (U.S. DHHS, 1993).

The Oregon State Congress approved the implementation of the Synar Amendment in Oregon in 1994. Oregon was one of the first states to begin random unannounced compliance checks. Oregon has now completed its second year of compliance checks. There was no change between the first and second years of compliance checks; access rates for both years was 39%. The rates were determined after all retailers in Oregon received an educational packet informing them of the law and the initiation of the compliance checks. (Oregon Alcohol and Drug Abuse Programs, 1995).

If Oregon retail clerks sell tobacco products to a minor in a compliance check or sting operation, they have committed a violation of the law. Violation of this law is punishable by a fine not less than \$100 nor more than \$500 (ORS 163.575).

Researchers have not yet documented the impact of these compliance checks and citations on managers and owners of retail outlets. Policy makers and retailers continue to debate the ethics of compliance checks and the effectiveness of this strategy in impacting retailers' compliance with the Minors and Tobacco Laws.

In an attempt to discover the efficacy of the compliance checks in regard to compliance, face-to-face interviews with 40 Benton County Oregon tobacco retailers discussing the Synar mandated compliance checks were conducted (Unpublished, Benton County Project, 1995). The interviews revealed that many managers and owners felt that planned sting operations were a form of entrapment. They felt that even the most conscientious retail clerk might make the mistake of selling to a minor once-in-awhile. Currently, when clerks are caught selling tobacco to a minor they receive a citation; some policy makers believe that it would be more effective, when achieving compliance, if the store owner or manager received the citation (Altman, Linzer, Kropp, Descheemaeker, Feighery, & Fortmann, 1992). Benton County retailers also challenged the fact that while it is illegal for minors to possess tobacco in Oregon these laws are not enforced. (ORS 167.400) Some policy experts in the field believe that putting the focus on minors breaking the law diverts attention from the real problem: retailers and the tobacco industry (Altman, et al. 1992).

In response to the Synar Amendment, retail organizations and the tobacco industry have come up with their own strategies for reducing sales to minors. The Coalition for Responsible Tobacco Retailing, represented by more than 150,000 retail outlets in all 50 states, the Tobacco Institute, and the Smokeless Tobacco Council are promoting compliance to the Minors and Tobacco Laws using their own program called "We Card." The "We Card" campaign offers retailers free in-store training materials, including workbooks, videocassettes and audiocassettes, aimed at teaching sales clerks about minimum-age laws and how to identify and reject attempted purchases by minors. In addition, the coalition offers retailers a variety of signs, including door and window decals, counter signs, employee pins, minimum-age calendars and customer hand-outs, all stating "We Card" (Progressive Grocer, 1996). In the past, educational campaigns alone, whether initiated by public health agencies or the tobacco industry, when not accompanied by enforcement, have had only a short term effect on decreasing minors' access to tobacco. (Altman, Douss-Rasencik, Foster, & Tye, 1991). However, educational efforts must be accompanied by strict enforcement of the laws; nothing in the "We Card" campaign, or any other youth access deterrence initiative implemented by the tobacco industry, deals with enforcement.

The problem is quite evident: easy access contributes to youthful experimentation and early addiction to tobacco products. Until youth in this country no longer have ready access to tobacco products, the diseases, disability, and death associated with tobacco use will sadly continue.

1.3 Objective of the Study

The objective of this study is to assess whether or not enforcement of the Minors and Tobacco Laws in the form of a citation had an impact on the knowledge, attitudes, practices and policies of over-the-counter tobacco retailers in Oregon. In addition, demographic factors, such as store type, store size, ownership type, and location of the store, which may contribute to the retailers response to receiving a citation for selling tobacco to a minor, were examined.

This study is unique in that it is the first of its kind to study the impact of the Federal Synar Amendment's enforcement policy on the knowledge, attitudes, practices, and policies of over-the-counter tobacco retailers.

1.4 Statement of the Problem

Researchers have failed to assess how retailers feel about using sting operations and citations when illegal sales occur or to determine the impact of the sting operations and citations on retailer's knowledge, attitudes, practices and policies relating to the Minors and Tobacco Laws. Up until this time, research involving tobacco retailers has focused on measuring minors' access rates to tobacco products in outlets at a given point in time or prior to and after an intervention had been implemented. The interventions were focused on reducing access rates in outlets. Interventions aimed at getting retailers to stop selling tobacco to minors have included retailer education, community education, sting operations, positive reinforcement, local ordinances, and various combinations of these

strategies. Altman, et al.(1989), Feighery, Altman, & Shaffer (1991), Erickson, Woodruff, Wildey, & Kenney (1993), Jason, Ji, Anes, & Birkhead (1991), Biglan, Henderson, Humphrey, Yasui, Whisman, Black, & James (1995), Wildey (1995). Evaluations of these interventions rarely, if ever, include comments, reactions, interpretations or ideas for improving the intervention from the retailers' point of view.

Without input from tobacco retailers, it is likely that state public health officials charged with bringing access rates down to 20%, will fail. We need input and answers to questions asked of tobacco retailers; this would assist public health officials in every state in meeting the access rate goals set forth in the Synar Amendment. Questions we need to answer include:

- (1) how do retailers feel about receiving a citation for selling tobacco to a minor;
- (2) how is enforcement affecting the policies and practices of retailers;
- (3) how knowledgeable are retailers regarding the Minors and Tobacco Laws;
- (4) what do retailers intend to do within their organizations to comply with the laws;
- (5) how do retailers intend to deal with employees who are cited for selling tobacco to a minor;
- (6) just how seriously do retailers take the threat of supposedly looming inspections;
- (7) what strategies coming from public health organizations do retailers feel would be valuable in helping them achieve compliance; and
- (8) are the answers to any of the previous questions dependent upon store size, location, ownership type or respondents position in the store?

Up until this point, researchers have failed to assess how compliance checks and citations affect the knowledge, attitudes, practices and policies of tobacco retailers. To have lasting impact, input from tobacco retailers should be seen as critical to the success of any strategy aimed at reducing minors' access to tobacco. The Synar Amendment focuses solely on the retail outlet, the sales clerks, and the owners or managers of the outlets. If the objectives of the Synar Amendment are to be met, attitudes, opinions, and recommendation of retailers must be incorporated into the programs for achieving the goal of access rates of no more than 20%.

1.5 Research Questions

This research furnishes data that may be incorporated into programs aimed at reducing minors' access to tobacco. This is significant because cigarette smoking, the most preventable cause of death in the United States, kills more than 434,000 Americans every year. Eighty percent of adult smokers became addicted to cigarettes before the age of 18 (DiFranza, 1990). Research indicates that children can still easily buy tobacco products. A study of 93 communities in 38 states conducted in 1990 by Drug Free Youth found that "merchants readily sell cigarettes to children in every city" (Doctors and Lawyers for A Drug-Free Youth, 1991). Researchers found that 72% of teenage smokers purchase their own cigarettes and 19% get their cigarettes from friends, indicating that 91% of all cigarettes consumed by teens are sold to underage youth. (Cummings, Pechacek, & Shopland, 1994). Over 4,000 ninth grade youth aged 13

through 16 were asked to describe where they obtain their cigarettes; 67% said that they usually bought their own. When these same youth were asked “do you think it would be difficult or easy to get cigarettes if you wanted some?”, eighty-two percent said “that it would be easy for them to get cigarettes.” (Cummings, Sciandra, Pechacek, Orlandi, & Lunn, (1992).

Over-the-counter tobacco retailers are clearly involved in the problem of minors’ easy access to tobacco products. Retailers see themselves in an adversarial position with law enforcement agencies. Managers and owners of outlets feel that sting operations are a form of entrapment. Data presently being collected by the Office of Alcohol and Drug Abuse Programs for the second year of the Synar mandated random unannounced compliance checks show that sales rates have not significantly changed from the first year. Minors’ tobacco access rates for the 1994-95 random inspections were 38.9% and were 39% for the 1996 random inspections access rates. The effectiveness of this enforcement intervention is already in question. In light of these early results, it seems apparent that information collected in this research will assist public health workers and policy makers in achieving the goals set forth by the Synar Amendment of access rates of 20% by 1998.

Based on the purpose of this study and the problems identified in section 1.4, I will examine the following three research questions.

1.5.1 Research Question No. 1

What are the attitudes, practices, and beliefs of retailers relating to enforcement of the Minors and Tobacco Laws? Answers to this question would assist

public health officials and policy makers in helping retailers comply with Minors and Tobacco Laws and state governments achieve the access rates established by the Synar Amendment. Based on this question, I propose the following hypotheses:

Hypothesis Group 1: There are no significant differences between stores that received the compliance checks and enforcement intervention and stores that did not receive the intervention, in attitudes towards methods used by enforcement and other agencies, which could motivate compliance.

Factors which could motivate compliance include fines and penalties, likelihood of certain punishment, educational materials, employee training, revoking of tobacco license, printing names in newspaper of stores who sell, printing names in newspaper of clerks who sell, suspension of license to sell tobacco products from one to seven days, and tobacco distributors withholding financial incentives.

Hypothesis 2: There are no significant differences between stores that received the compliance checks and enforcement intervention and stores that did not receive the intervention, in respondents belief pertaining to the likelihood of their store being inspected for compliance to the Minors and Tobacco Laws.

Hypothesis 3: There are no significant differences between stores that received the compliance checks and enforcement intervention and stores that did not receive the intervention, in whether or not customers have direct access to tobacco products,

Tobacco products may be displayed in stores where customers have direct access or where customers do not have access.

Hypothesis 4: There are no significant differences between stores that received the compliance checks and enforcement intervention and stores that did not receive the intervention, in attitudes toward the licensing of retailers to sell tobacco products.

1.5.2 Research Question No. 2

Do employers who received the enforcement intervention differ from employers who did not receive the intervention in the ways in which they deal with their employees as they attempt to achieve compliance to the Minors and Tobacco Laws?

Answers to this question would give retailers throughout the United States ideas and strategies for achieving higher levels of compliance within their individual retail outlet.

This would not only benefit the individual retailers but also state governments as they strive to achieve compliance to the Synar Amendment. Based on this question, I propose the following hypotheses:

Hypothesis Group 1: There are no significant differences between stores that received the compliance checks and enforcement intervention and stores that did not receive the

intervention, in their practices for dealing with an employee who sells tobacco to minors.

Practices for dealing with employees who sell tobacco to minors include warnings, pay docking, dismissal, educational training, and doing nothing.

Hypothesis Group 2: There are no significant differences between stores that received the compliance checks and enforcement intervention and stores that did not receive the intervention, in attitudes about methods which may be used to achieve employee compliance to the minors and tobacco laws.

Methods and materials used to achieve employee compliance include educational material regarding the law, training videos, rewards for stores who comply with the law, signs which state the law to be displayed in stores, and community recognition for stores who follow the law.

1.5.3 Research Question No. 3

Does enforcement of the Minors and Tobacco Laws impact whether or not a store receives economic incentives from the tobacco industry for participating in tobacco promotions within their store? If it is found that retail outlets that received an enforcement citation are more likely to receive economic incentives from the tobacco industry, this information could assist policy makers in the development of policies and legislation that would limit or make illegal economic incentives to the retailers from the tobacco industry, especially when the promotions are clearly targeting young people.

Based on this question I propose the following hypothesis:

***Hypothesis 1:** There are no significant differences between stores that received the compliance checks and enforcement intervention and stores that did not receive the enforcement intervention, in whether or not the store receives economic compensation from tobacco distributors for tobacco displays and ads in their store.*

1.6 Potential Policy Implications of the Study

Prior to the implementation of the Synar Amendment, the primary focus for preventing minors' access to tobacco through retail outlets was sporadic checks of the outlets to see if they were selling tobacco to minors, some systematic sting operations and a small number of educational campaigns that included a component for educating retailers. This research is the first of its kind to solicit information on the knowledge, attitudes, practices and policies of tobacco retailers subsequent to sting operations and citations for violations of the minors access laws. This research provides valuable insights into the reactions and thinking of the tobacco retailer relating to enforcement. Information on how retailers have responded in their own stores will assist in guiding state policy makers in setting policies aimed at improving retailers compliance to the Minors and Tobacco Laws. Additional policy implications of this study include:

1) assisting public health officials in the development of policies and strategies for future implementation of the Synar Amendment;

2) providing the Oregon Department of Alcohol and Drug Abuse

Programs with information regarding current knowledge, attitudes and practices of retailers. This information will be helpful in the compilation of an educational packet that will be sent to retailers sometime in 1997;

3) providing the Oregon Department of Alcohol and Drug

Programs with information regarding knowledge, attitudes and practices of tobacco retailers that will be helpful in the development of a training video for individuals who sell tobacco products;

4) assisting other states as they seek to comply with the Synar Amendment;

5) providing the Oregon State Legislature with tobacco retailer's attitudes on tobacco licensing. This information will assist legislators in the debate surrounding licensing of tobacco retailers;

6) Enabling policy makers to be aware of whether or not judges are fining violators in a way that reinforces the intent of the law and the gravity of violating the law. This research has already been a catalyst to investigating the final dispensation of fines handed down by judges in different Oregon counties for violators of the Minors and Tobacco Laws.

1.7 Definition of Terms

Table 1.1
Definition of Terms Associated With Minors' Access to Tobacco

Term	Definition of Term
Minor	Anyone under the age of 18.
Minors' Access to Tobacco Laws	All laws that control and prohibit the sale of tobacco products to anyone under the age of 18.
Retail outlet	Any location that sells at retail or otherwise distributes tobacco products to consumers including, but not limited to, locations that sell such products over the counter.
Enforcement citation	A citation issued to a retail outlet sales person by an Oregon State Police Officer after being caught in the act of selling a tobacco product to a minor.
Sting operation	An attempt by boys and girls, 14 through 16 without false identification, to make illegal purchases of tobacco products under supervision of an Oregon State Police Officer.
Compliance check	Another term for sting operation. See prior definition.
Random unannounced inspection	Another term for compliance check or sting operation.
Underage buyer	A youth 14 through 16 years of age attempting to buy tobacco in the sting operations.

Table 1.1 - Continued

Synar Amendment	<p>Section 1926 (c) of the PHS Act requiring that contingent upon receiving Federal Block Grant money intended for state drug and alcohol programs, states must:</p> <ul style="list-style-type: none"> a) enact and effectively enforce a law against sale or distribution of tobacco products to individuals under the age of 18; b) demonstrate compliance to the law by conducting random unannounced compliance checks; and c) achieve access rates which should not exceed 50% during the first applicable fiscal year, 40% during the second applicable fiscal year, 30% during the third applicable fiscal year, and 20% during the fourth applicable fiscal year and subsequent fiscal years.
Oregon Office of Alcohol and Drug Abuse Programs	<p>A department within the Department of Human Resources, responsible for enforcement of the Synar Amendment and carrying out the random unannounced compliance checks and drug and alcohol programs throughout the State of Oregon.</p>
Tobacco product	<p>Cigars, cheroots, stogies, periques, granulated, plug cut, crimp cut, ready rubbed and other smoking tobacco, snuff, snuff flour, cavendish, plug and twist tobacco, fine cut and other chewing tobaccos, shorts, refuse scraps, clippings, cuttings and sweepings of tobacco prepared in such a manner as to be suitable for chewing or smoking in a pipe or other wise, or both for chewing and smoking, and shall include cigarettes as defined in ORS 323.010.</p>

2. REVIEW OF THE LITERATURE

2.1 Introduction

This study is one of the first studies to examine the knowledge, attitudes, beliefs and policies of managers and owners of over-the-counter tobacco retail outlets after the first year of Synar mandated compliance checks. More specifically, the research examines responses of tobacco retailers to enforcement of the Minors and Tobacco Laws in the form of compliance checks and citations for violations of the law. Issues relating to minors' access to tobacco from vending machine access are not addressed in this study.

2.2 Theoretical Framework

The field of compliance is still new and its boundaries are not yet defined. Compliance as a field of study is not currently being taught in our law schools or schools of business (Sigler & Murphy, 1988). Compliance deserves study by public health scientists, as well as lawyers and business professionals, as it relates to compliance to the Minors and Tobacco Laws. The process by which public regulations become translated into law enforcement deserves careful study, as does the process that produces opposition to compliance. This research aims to establish links between theories of compliance and

the knowledge, attitudes and beliefs of tobacco retailers as they either comply or do not comply with the Minors and Tobacco Laws. In this research, compliance theories as well as the Health Belief Model will be used as the theoretical framework for understanding the knowledge, attitudes and practices of tobacco retailers that either comply or do not comply to the Minors and Tobacco Laws.

2.2.1 Theories of Compliance Behavior For Organizations

In their theory of compliance, Langbein and Kerwin (1985) develop a model which describes the relationship between a governmental regulatory agency and the compliance behavior of a regulated firm with government regulations. This theory makes the following assumptions:

- 1) regulated firms regard the decision to comply with regulations as an economic one; and
- 2) the firm's formal decision to comply or not is based on economic models of the supply of penalties.

This model has been used to explain compliance behavior in corporate polluters, welfare recipients, and businesses' compliance to state and federal regulations.

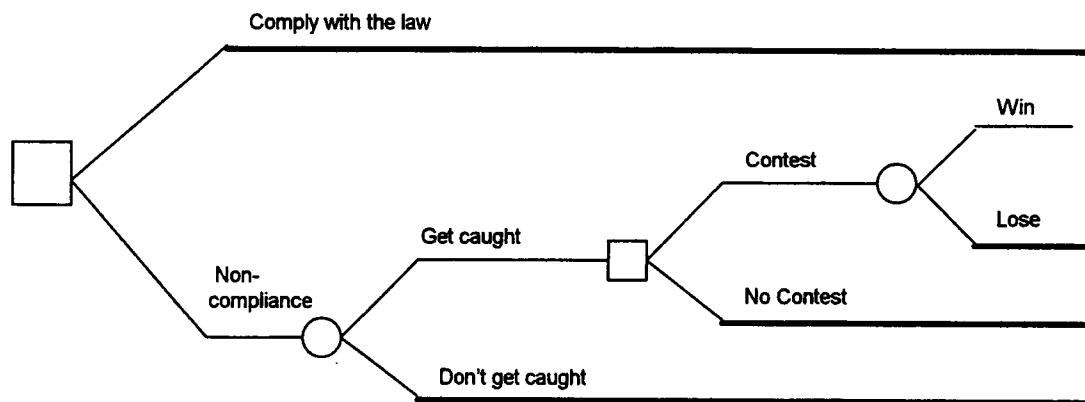


Figure 2.1 Compliance Decision Tree Adapted from Langbien and Kerwin's Model of Compliance(1985)

There are several reasons for “up-front” compliance: the perception that both tangible and intangible benefits outweigh the costs for non-compliance, the perception of current and future benefits, and intangibles like community and professional reputation and prestige.

The non-compliance branch is much more complicated. It encompasses delayed compliance, partial compliance, negotiated compliance, and non-compliance. As with compliance with the Minors and Tobacco Laws, non-compliance may be a conscious event or occur because the clerk is simply unaware of the laws (Langbien and Kerwin, 1985). This model is based on the economic impact of compliance and does not take into account external consequences for non-compliance.

Braithwaite and Makkai (1991), in testing an expected utility model of corporate deterrence, developed a compliance theory based on the following model:

- 1) compliance as a function of the probability that non-compliance will be detected;
- 2) the probability of punishment given detection; and
- 3) the cost of punishment. (Braithwaite and Makkai, 1991)

Braithwaite and Makkai tested their expected utility model of corporate deterrence by interviewing 410 chief executives of small Australian nursing homes, for their compliance to nursing home regulations. They found only partial support for the certainty of detection as a predictor of both self-reported and officially recorded compliance but no support for the certainty or severity of sanctioning as a motivation for compliance. Even with these findings, the researchers contend that there is qualitative support for their theory in a variety of organizations depending on unique circumstance including unique characteristics and attitudes of the managers.

Braithwaite (1989), in his theory for controlling corporate criminal behavior, entitled "Shame and Reintegration," believes that shaming individuals who break the law, short of alienating them from society, could be a successful strategy for deterring criminal behavior. The theory draws the distinction between shaming that is reintegrative and shaming that is stigmatizing or disintegrative. "Reintegrative shaming means the expressions of community disapproval, which may range from mild rebuke to degradation ceremonies, that are followed by gestures of re-acceptance in the community of law-abiding citizens" (Braithwaite, 1989). Disintegrative shaming alienates the offender from the community with no attempts for reconciliation. By being made an outcast, the offender is more likely to join the criminal subculture. (Braithwaite, 1989). Shaming is

especially effective in communities where life circumstances increase the interdependence of its citizens. Therefore, shaming is more effective as a deterrent to crime in small, interconnected communities. Andenaes (1974) theorized that there is a greater importance to the shame associated with punishment than to the punishment itself, and when individuals are subjected to the rejection and contempt of society for their criminal behavior, this serves as a deterrent.

In their book, An Alternative to Regulatory Compulsion, Sigler and Murphy (1988) described an interactive corporate compliance theory. Sigler and Murphy see compliance as more than identification of statutes and rules, but rather the construction of a strategy for changing behavior, and the process which achieves these behavioral and attitudinal changes is the subject matter of the field of compliance. Their theory suggests that to accomplish behavior change from non-compliance to compliance, strategies should be a mix of both persuasion (carrots) and punishments (sticks). Persuasive strategies include education, rewards, supportive policies for employee improvement, and management commitment to compliance. Tactics enforcing the punishment part of the theory are citations, sting operations, police intervention, and criminal penalties.

2.2.2 Adaptation of the Health Belief Model to Retailers Compliance Behavior

The Health Belief Model (HBM) was originally developed in a combined effort by Rosenstock, Becker, and Kirscht (1974) to explain why people would not participate in disease preventives and screenings for the early detection of disease. In its early conception, it was also applied to patients' responses to symptoms and asked why patients

would or would not follow medication regimens. Of all the health behavior models, the HBM has received the most research attention. It has been applied to a wide variety of populations and public health programs and interventions. The HBM is based on a well-founded body of psychological and behavioral theory suggesting that behavior is dependent on two variables:

- 1) the value placed by an individual on a particular goal; and
- 2) the individual's estimate of the likelihood that a given action will achieve that goal (Schumaker, Schron, & Ockene, 1990).

When these variables are adapted to retailer's compliance behavior they translate into:

- 1) the desire of a retailer to comply with the Minors and Tobacco Law, and avoid receiving a citation for non-compliance; and
- 2) the belief that a specific action will achieve compliance and the likelihood, through personal action, that the individual will be able to reduce the threat of being caught for non-compliance.

The HBM consists of the following dimensions: perceived susceptibility, perceived severity, perceived benefits, perceived barriers and cues to action. The proceeding definitions of the dimensions of the HBM have been adapted to explain the path to retailers compliance to the Minors and Tobacco Laws. In addition, the model indicates the complexity of attitudes and practices contributing to compliance and non-compliance.

- 1) **Perceived susceptibility** refers to one's subjective perception of their vulnerability of getting caught for selling tobacco to a minor.

- 2) **Perceived severity** refers to individual feelings concerning the seriousness of getting caught for selling tobacco to minors and the personal evaluation of the consequences of that action.
- 3) **Perceived benefits** refers to the perception of the effectiveness of the various actions available to reduce the threat of getting caught for selling tobacco to minors.
- 4) **Perceived barriers** refers to the potential negative aspects of actions that must be taken to achieve compliance to the Minors and Tobacco Laws. The retailer is likely to do a cost benefits analysis as he/she weighs the actions effectiveness against the cost of implementing the actions which are intended to achieve compliance.
- 5) **Cues to action** refer to the stimulus which triggers the decision-making process. These cues may include the threat of fines and penalties, corporate mandates to managers, education, and media or word of mouth information regarding minors' access or sting operations.
- 6) **Other Variables** within the context of the HBM which contribute to the behavioral outcome "compliance to the law" include diverse demographics, personal characteristics, and social circumstances. These variables impact the individuals subjective perceptions influencing the likelihood of taking action and compliance.

The following illustration is an adaptation of the HBM to explain factors which contribute to tobacco retailers compliance behavior.

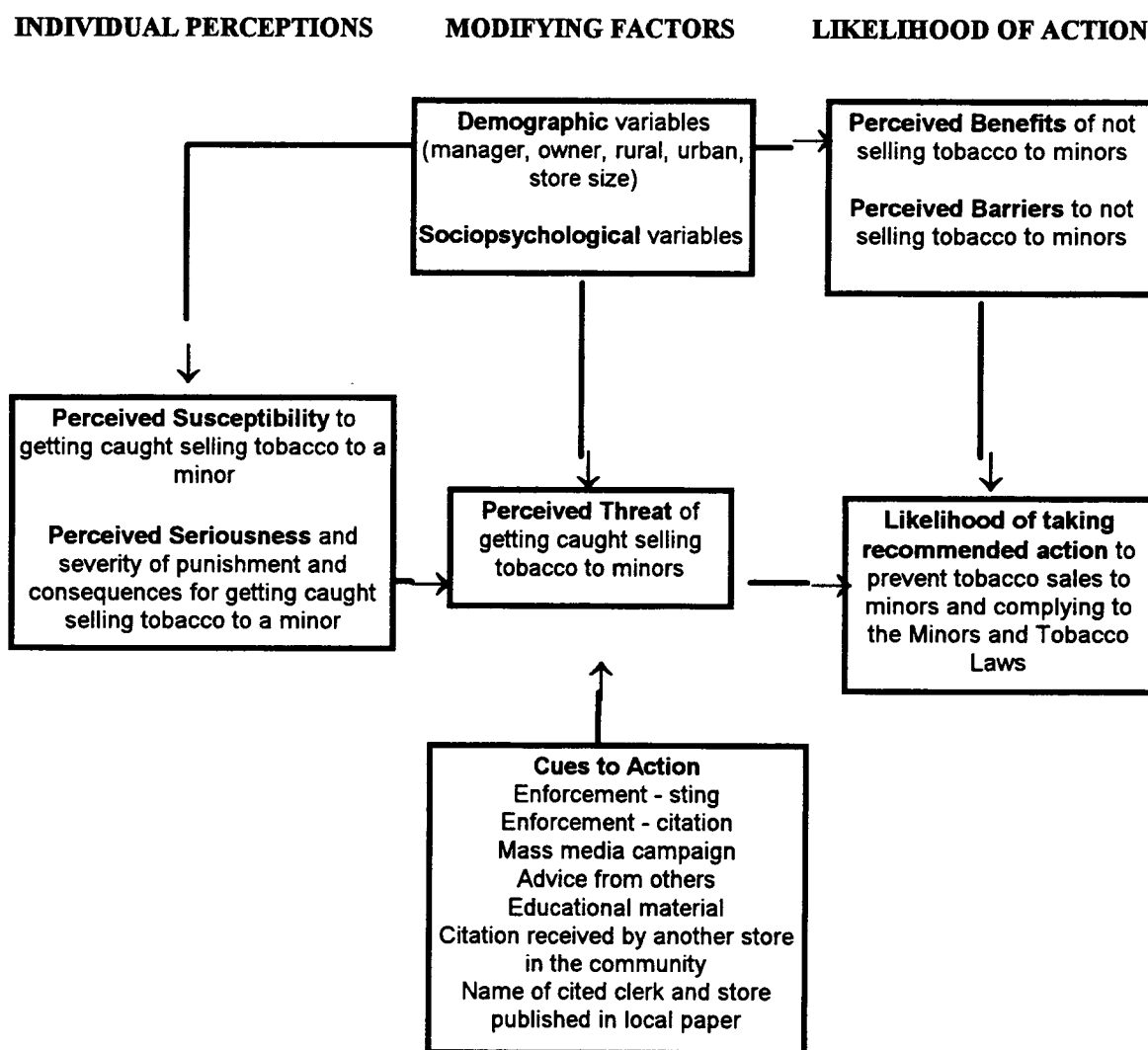


Figure 2.2 Adaptation of the Health Belief Model to Compliance Behavior to the Minors and Tobacco Laws. (Rosenstock, Drachman, and Kirscht, 1974). The Health Belief Model is used to understand factors contributing to tobacco retailers response to the Minors and Tobacco Laws

2.3 The Problems of Youth Tobacco Use

Cigarette smoking is the leading preventable cause of death in the U.S. each year; more than 434,000 Americans die from smoking related conditions. Tobacco use is the cause of 87% of deaths from lung cancer, 30% of all cancer deaths, 82% of deaths from pulmonary disease, and 21% of deaths from heart disease (Lynch & Bonnie, 1994). Fifty billion dollars is spent annually on direct, smoking-attributable health care costs. An additional fifty billion is spent on indirect losses: burn care resulting from smoking related fires, care for low birth weight babies of mothers who smoke, work loss and disability, etc. (CDC, 1993). Each year, in the United States, over a million young people decide to take up smoking; they are committing our health care system to billions in additional health care expenditures over their lifetimes (Lynch and Bonnie, 1994).

The prevalence of smoking among youth has remained virtually unchanged since 1980. Three point seven million (16 percent) of teenagers in the United States are currently smokers. One point seven million youth smoked their first cigarette before their 12th birthday. The average age when people smoked their first cigarette was 14.5 years, and 88% of the people who have ever tried a cigarette have done so by age 18. The average age when people become daily smokers is 17.7 years. (CDC, 1996)

Six point eight million teenagers (29 percent) have experimented with cigarettes and 25 percent of 16 to 18 year olds are current smokers (National Health Interview Survey, 1989). Approximately 80 percent of current smokers began smoking before the

age of eighteen (CDC, 1996). Adults rarely initiate tobacco use; that is why it is crucial to reduce minors' access to tobacco.

The Centers for Disease Control estimates that 3,000 young people take-up smoking every day. It has been conservatively estimated that 3 million youth consume 516 million packs of cigarettes and 26 million cans of smokeless tobacco (Cummings et al. 1994) and (DiFranza & Tye, 1990). Tobacco products sold to minors account for annual sales of \$1.26 billion. Approximately three percent of tobacco industry profits are derived from the sale of tobacco products to children. DiFranza, and Tye (1990) found that 3.35 billion dollars, or half of the tobacco industry's profits, are derived from smokers who began smoking as children.

Kandel (1975) found that essentially everyone who used illicit drugs such as cocaine or marijuana had formerly used cigarettes, alcohol or both (Surgeon General's Report, 1994). Cigarettes are commonly referred to as the "gateway drug," and once children experiment with or use cigarettes, they are more likely to go on to experiment with alcohol or use illicit drugs like marijuana and cocaine. (CASA, 1994).

In spite of the health care costs associated with tobacco use and the strong connection between cigarette use among teenagers and subsequent illicit drug use, young people continue to take-up cigarette smoking and smokeless tobacco and have virtually unimpeded access to these products.. The 1993 school-based Youth Risk Behavior Survey found that 30.5 percent of students surveyed in grades 9 - 12 had used cigarettes in the last 30 days preceding the survey and that approximately 11.5% used smokeless tobacco. Of the 11.5%, 20.4% were boys and 2.0% were girls (CDC, 1996).

To alleviate this problem, Healthy People 2000, the health objectives for the nation focusing on reducing unnecessary suffering, illness, and disability, has dedicated five objectives in the tobacco priority area to specifically address tobacco use by children. Objectives 3.5 and 3.13 are directly related to minors' access.

Objective 3.5 : Reduce the initiation of cigarette smoking by children and youth so that no more than 15 percent have become regular cigarette smokers by age 20.

Objective 3.13: Each of the 50 states and the District of Colombia must enact laws prohibiting the sale and distribution of tobacco products to youth younger than 18 and enforce these laws so that the buy rate in compliance checks is no higher than 20% (US DHHS, 1991).

When these objectives are fully met, hundreds of thousands of premature and preventable deaths due to cigarette smoking will be eliminated. The enactment of the Synar Amendment is the first significant legislation at the federal level to meet the objectives established in Healthy People 2000 to reduce minors' access to tobacco in the United States.

2.4 Minors' Access to Tobacco

While the sale of tobacco to minors has been illegal in most states for many years, the laws continue to go unenforced and minors have relatively easy access to tobacco products through retail outlets (US DHHS, 1993).

The 1989 Teenage Attitudes and Practices (TAPS) survey conducted by the CDC sampled over 9000 adolescents aged 12-18 years. The study found that there was an estimated 2.6 million current smokers aged of 12-17 and that 57.5% of these teenage smokers purchases their own cigarettes (CDC,1992). The primary purchase point (84.5%) for these minors was from small stores. In this same survey, when minors who had never smoked were asked if they believed it would be easy to purchase cigarettes, 62.4% responded yes, and 52.7% of the youngest respondents also believed it would be easy to purchase cigarettes. (CDC,1992).

Since 1987, thirteen studies have investigated minors' access rates to tobacco products from over-the-counter retailers. In the thirteen studies, sales rates ranged from 32% in Kansas to 87% in North Dakota and Oregon; the average access rate across all studies was 67%. These studies found that the minors' ability to purchase tobacco was a function of gender and actual or perceived age, the legal age of sale and past community enforcement activities. The majority of minors were able to illegally purchase tobacco in all of these studies except those conducted in Kansas (32%) and Missouri (46%) (US DHHS, 1994).

In 1987, 90% of Minnesota 10th graders who smoked reported that it was very easy to obtain cigarettes despite a state law. In addition, the 1987 National Adolescent Student Health Survey of 1100 students found that 73% of the 8th and 10th graders said it was very easy to buy cigarettes, and 13% said it was fairly easy. Also in 1987, 90 percent of a sample of New Jersey high school students who smoked said they could always or nearly always buy cigarettes (US DHHS, 1994).

A 1990 Study by Drug Free Youth in 38 States and 93 communities found 70% to 80% of retailers sold tobacco products to minors in every city (Doctors and Lawyers for Drug Free Youth, 1991).

Another 1990 survey of minors conducted as a part of the National Cancer Institute's COMMIT trial found that 67% of current smokers (those who had smoked at least once in the past month) reported that they usually bought their own cigarettes. In the same study, 82% of ninth graders said it would be easy to buy cigarettes (Cummings, et al.1992).

2.5 The Retailer Connection to Minors' Access to Tobacco

Currently in the United States, approximately three quarters of the one million retail outlets sell tobacco products to minors. These outlets include grocery stores, drug stores, department stores, mini markets, gas stations, convenience stores, and news stands. Tobacco is the third largest selling supermarket category (Ingram, 1994).

It is estimated that teenagers annually consume 516 million packs of cigarettes and 26 million containers of chewing tobacco. (Cummings, et al. 1994) In 1991, the tobacco industry spent \$4.65 billion on advertising and promoting tobacco products in the United States (Lynch & Bonnie, 1994). Of this \$4.65 billion, 32.4% of the expenditures directly involved over-the-counter tobacco retailers. This 32.4% translated to \$1.47 billion in expenditures for point-of-sale advertising, direct promotional allowances and other advertising, promotions, and incentives at the retail outlet level (Lynch,1994). A

moderately sized retailer may receive incentive payments from tobacco companies for as much as \$8,000 per year for stocking various brands, displaying specific tobacco advertisements, releasing certain shelf space to be used for tobacco products or for providing prime space for self service displays. Retailers are also reimbursed by the industry for point-of-sale advertising, displaying tobacco products on the counter for use by the customer when purchasing merchandise. These types of displays encourage impulse buying of tobacco products. (Comerford & Slade, 1994).

An educational intervention was conducted in Santa Clara, California, targeting the community, merchants who sold cigarettes, and chief executive officers of retail chains and franchises. The objective of the study was to determine the sustained effects of the educational intervention. Pretest sting operations determined a baseline access rate of 74% in stores involved in the intervention. Six month posttest access rates were 39% indicating a significant impact from the intervention. However, the one year follow-up posttest found that recidivism in access rates occurred, forcing the rates back up to 59%. The study suggested that to achieve long-term statistically significant reductions in minors' access to tobacco, educational interventions must be continuous and the interventions must also include enforcement (Altman, et al, 1991).

2.6 Community Attitudes Toward Youth Access and Enforcement

In 1990, the Office on Smoking and Health of the Centers for Disease Control and Prevention joined with the American Cancer Society to conduct a survey assessing public

attitudes about smoking and related issues. The survey was entitled ‘Smoking Activity Volunteer Executed Survey’ (SAVES). Survey questions included the following topics: smoking prevalence, minors’ access, school interventions, environmental tobacco smoke, tobacco tax, advertising restrictions, and attitudes and beliefs about tobacco use. Of the 985 respondents, more than 84 percent thought that it was somewhat easy for teenagers to buy cigarettes where they live. Eighty four percent of respondents believed that stronger laws should be enacted to prevent the sales of tobacco products to minors, and 86% felt that existing laws prohibiting the sale of tobacco products to minors should be enforced (Marcus, et al. 1994).

2.7 Enforcement Strategies to Reduce Youth Access & Their Evaluation

There are many reasons why minors should be prevented from purchasing tobacco products. First, easy access conveys to minors the illusion that the product is not really very harmful. Second, illegal access to tobacco produces a disrespect for the law, promoting further illegal attempts to purchase alcohol and illicit drugs. Third, the harder it is for young people to purchase tobacco products, the fewer the number of young people will become addicted and turn into lifetime users (U.S.DHHS, 1991).

Minors’ access to tobacco products in the United States has been an issue since the turn of the twentieth century. Tobacco use was seen as harmful to the health of children, leading to heart disease, and respiratory illness. In addition to protecting the health of children, early laws restricting minors’ access were also intended to protect children from

smoking which was seen as a moral issue lending to character problems and other social evils. Most of these early laws restricted tobacco sales to those under the age of 18 or 21. Fines for selling to a minor may be up to \$100. (Lynch & Bonnie, 1994). More recently, every state has enacted laws restricting the sale of tobacco to minors under the age of 18, but these laws are seldom enforced.

In 1990, the Office of Inspector General surveyed health and law enforcement officials from each state, 295 retailers, 322 students and 561 adults, collecting data on youth access. Respondents from each group felt that minors' access to tobacco was a problem and nothing was being done about it. Fifty percent of surveyed retailers said access laws were not being enforced; the majority of them were not aware of any clerk ever being caught selling tobacco to a minor. Ninety one percent of retailers said they knew it was illegal to sell tobacco to minors and that they felt it was common knowledge that it was illegal to sell. Adults and retailers agreed that the reason the laws were not enforced was due to apathy. Twenty one percent of retailers said that retailers generally do not care who they sell to and find it inconvenient to check identification. Respondents also felt that apathy towards enforcement was due to a lack of political pressure; and many felt that teens would get cigarettes one way or another. (Kusserow, 1990).

The final report from the Inspector General's office entitled, "Youth Access to Cigarettes," found that children can easily buy cigarettes, active enforcement is rare and when it does occur it is a result of local leadership and that the most common approaches to active enforcement include licensing, fines, stings, restrictions on vending machines, and warning signs. (Office of the Inspector General, 1992).

Several studies have found however, that using reasonable enforcement will decrease sales to minors through retail outlets. The Inspector Generals' Report found that 52 communities had implemented strategies in an attempt to enforce their Minors and Tobacco Laws. One of those communities, Woodbridge, Illinois, adopted a three part strategy including the implementation of a retailer licensing system, sting operations and fines for illegal sales to minors. After one year and a half, minors' access rates dropped from 70% to less than 5%. A survey of eighth graders in Woodbridge, found that experimentation and regular tobacco use declined by over 50% (Jason et al. 1991).

A comprehensive, four month community education program was implemented in four communities in Solano County, California. Baseline, unannounced inspections demonstrated sales rates to minors to be 71%. The first follow-up survey found that sales rates had only slightly dropped. A law enforcement intervention was added. Ninety stores were stung and 34% received a citation for illegally selling to the underage police. Follow up inspections showed minors' access rates in Solano County had dropped to 24% (Feighery et al. 1991).

In Minnesota, Foster, Hourigna and McGovern (1992), found a reduction in over-the-counter sales to minors from 53% to 38% after increased penalties were imposed for sale to minors. Altman, Rasenick-Douss, Foster, and Tye (1991), showed a reduction in sales from 74% to 39% in six months due to stronger enforcement in the form of unannounced inspections.

In an assessment of 48 communities across Minnesota, the Minnesota Department of Health and Minnesota ASSIST (American Stop Smoking Intervention), found that

communities with strong ordinances had lower minors' access to tobacco rates than communities without these ordinances. Baseline compliance checks conducted before the ordinances were implemented demonstrated a 50 percent access rate. Post compliance checks, conducted after ordinances were in place in some of the communities, found stores sold to minors 36 percent of the time. In communities with strong ordinances the access rates were 21 percent while in communities with no ordinances, stores sold to minors 49 percent of the time (Stieger & Vigil, 1996).

A study of 153 tobacco retail outlets in Dane County, Wisconsin included baseline compliance checks, offerings of vendor education to all retailers in the test county and follow up compliance checks. Underage buyers used in the compliance checks were aged 12-15. All retailers were notified of the results of the compliance checks and given the opportunity for on-site training for employees and managers. Only 2.6% of the retail outlets accepted the on-site educational opportunity. The baseline purchase rate was 26.8% while the post intervention rate was 23.4%. Retailers demonstrated a complacency toward free on-site education (Schensky, Smith, Icenogle, & Fiore, 1996).

In Oregon, Biglan (1995) and colleagues, found that illegal sales of tobacco to minors could be reduced where access laws are not enforced by using positive incentives and reinforcement. Baseline sales rates in this study were 62 percent. The intervention included mobilization of community support for not selling to minors, merchant education, gift certificates and positive publicity for clerks who refused to sell, and personal reminder visits to stores that continued to sell during periodic compliance checks. Access rates dropped to 24 percent after the intervention. The researchers concluded that for this

strategy to be effective over a long period of time continual reinforcement would be needed (Biglan, Henderson, Humphrey, Yasui, Whisman, Black & James, 1995).

2.8 The Federal Drug Administration Proposal to Minimize Minors' Access to Tobacco

The Food and Drug Administration is currently seeking to regulate the sale and promotion of tobacco products to minors. The justification for the FDA regulating tobacco products came about after tobacco industry documents revealed that the industry precisely controls the level of nicotine within its tobacco products. Nicotine meets the FDA's statutory definition of drugs, and any product that is sold with the intent of altering the structure or function of the body is under the jurisdiction of the FDA. The FDA's position is that cigarettes and other tobacco products are nicotine delivery systems. (Zieve, 1996).

The FDA regulations intend to protect children from strategies of the tobacco industry that encourage them to take up tobacco and to prevent minors from accessing tobacco products. Tobacco companies have already filed law suits to block the legislation on the grounds that tobacco products have never been under the jurisdiction of the FDA and should not be now. The regulations can be divided into three categories: minors' access, marketing, and education. This paper is concerned with the minors' access regulations. The proposed FDA regulations that would reduce the likelihood of minors accessing tobacco products include the following:

- (1) a requirement that retailers verify the age of purchasers of tobacco by having them show picture identification;
- (2) all tobacco sales must be made by a sales person who can verify the age of the purchases, rather than through vending machines, or other mechanical devices; and
- (3) prohibition of the mail order sale of tobacco products and free samples (Zieve, 1996).

The FDA's proposal is an important step in protecting children from tobacco addiction. In February of 1997, the FDA proposal requiring clerks to check the ID of anyone looking younger than twenty seven went into effect. The outcome of the proposed regulations is still unknown. In addition to the FDA's proposed regulations, the Department of Health and Human Services has developed a model law. This model law provides states and localities with a research-based strategy for minimizing minors' access to tobacco.

2.9 The Model Law

In 1990, the Office of Inspector General surveyed states regarding their laws on tobacco sales to minors. The purpose of the survey was to assess the level and characteristics of state and local enforcement of the laws limiting minors' access to tobacco. The subsequent report, entitled "Youth Access to Cigarettes," found that 45 states had laws on the books which prohibited tobacco sales to minors, but most states were not enforcing the laws. Of the five states that were enforcing their laws, only 32 acts of enforcement could be cited in 1989. The few places that were actively enforcing the

access laws were primarily localities. This report provided information for the Department of Health and Human Services' "Model Sale of Tobacco Products to Minors Control Act: A Model Law Recommended for Adoption by States or Localities to Prevent the Sale of Tobacco Products to Minors" (Kusserow, 1990).

The Department of Health and Human Services has recommended that states adopt all or part of a model law to prevent children's access to tobacco products. The model law includes:

- (1) a licensing system for over-the-counter tobacco retailers;
- (2) the requirement that signs stating the sale of tobacco to minors is illegal be posted in all tobacco retail outlets;
- (3) monetary fines and license suspension for illegal sales of tobacco to minors;
- (4) penalties for failure to post signs;
- (5) civil as well as criminal penalties for selling tobacco to minors;
- (6) a requisite legal purchase age of 19;
- (7) the banning of all vending machines;
- (8) a requirement of picture identification for those who are not clearly above the age of 19 who are purchasing tobacco products; and
- (9) the designation of a state or local law or health agency to be in charge of enforcement of the Minors and Tobacco Laws.

The model was widely distributed throughout the United States. State governors received a copy as did state and local health departments. The law was promoted by the Surgeon General and the Secretary of Health and Human Services. All states have

adopted at least some of the provisions of the model law; but at this time, no state has adopted the model law in its entirety (U.S. DHHS, 1990).

In spite of the model law and efforts by the FDA to achieve higher levels of compliance to the Minors and Tobacco Laws, clerks, whether working in large retail outlets or small owner operated outlets, continue to sell tobacco products illegally to minors. Criminal theories that can explain why retailers continue to sell or not sell, and what methods act as the best deterrence for selling tobacco products to minors, need to be identified and applied for the prevention of tobacco sales to minors. There is no evidence in the compliance literature or the minors' access literature that researchers have applied any theories of criminal behavior or theories of criminal deterrence to retailers who sell tobacco products to minors.

3. RESEARCH DESIGN AND METHODS

This study examines two groups of over-the-counter tobacco retailers in Oregon. Both groups were randomly selected. One group had received an intervention in the form of a compliance check and a citation for selling tobacco products to a minor. The other group did not receive the intervention. Each participating retailer received a survey attempting to assess the impact of the intervention. The survey instrument measured the characteristics in each group, representing knowledge, attitudes, practices, and policies relating to the Oregon Minors and Tobacco Laws, against the primary independent variable group. This chapter discusses the nature of the intervention and the methods used in this study: subject selection, instrumentation, data collection procedures, and data analysis.

3.1 The Nature of the Intervention

In July of 1992, a federal mandate was issued by the U.S. Congress requiring state governments to 1) legislate laws prohibiting the sale and the distribution of tobacco products to individuals who are under the age of 18; 2) implement programs to enforce the tobacco laws enacted by the state; and 3) provide an annual report to the National Department of Health and Human Services demonstrating that tobacco retailers who are operating stores in their states are complying with the Minors and Tobacco Laws.

In 1994, the Oregon State Office of Alcohol and Drug Abuse Programs began an investigation to determine if tobacco retail stores operating in Oregon were complying with the Minors and Tobacco Laws. As part of this investigation, the Office of Alcohol and Drug Abuse Programs began conducting a state-wide undercover sting operation in September of 1994. The agency's intent was to obtain an estimate of the percentage of tobacco retailers in the state who were not in compliance with the Oregon State Minors and Tobacco Laws. From Oregon's 5000 licensed tobacco retail stores, the task force randomly selected 375 stores to be targeted for unannounced compliance checks. The compliance check entailed sending a minor under the age of 18 into a selected store to attempt to illegally purchase a tobacco product. Of the 375 stores that received a compliance check, 145 of the stores were cited for illegally selling a tobacco product to a minor, while the remaining 230 stores refused to sell. Citations were issued to those stores that illegally sold tobacco to a minor; by Oregon state law, the fine amount for these citations ranged from \$100 to \$500 dollars.

The primary objective of this research is to assess whether or not there are differences in knowledge, attitudes, practices and policies between stores that received a citation and a control group that had no contact with Minors and Tobacco Law enforcement initiatives. This research is based on the presupposition that enforcement of the Minors and Tobacco Laws should have an impact on the knowledge, attitudes, practices and policies of over-the-counter tobacco retailers in relationship to compliance. The basic theory is that compliance is a function of the perceived likelihood of detection and punishment and the perceived severity of available sanctions. Therefore, stores that

receive a citation for selling tobacco to a minor are likely to have more knowledge and different attitudes, practices and policies than a store that did not receive an enforcement sting or citation. Theoretical models of regulatory compliance are discussed in Chapter 2.

3.2 Subject Selection

The population of this study included retail stores in the state of Oregon that were licensed by the state to sell tobacco products over-the-counter and were either stung and cited or were not approached during the operation. The units of analysis were the representatives of the retail stores, since the questionnaires were sent to the store owner or manager.

The sample included 446 randomly selected over-the-counter tobacco retailers from the state of Oregon who were stung and cited or were not approached during the operation. There were 145 retail outlets in the intervention group and 301 in the control group.

The subjects in the treatment group were randomly selected by the Oregon State Office of Alcohol and Drug Abuse Programs and were all over-the-counter tobacco retailers in the state of Oregon. Subjects were selected from each county. Randomized selection of subjects was demographically weighted by teenage population. Thus, counties with a greater teenage population had more stores selected. The control group was randomly selected, using this same method and criterion, from retail stores throughout the state of Oregon that did not receive an intervention.

3.3 Instrumentation

The author sent a mail survey to all over-the-counter tobacco retailers in the state of Oregon who received a citation for selling tobacco to a minor between October 1994 and August 1995. This research is unique to the United States. Oregon is the first state to successfully complete its first year of Synar mandated compliance checks. Other states are looking to Oregon to provide leadership as they attempt to plan and carry out compliance checks in their states in compliance to the Synar Amendment.

Questions for this study were developed to assess the knowledge, attitudes, and compliance practices of tobacco retailers in the state of Oregon in relationship to the Minors and Tobacco Laws. A literature review and consultation with experts on the Oregon State Tobacco Access to Minors Task Force and the Oregon Department of Alcohol and Drug Abuse Programs formed the basis for the content validity of the survey questions. The face validity of the survey instrument was established through a pilot study given to Benton County Tobacco Retailers (1994-95).

Reliability assessment of the survey instrument were performed on subscales that measure attitude toward licensing, techniques which encourage compliance, and subscales that measure composite variables representing attitudes and perceptions of respondents.

The respondents attitudes toward licensing tobacco products were reliable, Overall, Cronbach's coefficient alpha was measured to be .679. The control group (no intervention) responded more reliably (.703) than did subjects in the treatment group (stung and cited) (.653).

Also, two subscales that quantify positive and negative methods used to achieve compliance were formed. Overall, Cronbach's coefficient alpha was .753, while each groups individual alpha differed very little (control group=.763, treatment group=.744).

The four composite variables developed for the multiple regression analysis were answered reliably by respondents in both groups. Cronbach's alpha was measured for each group and the resulting alphas were .748 for the control group and .693 for the treatment group. A formal t-test described by Ramsey (1988, Unpublished) verified that the groups reliability are statistically similar (p value= .031). The reliability of all respondents answers to the composite variables was .709.

3.4 Procedure

Dillman's strategy for minimizing non-response was followed. This plan includes the following steps: 1) mail survey with cover letter; 2) one week later send a reminder postcard; 3) three weeks later send a letter and replacement questionnaire to non-respondents; and 4) seven weeks later send by certified mail a letter and replacement questionnaire. If these steps fail to produce a response, a telephone call may be placed to non-respondents as a final attempt to secure their cooperation (Dillman, 1983).

The following chart illustrates the chronological sequence of events from the beginning to the end of the investigation.

Table 3.1
Project Timeline: Dilman's Total Design Method

June - August 1995	August-September 1995	Sept - November 1995	December - January 1996	Feb-March 1996
Analysis of Benton County Tobacco Retailers Survey⇒ 1st year of Oregon Synar Compliance Checks - ended	Report findings of BC Survey to⇒ Oregon State Tobacco Access to Minors Task Force receive input Determine issues and questions needing further investigation, effectiveness of enforcement and follow-up of judicial system to fines	Development of survey for Oregon⇒ tobacco retailers Human Subjects Work with ODADAP on finalizing survey Review of survey by Pam Bodenroder Meet with statistical dept. for statistical consultation	Pilot Test Send out initial letter informing retailers of upcoming survey 1)Send out mail survey to Oregon tobacco⇒ retailers PROCEDURES FOR NON RESPONSE 2) 1 week later send out postcard reminder 3) 3 weeks later send out letter and replacement questionnaire 4) 7 weeks later send out letter and replacement questionnaire Organize returned surveys	Input data into SPSS Data analysis, reporting and writing

Each participant received a cover letter and questionnaire. The cover letter explained the purpose of the research, pointed out that completing and returning the questionnaire was voluntary, and assured respondents that the results would be confidential. A stamped, self-addressed return envelope was attached to the questionnaire. Completed questionnaires were returned to the Oregon Department of Alcohol and Drug Abuse Programs.

3.5 Data Analysis

3.5.1 Key Concept

The objective of this research is to evaluate the effect of a law enforcement intervention on the knowledge, attitudes and practices of over-the-counter tobacco retailers in the state of Oregon.

3.5.2 Key Variables

This research examines the association between the retailer group and variables which are represented by the knowledge, attitude and practices of over-the-counter tobacco retailers. These measures are broken into two groups.

The variable of primary response of interest, in this case, is the law enforcement intervention status. Each subject, i.e., the retail store, was classified in one of the two groups. Either the subject was a member of the intervention group who sold tobacco

products during a random, unannounced compliance check and received a citation at that time, or the subject was a member of a control group who did not receive a compliance check.

The group of explanatory variables include position of respondent in the store, store type, store ownership type, number of employees, and store location.

The independent variables attempt to measure whether or not the enforcement and citation intervention group was different in knowledge, or attitudes, or practices of over-the counter tobacco retailers in the state of Oregon. The independent variables are measured using seven-point Likert scales. The main focus of the research is to examine the relationship between the intervention (enforcement) and the independent variables.

3.5.3 Independent and Dependent Variables

Table 3.2
Independent Variables

<i>Variable</i>	<i>Scale</i>	<i>Definition & Measurement</i>
Group	Dichotomous	Treatment (stung and cited) or control (no intervention) group
Respondent	Nominal	Position of respondent in store: owner, manager, or owner/manager
Store type	Nominal	Store type: large, convenience, or gas station
Ownership type	Nominal	Store ownership type: owner operated, franchise, corporation.
Employees	Interval	Number of full-and part-time employees
County	Nominal	Name of the county in which the store is located
Store location	Nominal	Location of the store: country setting (rural), small town or highly populated (urban)

Table 3.3
Dependent Variables

<i>Variable</i>	<i>Scale</i>	<i>Definition & Measurement</i>
Law	Dichotomous	Knowledge of the law Yes/No
Fine	Ordinal	Knowledge of the range of the fine amount <\$50; \$50-\$100; \$100-200; \$100-\$500; >\$500.
Compliance check	Dichotomous	Knowledge of whether or not their store received a compliance check Yes/No
Seriousness of problem	Ordinal	Attitude, seriousness of problem of minors' access to tobacco in their community Measured on a Likert scale of 1 to 7, where 1 is not a problem and 7 is a very serious problem
Likelihood of inspection	Ordinal	Attitude, likelihood of store being inspected for compliance to the Minors and Tobacco Laws Measured on a Likert scale of 1 to 7 where one is unlikely and 7 is very likely
1. Fines and penalties 2. Certain punishment 3. Positive incentives 4. Revoke license 5. Print name of store 6. Print name of clerk 7. Tobacco distributors withhold financial incentives 8. Suspend license for 1-7 days	Ordinal	Attitude towards methods which governmental or other agencies could use to help stores comply with the Minors and Tobacco Laws Measured on a Likert scale of 1 to 7, where 1 is strongly disagree and 7 is strongly agree

Table 3.3
Dependent Variables (Continued)

Licensing	Ordinal	Attitudes toward licensing tobacco retailers in Oregon Measured on a Likert scale of 1 to 7, where 1 is strongly oppose and 7 is strongly support
1. Education 2. Training video 3. Rewards 4. Tool to check ID 5. Signs 6. Community recognition	Ordinal	Attitude, methods which stores could use to encourage employee compliance Measured on a Likert scale of 1 to 7, where 1 is not helpful and 7 is very helpful
Employee training	Dichotomous	Practice, do you train employees regarding the tobacco laws. Yes/no
1. Warn 2. Dock pay 3. Dismissal 4. Education 5. Do nothing	Ordinal	Practice for dealing with employees who sell tobacco to minors Measured on a Likert scale of 1 to 7, where 1 is strongly disagree and 7 is strongly agree
Economic incentives	Dichotomous	Practice, whether or not store receives economic compensation from tobacco distributors for displays or ads in their store Yes/No
Access	Dichotomous	Practice, whether or not customers have access to tobacco products in store Yes/No

3.5.4 Analytical Methods

The data used in this analysis was collected from questionnaires that were completed by Oregon tobacco retailers. The statistical package SAS was used to summarize and analyze all data. Frequency tallies and descriptive statistics, where appropriate, summarized responses for all questions in the survey. Further, summaries were broken down for the control group and treatment group separately.

Cross tabulation and a chi-square test statistic were used to examine if there was a significant association between two categorical variables. They were used to help assess the relationships between categorical variables, which include the group and explanatory variables. Contingency table analysis was employed when the measurement scale was nominal, frequencies represented individual counts or an actual number of persons, and when all categories were exhaustive and mutually exclusive. When two explanatory variables are compared, the null hypothesis for a chi-square test of independence states that two categorical variables are independent of each other. The null hypothesis is rejected following a significant chi-square; this indicates that an association between the variables is present (Portney and Watkins, 1993). With the contingency table approach, the discussion of relationships is limited to two variables at one time. In addition, the type of discussion is global in nature; i.e., only the presence or absence of a relationship may be discussed and the outcome may only be described using percentage of responses or proportion. The effect cannot be described.

The chi-square statistic is defined by:

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

where O represents the observed frequency and E represents the expected frequency and one sums over all cells of the table. As the difference between the observed and expected frequencies increases, the value of χ^2 will increase; if the observed and expected frequencies are the same, χ^2 will equal zero (Portney and Watkins, 1993).

For comparisons between the groups (stung and cited or no intervention) and categorical explanatory variables, the hypothesis needs some restatement because the group (citation or not) was determined before the store opinions were surveyed. The explicit hypothesis, in this case, is that the proportion of responses within each category is the same for both control and treatment groups' response; whereas, the alternative hypothesis indicates the presence of a difference in proportions for at least one category.

Chi-squares were used to examine research questions 1, 2, and 3. Multiple regression was used to examine questions 1 and 2:

1. What are the attitudes, practices, and beliefs of retailers relating to enforcement of the Minor and Tobacco Laws? Survey questions 8, 10, 11, and 14 were analyzed (see Appendix).
2. Do employers who received the enforcement intervention differ from employers who did not receive the intervention in the ways that they attempt to achieve compliance to the Minors and Tobacco Laws with their employees? Survey questions 5 and 12 were analyzed (see Appendix).

3. Does enforcement of the Minors and Tobacco Laws impact whether or not a store receives economic incentives from the tobacco industry for participating in tobacco promotions within their store? Survey question 7 was analyzed (see Appendix).

Multiple regression was employed to determine if there is a relationship between composite dependent variables and several independent variables. In this case, the dependent variables represent attitudes or practices of the respondents; the independent variables include group status and certain demographic information. Multiple regression can evaluate the impact of all independent variables simultaneously. It also allows one to assess the effect of one variable while statistically controlling other variables. Variable selection techniques are many in number. The selection of explanatory variables in this analysis is relies on theory and previous empirical research.

Some assumptions underlie the regression line: the relationship between x and y is linear, residuals are normally distributed with a mean of zero and the variance is equal to the standard error of estimate, and the variance of the errors is the same for each value of x .

Multiple regression is used to determine the best linear equation combination of independent variables to predict a single dependent variable. The criterion of least squares is used to draw the best fitting straight line through the data. The least squares criterion is also used to estimate the coefficients in the regression equation.

The general regression model is given by:

$$\hat{Y} = a + b_1 X_1 + b_2 X_2 + \dots + b_p X_p$$

where \hat{Y} is the dependent measure, b represents a regression coefficient, X_i represents one of “p” independent variables (Tabachnick and Fidell, 1996).

3.6 Limitations of Research Methods

This study has the following limitations:

1. The study sample should not be considered representative of the national population of all over-the-counter tobacco retailers. This study was a random sample of Oregon retailers who were stung and cited or not approached. The Coalition on Smoking OR Health classifies Oregon as a state with moderate laws and legislation intending to minimize smoking and the sale of tobacco products. Some states have very few restrictions, and others are more restrictive than Oregon.
2. Contamination of treatment results may have occurred as a result of communication between the treatment and control groups.
3. Contamination of treatment results may have occurred as a result of TV and newspaper publicity of the compliance checks and enforcement.
4. No baseline data of knowledge, attitudes, practices and policies was collected from the experimental or control groups prior to the intervention.

6. There may have been a change in management personnel in outlets after the treatment occurred.
7. Responses to the survey questions may have been influenced by the fact that the questionnaires were sent out from and mailed back to the Oregon State Office of Alcohol and Drug Abuse Programs, the same office responsible for the compliance checks.
8. There is no information on non-respondents; it is reasonable to assume that they may have a more negative attitude toward controlling tobacco sales.

4. RESULTS

Four hundred and fifty questionnaires were initially mailed by the author. One hundred and forty-five were sent to retailers who had received both a compliance check and a citation for selling tobacco to a minor; this constituted the treatment group. All retailers who had received a citation for selling tobacco to a minor in 1995 were in the treatment group. Three hundred additional questionnaires were sent to retailers who had not received a compliance check; this was the control group. The overall response rate was 73.4% (n=328), the response rate for the treatment group was 77.2% (n=112), and the response rate for the control group was 71.6% (n=216).

4.1 Sample Demographics

The study population consisted of 328 tobacco retail outlets; 34% (n=112) were in the treatment group and 66% (n=215) were in the control group. The unit of analysis is an outlet. Questionnaires were directed to store owners or managers. Thirty-seven point eight percent (n=124) of respondents identified themselves as store owners, 36.9% (n=121) as managers, 19.2% (n=63) as both owner and manager and 5% (n=16) as other. Respondents were asked to classify their store type (see Table 4.1). Thirty-six point zero two percent (n=116) of respondents represented large retail stores (grocery stores, drug stores and department stores), 37.27% (n=120)

represented small markets (mini markets, mom and pop stores, and convenience stores), and 26.2% (n=86) represented gas stations that sold tobacco or gas-station market combinations. Sample store ownership types included 49.4% (n=162) owner operated, 6.7% (n=22) franchise, and 41.2% (n=135) corporation.

The number of stores sampled from each county was proportional to the teenage population in that county. The calculation for the number sampled in each county was based on 1) the total number of stores in the county selling tobacco; and 2) the total number of county residents registered as being under the age of 18 years. Forty-seven percent (n=154) of respondents represented outlets in small communities, 29.6% (n=97) in urban communities and 23.2% (n=76) in rural areas.

Table 4.1
Sample Characteristics

Characteristic	Treatment Group		Control Group		Total	
	No.	%	No.	%	No.	%
Respondents						
Owners	46	37	78	63	124	39
Managers	44	36	77	64	121	40
Owner/Manager	16	25	47	75	63	19
Store Type						
Large	32	28	84	72	116	36
Convenience	50	42	70	58	120	37
Gas	27	31	59	69	86	26
Ownership Type						
Owner Operated	56	35	106	65	162	49
Franchise	10	45	12	55	22	7
Corporation	40	30	95	70	135	41
Store Location						
Small Towns	54	35	100	65	154	47
Urban	32	33	65	67	97	30
Country	26	34	50	66	76	23

4.2 Sample and Group Descriptive Statistics

Table 4.2
Descriptive Statistics
**Level of Seriousness of the Sale of Tobacco Products
to Minors**

GROUP	NOT A PROBLEM		NEUTRAL		A PROBLEM	
	N	%	N	%	N	%
Control	86	41.1	41	19.6	82	39.2
Treatment	40	36.7	24	22.0	45	41.3
Total	126	39.6	65	20.4	127	39.9

Total N= 318

Respondents were asked whether or not they felt the sale of tobacco to minors was a problem in their community (see Table 4.2). Responses were split fairly evenly between not a problem (39%) and a problem (40%). There was very little difference between the group that received the intervention of a compliance check and citation and the group that did not receive an intervention in their beliefs that minors' access to tobacco products was a problem in their community (41% and 39% respectively).

Table 4.3
Descriptive Statistics
Category that Best Describes the Dollar Range of the Fine

GROUP	< \$50		\$50-100		\$100-200		\$100-500		>\$500	
	N	%	N	%	N	%	N	%	N	%
Control	24	11.5	28	13.0	34	15.8	104	48.4	25	11.6
Treatment	11	9.9	23	20.7	14	12.6	54	48.7	9	8.1
Total	35	10.7	51	15.6	48	14.7	158	48.5	34	10.4

Total N= 326

Table 4.4
Descriptive Statistics
Knowledge of Correct Fine Amount Range

GROUP	CORRECT AMOUNT		INCORRECT AMOUNT	
	N	%	N	%
Control	104	48.4	111	51.6
Treatment	54	48.7	57	51.4
Total	158	48.5	168	51.5

Total N=326

Only 48% percent of all respondents, regardless of which group they were in, could correctly identify the range of the fine amount for selling tobacco to a minor (see Table 4.4).

Table 4.5
Descriptive Statistics
**Procedures that May be Used by Employers When
Employees Sell Tobacco to Minors**

PROCEDURE	GROUP	DISAGREE		NEUTRAL		AGREE	
		N	%	N	%	N	%
warning employees	Control	11	5.3	9	4.4	186	90.3
	Treatment	5	4.6	4	3.7	100	91.7
(Total N= 315)	Total	16	5.1	13	4.13	286	90.8
dock pay of employee	Control	155	79.5	16	8.2	24	12.3
	Treatment	77	77.8	8	8.1	14	14.1
(Total N= 294)	Total	232	98.9	24	8.2	38	12.9
dismissal of employee	Control	69	34.	26	12.8	108	53.2
	Treatment	44	43.1	20	19.6	38	37.3
(Total N= 305)	Total	113	37.1	46	15.1	146	47.9
educational training of employee	Control	19	9.2	11	5.3	176	85.4
	Treatment	1	.9	7	6.5	99	92.5
(Total N= 313)	Total	20	6.4	18	5.8	275	87.9
do nothing	Control	182	96.3	1	.5	6	3.2
	Treatment	92	91.1	3	3.0	6	5.9
(Total N= 290)	Total	274	94.5	4	1.4	12	4.1

Respondents were asked about different procedures that may be used when dealing with an employee who sells tobacco products to a minor (see Table 4.5). Ninety-one percent of all respondents agreed that employees should be ‘warned’, and 88% felt that employees who sell tobacco to minors should receive ‘educational training’. Ninety-four percent of all respondents disagreed with ‘doing nothing’ to an employee who sells to a minor; 48% agreed with ‘dismissal’ of an employee who sells tobacco to minors.

Table 4.6
Descriptive Statistics
**Stores that Receive Money from Tobacco Distributors
for Tobacco Ads, Displays or Counter Space**

GROUP	YES		NO		DON'T KNOW	
	N	%	N	%	N	%
Control	122	57.8	66	31.3	23	10.9
Treatment	65	58.6	34	30.6	12	10.8
Total	187	58.1	100	31.1	35	10.9

Total N= 322

Fifty-eight percent of respondents, regardless of what group they were in, reported receiving economic compensation and incentives from tobacco distributors for displaying tobacco ads or displays in their store (see Table 4.6).

Table 4.7
Descriptive Statistics
Strategies that Could Encourage Businesses to Comply

STRATEGY	GROUP	DISAGREE		NEUTRAL		AGREE	
		N	%	N	%	N	%
fines and penalties	Control	42	20	32	15.2	136	64.8
	Treatment	28	25.9	19	17.6	61	56.5
(Total N = 318)	Total	70	22.0	51	16.0	197	62.
Likelihood of certain punishment	Control	51	25.1	30	14.8	122	60.1
	Treatment	32	30.5	18	17.1	55	52.4
(Total N= 308)	Total	83	27.	48	15.6	177	57.5
positive incentives and rewards	Control	49	24.	24	11.8	131	64.2
	Treatment	18	16.8	13	12.2	76	71.0
(Total N= 311)	Total	67	21.5	37	11.9	207	66.6
revoking license to sell tobacco	Control	106	52.	27	13.2	71	34.8
	Treatment	60	57.1	14	13.3	31	39.5
(Total N= 309)	Total	166	53.7	41	13.3	102	33.0
printing names in newspaper of stores that sell	Control	125	61.3	23	11.3	56	27.5
	Treatment	64	59.8	15	14.0	28	26.2
(Total N= 311)	Total	189	60.8	38	12.2	84	27.0
printing name in newspaper of clerks who sell	Control	134	64.7	26	12.6	47	22.7
	Treatment	64	59.3	10	9.3	34	31.5
(Total N= 315)	Total	198	62.9	36	11.4	81	25.7
tobacco distributor withholding financial incentives from stores that sell to minors	Control	60	29.4	29	14.2	115	56.4
	Treatment	34	32.1	18	17.	54	50.9
(Total N= 310)	Total	94	30.3	47	15.2	169	54.5
suspension of license to sell tobacco products from one to seven days	Control	91	44.2	41	19.9	74	35.9
	Treatment	56	52.3	13	12.2	38	35.5
(Total N= 313)	Total	147	50.	54	17.3	112	35.8

Respondents agreed that fines and penalties (62%), likelihood of certain punishment (57%), positive incentives and rewards (67%), and tobacco distributors withholding financial incentives from stores that sell to minors (55%) were strategies which could encourage compliance to the Minors and Tobacco Laws (see Table 4.7). Respondents disagreed with the suspension of license to sell tobacco (54%), printing the name in a newspaper of a store that sells to a minor (61%), and printing the name in a newspaper of clerks who sell to a minor (63%) as strategies which could encourage businesses to comply with the Minors and Tobacco Laws.

Table 4.8
Descriptive Statistics
**Perception of Likelihood that Store will be Inspected for
Compliance**

GROUP	UNLIKELY		NEUTRAL		LIKELY	
	N	%	N	%	N	%
Control	27	12.6	43	20.1	144	67.3
Treatment	7	6.4	15	13.8	87	79.8
Total	34	10.5	58	18.	231	71.5

Total N= 323

The group of stores that received the compliance checks and citations was more likely to believe in the likelihood of their stores being inspected (80%) than stores that did not receive an intervention (67%) (see Table 4.8).

Table 4.9
Descriptive Statistics
**Whether or Not Customers Have Direct Access
to Tobacco Products in Store**

GROUP	YES - Access		NO - Access	
	N	%	N	%
Control	127	59.6	84	39.4
Treatment	64	58.7	43	39.5
Total	191	59.3	127	39.4

Total N= 318

Regardless of group membership, 59% of respondents said that customers do have direct access to tobacco products in their store (see Table 4.9).

Table 4.10
Descriptive Statistics
**Methods Which May be Used to Achieve
Employee Compliance to the Minors and Tobacco Laws**

Strategy	Group	Not Helpful		Neutral		Helpful	
		N	%	N	%	N	%
educational materials regarding the law	Control	14	6.6	19	9.0	178	84.4
	Treatment	5	4.6	5	4.6	99	90.8
(Total N= 320)	Total	19	5.9	24	7.5	277	86.6
training video for employees	Control	32	15.2	29	13.8	149	71.
	Treatment	11	10.4	8	7.6	87	82.1
(Total N= 316)	Total	43	13.6	37	11.7	236	74.7
rewards for stores who comply with the law	Control	34	16.4	29	13.9	145	69.7
	Treatment	13	11.9	15	13.8	81	74.3
(Total N= 317)	Total	47	14.8	44	13.9	226	71.3
a tool to help employee check birth date on ID with current date to compute actual age	Control	14	6.6	15	7.1	183	86.3
	Treatment	4	3.7	5	4.6	100	91.7
(Total N= 321)	Total	18	5.6	20	6.2	283	88.2
signs which state the law	Control	19	9.	24	11.4	168	79.6
	Treatment	8	7.3	12	11.0	89	81.7
(Total N= 320)	Total	27	8.4	36	11.3	257	80.3
community recognition for stores that follow the law	Control	44	21.2	30	14.4	134	64.4
	Treatment	23	21.5	18	16.8	66	61.7
(Total N= 315)	Total	67	21.3	48	15.2	200	63.5

When asked which methods would be helpful in achieving employee compliance to the Minors and Tobacco Laws, respondents' first choice was a tool to help employees check birth date on ID with current date to compute actual age (88%), the second choice

in what would be helpful was educational material regarding the law (87%), the third choice was signs which state the law (80%), and the fourth choice was a training video for employees (75%) (see Table 4.10). The two methods that were not as popular, but still perceived as helpful by some, were rewards for stores who comply with the law (71%) and community recognition for stores who follow the law (63%).

Table 4.11
Descriptive Statistics
Sales Clerk in the
Respondents Store Had Received a Citation During a Compliance Check

GROUP	YES		NO		DON'T KNOW	
	N	%	N	%	N	%
Control	7	3.3	192	90.1	14	6.6
Treatment	80	74.1	21	19.4	6	5.6
Total	87	27.1	213	66.4	20	6.2

Total N= 320

Table 4.11 indicates whether or not respondents knew if their store had received a citation. While each store in the treatment group had received a citation, only 74% of respondents from the treatment group correctly noted that a sales clerk in their store had received a citation. Ninety percent of respondents representing the control group knew that their store had not received a citation.

Table 4.12
Descriptive Statistics
Licensing of Retailers to Sell Tobacco Products in Oregon

GROUP	OPPOSE		NEUTRAL		SUPPORT	
	N	%	N	%	N	%
Control	134	63.5	32	15.2	45	21.3
Treatment	66	62.3	16	15.1	24	22.6
Total	200	63.1	48	15.1	69	21.8

Total N= 317

Most retailers, regardless of group membership, opposed the idea of licensing tobacco retailers (63%); only 21% supported such a license and 15% remained neutral on the issue (see Table 4.12).

4.3 Contingency Table Analysis

P-values and chi-square statistics from the following analysis were used to describe the relationship between two variables at one time. Alpha .05 is the level of significance that must be achieved in both the contingency table and the multiple regression analysis to reject the null hypothesis. This section presents the results of analysis by the research questions that were proposed in Chapter 1.

4.3.1 Research Question No.1

What are the attitudes, practices, and beliefs of retailers relating to enforcement of the Minors and Tobacco Laws?

Research Question No.1. Contingency table analysis was used to test if there was a significant difference between group (stung and cited or no intervention) and attitudes towards methods used by enforcement and other agencies, which could motivate compliance to the Minors and Tobacco Laws. These factors include fines and penalties, likelihood of certain punishment, educational materials, employee training, revoking of tobacco license, printing names in paper of stores who sell, printing names in paper of clerks who sell, suspension of license to sell tobacco products for one to seven days, and tobacco distributors withholding financial incentives.

The data do not support that there is a significant difference between group (stung and cited or no intervention) and attitudes toward methods which could motivate compliance. However, there is strong evidence to suggest that there is an association between position of respondent in the store (owner, manager, and owner/manager) and attitude that fines and penalties could motivate and encourage businesses to comply with the Minors and Tobacco Laws ($p=.001$). Managers are more likely to agree (73%) than are owners (47%) and owners/managers (60%) that fines and penalties act to motivate and encourage compliance to the Minors and Tobacco Laws (see Table 4.13).

Table 4.13

**Relationship Between Position of Respondent in Store
and Attitudes Toward the
Use of Fines and Penalties to Motivate Compliance**

Frequency Row Percent	Disagree	Neutral	Agree	Total
Owner	39 32.2%	25 20.7%	57 47.1%	121 100%
Manager	17 14.2%	15 12.5%	88 73.3%	120 100%
Owner and Manager	13 21.7%	11 18.3%	36 60.0%	60 100%
Total	68	51	181	301

Chi-square=17.974 (DF=4, p=.001)

In addition, the data suggests an association between store ownership type (franchise, corporation and owner operated) and attitudes toward whether revoking the license to sell tobacco products is a good strategy to motivate businesses to comply with the Minors and Tobacco Laws ($p=.021$) Owner-operated stores are more likely to disagree with the idea that revoking the license to sell tobacco will motivate businesses to comply with the Minors and Tobacco Laws (62%) as compared to franchise-owned stores (57%) and corporate-owned stores (45%) (see Table 4.14).

Table 4.14

**Relationship Between Store Ownership Type
and Attitudes Toward
Revoking of License to Sell Tobacco to Motivate Compliance**

Frequency Row Percent	Disagree	Neutral	Agree	Total
Owner Operated	92 62.2%	21 14.2%	35 23.7%	148 100%
Franchise	12 57.1%	1 4.8%	8 38.1%	21 100%
Corporation	60 45.1%	19 14.3%	54 40.6%	133 100%
Total	164	41	97	302

Chi-square=11.594 (DF=4, p=.021)

There is also evidence to suggest a moderate association between position of respondent in the store (owner, manager, and owner/manager) and attitude toward revoking the license to sell tobacco products as a method for motivating businesses to comply with the Minors and Tobacco Laws ($p=.046$). Managers are more likely to agree (38%) than are owners (24%) and owner/managers (33%) that revoking the license to sell tobacco could encourage businesses to comply with the Minors and Tobacco Laws (see Table 4.15).

Table 4.15
Relationship Between Position of Respondent
in Store and Attitudes Toward
Revoking of License to Sell Tobacco to Motivate Compliance

Frequency Row Percent	Disagree	Neutral	Agree	Total
Owner	76 66.1%	11 9.6%	28 24.4%	115 100%
Manager	57 47.5%	18 15.0%	45 37.5%	120 100%
Owner and Manager	28 49.1%	10 17.5%	19 33.3%	57 100%
Total	161	39	92	292

Chi-square=9.672 (DF=4, p=.046)

Furthermore, attitudes toward the likelihood of certain punishment as a motivation for businesses to comply is associated with both respondent and store type. There is moderate evidence suggesting an association between store type (large, convenience, and gas station) and attitude regarding the likelihood that certain punishment encourages businesses to comply with the Minors and Tobacco Laws ($p=.05$). Small convenience stores are more likely to disagree that the likelihood of certain punishment serves to encourage businesses to comply with the Minors and Tobacco Laws (35%) than are gas stations with markets (25%) and larger stores (19%) (see Table 4.16).

Table 4.16
**Relationship Between Store Type
 and Attitudes Toward the
 Likelihood of Certain Punishment to Motivate Compliance**

Frequency Row Percent	Disagree	Neutral	Agree	Total
Large	21 18.6%	21 18.8%	70 62.5%	112 100%
Convenience	40 35.4%	17 15.0%	56 49.6%	113 100%
Gas Station	20 25.3%	9 11.4%	50 63.3%	79 100%
Total	81	47	176	304

Chi-square=9.728 (DF=4, p=.045)

There is strong evidence suggesting an association between position of respondent in the store (owner, manager, and owner/manager) and whether or not the likelihood of certain punishment serves as an encouragement to comply with the Minors and Tobacco Laws ($p=.009$). Managers are more likely to agree (66%) than are owners (46%) and owner/manager (55%) that the perception of the likelihood of certain punishment encourages businesses to comply with the Minors and Tobacco Laws (Table 4.17).

Table 4.17
Relationship Between Respondent Position in Store
and Attitudes Toward the
Likelihood of Certain Punishment to Motivate Compliance

Frequency Row Percent	Disagree	Neutral	Agree	Total
Owner	41 35.3%	22 19.0%	53 45.7%	116 100%
Manager	21 17.7%	19 16.0%	79 66.4%	119 100%
Owner and Manager	19 33.9%	6 10.7%	31 55.5%	56 100%
Total	81	47	163	291

Chi-square=13.628 (DF=4, p=.009)

Research Question No.1. Contingency table analysis was used to test if there was a significant difference between group (stung and cited or no intervention) and beliefs pertaining to the likelihood of a store being inspected for compliance to the Minors and Tobacco Laws. There is moderate evidence to suggest a difference between group (stung and cited or no intervention) and the respondents' attitude toward the likelihood of being inspected for compliance to the Minors and Tobacco Laws ($p=.05$) Stores that received a citation are more likely to feel there is a likelihood the store could be inspected 80% as compared to 67% of stores that received no intervention (see Table 4.18).

Table 4.18
Relationship Between Group and
the Perception of the
Likelihood of Their Store Being Inspected

Frequency Row Percent	Unlikely	Neutral	Likely	Total
Control No Intervention	27 12.6%	43 20.1%	144 67.3%	214 100%
Treatment Stung and Cited	7 6.4%	15 13.8%	87 79.8%	109 100%
Total	34	58	231	323

Chi-square=5.830 (DF=2, p=.054)

In addition, there is evidence to suggest that there is an association between position of respondent in the store (owner, manager, and owner/manager) and the perception of the likelihood that the store will be inspected for compliance to the Minor and Tobacco Laws ($p=.029$). Managers are more likely to believe in the possibility that their stores could be inspected (83%) than are owners (67%) and owner/managers (65%) (see Table 4.19).

Table 4.19
**Relationship Between Position of Respondent
 in Store and the Perception of the
 Likelihood of Their Store Being Inspected**

Frequency Row Percent	Unlikely	Neutral	Likely	Total
Owner	13 10.6%	28 22.8%	82 66.7%	123 100%
Manager	8 6.7%	13 10.8%	99 82.5%	120 100%
Owner and Manager	9 14.5%	13 21.0%	40 64.5%	62 100%
Total	30	54	221	305

Chi-square=10.804 (DF=4, p=.029)

Research Question No. 1. Contingency table analysis was used to test if there was a significant difference between group (stung and cited or no intervention) and whether or not customers have direct access to tobacco products. The data suggests there is no difference between group (stung and cited or no intervention) and whether or not customers have direct access to tobacco products. However, there is strong evidence to suggest that there is an association between position of respondent in the store (manager, owner, and owner/manager) and whether or not customers have access to tobacco products in their stores ($p=.001$) Owners are more likely to deny access to tobacco products to customers (51%) than are managers (26%) and owner/managers (44%) (see Table 4.20).

Table 4.20
**Relationship Between Position of Respondent in Store
 and Whether or Not
 Customers Have Direct Access to Tobacco Products**

Frequency Row Percent	Yes	No	Total
Owner	58 48.3%	62 51.7%	120 100%
Manager	88 74.0%	31 26.1%	119 100%
Owner and Manager	35 56.5%	27 43.6%	62 100%
Total	181	120	301

Chi-square=16.796 (DF=2, p=.001)

In addition, there is strong evidence to indicate an association between store ownership type (owner operated, franchise, and corporation) and whether or not customers have direct access to tobacco products ($p=.001$). Customers are more likely to have direct access to tobacco products in corporate-owned stores (77%) compared to franchise-owned stores (68%) and owner-operated stores (45%) (see Table 4.21).

Table 4.21
**Relationship Between Store Ownership Type
 and Whether or Not Customers
 Have Direct Access to Tobacco Products**

Frequency Row Percent	Yes	No	Total
Owner Operated	73 45.3%	88 54.7%	161 100%
Franchise	15 68.2%	7 31.8%	22 100%
Corporation	100 76.9%	30 23.1%	130 100%
Total	188	125	313

Chi-square=30.556 (DF=2, p=.001)

Furthermore, there is strong evidence to suggest an association between store type and whether or not customers have access to tobacco products in the store ($p=.001$). Customers are more likely to have direct access to tobacco products in larger stores (78%) than in convenience stores (53%) and gas station markets (45%). There is a significant association between store type (large, convenience, and gas station) and whether or not customers have direct access to tobacco products (see Table 4.22).

Table 4.22
**Relationship Between Store Type
 and Whether or Not
 Customers Have Direct Access to Tobacco Products**

Frequency Row Percent	Yes	No	Don't Know	Total
Large Grocery	90 77.6%	23 19.8%	3 2.6%	116 100%
Convenience	62 52.5%	55 46.6%	1 .9%	118 100%
Gas Station	38 44.7%	47 55.3%	0 0%	85 100%
Total	190	125	4	319

Chi-square=31.698 (DF=4, p=.001)

Research Question No.1. Contingency table analysis was used to test if there was a significant difference between group (stung and cited or no intervention) and attitudes toward licensing of retailers to sell tobacco products. There was no significant difference between group (stung and cited or no intervention) and attitudes toward licensing of tobacco retailers to sell tobacco. However, there is strong evidence to suggest that there is an association between position of respondent in the store (manager, owner, and owner/manager) and the attitude toward whether or not there should be licensing of Oregon retailers to sell tobacco ($p=.001$). Owners and owner/managers are more likely to oppose the licensing of retailers to sell tobacco products (72%) and (74%), than are managers (47%) (see Table 4.23).

Table 4.23
**Relationship Between Respondent
 and Attitudes Toward Licensing Retailers to Sell Tobacco Products**

Frequency Row Percent	Oppose	Neutral	Support	Total
Owner	86 71.7%	16 13.3%	18 15.0%	120 100%
Manager	55 47.0%	22 18.8%	40 34.2%	117 100%
Owner and Manager	47 74.6%	8 12.7%	8 12.7%	63 100%
Other	11 68.8%	2 12.5%	3 18.8%	16 100%
Total	199	48	69	292

Chi-square=22.447 (DF=6, p=.001)

In addition, there is strong evidence to indicate an association between store ownership type (owner operated, franchise, and corporation) and attitudes toward the licensing of retailers in Oregon to sell tobacco products ($p=.005$). Owner-operated stores are more likely to oppose the licensing of retailers to sell tobacco products in Oregon (72%) compared to corporate-owned stores (56%) and franchise-owned stores (50%) (see Table 4.24).

Table 4.24
**Relationship Between Store Ownership Type
 and Attitudes Toward Licensing Retailers to Sell Tobacco Products**

Frequency Row Percent	Oppose	Neutral	Support	Total
Owner Operated	112 71.8%	21 13.5%	23 14.7%	156 100%
Franchise	11 50.0%	7 31.8%	4 18.1%	22 100%
Corporation	75 56.4%	19 14.3%	39 29.3%	133 100%
Total	198	47	66	311

Chi-square=15.068 (DF=4, p=.005)

4.3.2 Research Question No. 2

Do employers who received the enforcement intervention differ from employers who did not receive the intervention in the ways they attempt to achieve compliance to the Minors and Tobacco Laws with their employees?

Research Question No. 2. Contingency table analysis was used to test if there was a significant difference between group (stung and cited or no intervention) and practices for dealing with an employee who sells tobacco to minors. These practices include warnings, docking pay, dismissal, educational training and doing nothing.

The data suggests a difference between group (stung and cited or no intervention) and the attitude toward the procedure of dismissing an employee who sells tobacco to a

minor ($p=.02$). Stores that did not receive an intervention are more likely to agree with the procedure of dismissing an employee who sells tobacco to a minor (53%) than are stores that were stung and cited (37%) (see Table 4.25).

Table 4.25
**Relationship Between Group
 and Attitude Toward the
 Dismissal of an Employee Who Sells Tobacco to Minors**

Frequency Row Percent	Disagree	Neutral	Agree	Total
Control No Intervention	69 34.0%	26 12.8%	108 53.2%	203 100%
Treatment Stung and Cited	44 43.1%	20 19.6%	38 37.3%	102 100%
Total	113	46	146	305

Chi-square=7.221 (DF=2, $p=.027$)

In addition, there is strong evidence to indicate an association between store ownership type (owner operated, franchise, and corporation) and attitudes toward dismissal of an employee who sells tobacco to a minor ($p=.001$). Respondents representing franchise store ownership are more likely to agree with the idea of dismissing an employee who sells tobacco to a minor (80%) compared to corporate-owned stores (55%) and owner-operated stores (38%) (see Table 4.26).

Table 4.26
**Relationship Between Store Ownership Type
 and Attitude Toward the
 Dismissal of an Employee Who Sells**

Frequency Row Percent	Disagree	Neutral	Agree	Total
Owner Operated	70 47.6%	21 14.3%	56 38.1%	147 100%
Franchise	3 15.0%	1 5.0%	16 80.0%	20 100%
Corporation	38 29.0%	21 16.0%	72 55.0%	131 100%
Total	111	43	144	298

Chi-square=19.288 (DF=4, p=.001)

Research Question No. 2. Contingency table analysis was used to investigate if there was a significant difference between group (stung and cited or no intervention) and attitudes toward methods which may be used to achieve employee compliance to the Minors and Tobacco Laws. These methods include educational material regarding the law, training video, rewards for stores who comply with the law, signs which state the law to be displayed in stores, and community recognition for stores who follow the law. There is no significant difference between attitudes toward these methods and group (stung and cited or no intervention).

However, there is strong evidence to indicate an association between position of respondent in the store (owner, manager and owner/manager) and attitude toward the usefulness of a training video to achieve employee compliance to the Minors and Tobacco Laws ($p=.010$). Managers are more likely to believe that a training video would be

helpful in achieving employee compliance (85%) than are owners (69%) and owner/manager (62%) (see Table 4.27).

Table 4.27
**Relationship Between Position of Respondent in Store
 and Using a Training Video to Achieve Employee Compliance**

Frequency Row Percent	Not Helpful	Neutral	Helpful	Total
Owner	20 17.0	16 13.6	82 69.5	118 100
Manager	10 8.3	8 6.7	102 85.0	120 100
Owner and Manager	12 19.7	11 18.0	38 62.3	61 100
Total	42	35	222	299

Chi-square=13.308 (DF=4, p=.010)

Table 4.28
Relationship Between Position of Respondent in Store
and Attitudes Toward
Using Rewards to Achieve Employee Compliance

Frequency Row Percent	Not Helpful	Neutral	Helpful	Total
Owner	16 13.5	24 20.2	79 66.4	115 100
Manager	13 10.7	12 10.0	96 79.3	120 100
Owner and Manager	13 22.0	8 13.6	38 64.4	57 100
Other	5 31.3	0 0	11 68.8	16 100
Total	47	44	224	315

Chi-square=15.298 (DF=6, p=.018)

There is also evidence to suggest an association between position of the respondent in the store and the attitude toward using rewards for stores that comply with the Minors and Tobacco Laws in order to achieve employee compliance ($p=.02$).

Managers are more likely to believe that rewards for stores who comply with the law are helpful (79%) than are owners (66%) and owners/managers (64%) (see Table 4.28).

In addition, there is evidence to indicate that there is an association between store type (large, convenience, and gas station) and attitudes that receiving community recognition for compliance to the Minors and Tobacco Laws would be a helpful method in achieving employee compliance ($p=.02$). Convenience stores (70%) and gas stations with markets (69%) are more likely to believe community recognition for compliance to the Minors and Tobacco Laws would be helpful in achieving employee compliance than are larger stores (54%) (see Table 4.29).

Table 4.29
**Relationship Between Store Type and
 Attitude Toward Community Recognition for
 Compliance With The Minors and Tobacco Laws**

Frequency Row Percent	Not Helpful	Neutral	Helpful	Total
Large	26 23.0	26 23.0	61 54.0	113 100
Convenience	19 16.5	16 13.9	80 69.6	115 100
Gas Station	20 24.1	6 7.2	57 68.7	83 100
Total	65	48	198	311

Chi-square=12.315 (DF=4, p=.015)

4.3.3 Research Question No. 3

Does enforcement of the Minors and Tobacco Laws impact whether or not a store receives economic incentives from the tobacco industry for participating in tobacco promotions within their store.

Research Question No. Contingency table analysis was used to investigate if there was a significant difference between group (stung and cited or no intervention) and whether or not stores receive economic compensation from tobacco distributors for tobacco displays and ads in their store. There is no statistically significant difference between group (stung and cited or no intervention) and whether or not a store received economic compensation from tobacco distributors.

However, there is strong evidence to indicate an association between store type (large, convenience, and gas station) and whether or not a store receives economic compensation for tobacco ads, displays or counter space from the tobacco distributor ($p=.001$). Small convenience stores are more likely to receive economic compensation from tobacco distributors for displays and ads in their stores (64%) than are larger stores (62%) and gas station markets (44%). Respondents from large stores did not know whether or not their store received economic compensation from tobacco distributors 19% of the time compared to 8% of small stores and 5% of gas station markets (see Table 4.30).

Table 4.30
**Relationship Between Store Type and
 Whether or Not Store Receives Economic Compensation
 From Tobacco Distributors for
 Tobacco Displays and Ads in Their Store**

Frequency Row Percent	Yes	No	Don't Know	Total
Large	71 61.7	22 19.1	22 19.1	115 100
Convenience	76 64.4	33 28.0	9 7.6	118 100
Gas Station	37 44.1	43 51.2	4 4.8	84 100
Total	184	98	35	317

Chi-square=31.658 (DF=4, $p=.001$)

4.4 Multiple Regression Models

Multiple regression was employed to investigate if there was a relationship between composite dependent variables and several independent variables. Composite scores representing attitudes and practices of respondents were calculated and used as dependent variables in the regression analysis. Scores used to calculate the composite dependent variable were tallied for each respondent using designated variables. For example, the dependent variable for the first multiple regression was calculated for each respondents' answer to survey questions 8 A-H. Each variable was rated by the respondent on a scale of 1 - 7. For this particular composite dependent variable, a respondent could have a score ranging from 7 to 56--7 if all responses were "strongly disagree" and 56 if all responses were strongly agree. The composite variables measured four concepts. These four concepts represent 1) attitudes toward strategies that could be used by government or other agencies to achieve compliance; 2) attitudes toward policies intended to achieve compliance to the Minors and Tobacco Laws; 3) attitudes toward methods that could be used within a store to help employees comply with the law; and 4) practices for dealing with employees who sell tobacco to minors.

The primary independent variable was group (stung and cited or no intervention). Additional independent variables include position of respondent in the store (owner, manager, owner/manager), store type (large, convenience, and gas), store ownership type (owner operated, franchise, and corporation), and location of store (country setting, small town, and highly populated). Research questions 1 and 2 were addressed using the constructed composite scores in multiple regression analyses.

An important question is what effect these explanatory variables have on the subjects' attitudes or perceptions. Statistical models can be used to shed light on the relationship between the dependent composite variables and explanatory variables. The structure of the variables measured made multiple linear regression the natural model to make statistical inference and draw conclusions. The fit of this set of data involves estimation of regression coefficients and the corresponding fitted regression model.

These data were collected from the survey discussed earlier. The sample size was more than adequate to measure error in the regression results (Portney and Watkins, 1993). The power calculation estimate (the probability to detect a difference) is .7246 (Casella and Berger). All model assumptions for the estimation and formulation of the model were checked. The method used to estimate model parameters is known as ordinary least squares. Statistical theory has provided a study of the properties of these estimators and has provided conditions under which the estimators have uniformly minimum variance in the class of all unbiased estimators. The assumptions underlying the regression line are

- 1) the errors have mean zero; and
- 2) the errors are uncorrelated and have common variance.

To carry out hypothesis testing on the model parameter's (the β 's) the assumption of normality of the errors must be made. The quality of fit depends on how closely these ideal conditions are met. However, the least squares technique is robust with respect to departures from the ideal conditions. These model assumptions were assessed by examination of residuals (error), plots to check for outliers, and multicollinearity of the

explanatory variables. The residuals were studied for the purpose of detecting violations of assumptions. The techniques used in residual analysis are viewed as diagnostic in nature and not as part of formal statistical inference. Residuals were viewed to detect departures from the common variance assumption, existence of suspect data points, departures from normality in model errors, and isolated high influence data points.

In this application of regression analysis, the variables included qualitative variables. For example, the store location presents a variable which includes three categories: rural, small town, and urban. Often the term indicator or even dummy variable is used to describe what appear as model terms. The concept of an indicator variable requires the use of an indicator function to describe the role of the variable in the mode. A single categorical variable results in a mere shift in the response between categories. In the case of a categorical variable with more than two levels, say p levels, $p-1$ indicator variables are required where each is 1 or 0 depending on whether the data point in question is in the category. Because the explanatory variables are categorical, indicator variables are used in this model. The level of the indicator that does not have an estimated coefficient represents the reference level for that variable.

4.4.1 Correlation Coefficients of Variables used in Multiple Regression

Correlation coefficients are used to quantitatively describe the strength and direction of a relationship between two variables (Portney and Watkins, 1993). In this

setting, the strength of the relationship between the response and explanatory variables in the regression model will be described.

Composite dependent variables and demographic explanatory variables were used in the ensuing multiple regression models; the correlations appear in the table below (see Table 4.31). Correlations range from -1 to 1, where 0 represents no relationship, 1 a perfect positive relationship, and -1 a perfect negative relationship.

Table 4.31
Correlation Coefficients
Composite Dependent Variables and Demographic Explanatory Variables
Used in Multiple Regression Models

Variable	A3	A4	A5	A6
Position of respondent in store	.128	.053	-.006	.076
Store type	.086	.007	-.115	.004
Store ownership type	.095	.140	.274	-.003
Location of store	.059	.062	.099	.007

Key

A3= Attitudes toward strategies used by governmental and other agencies which may achieve compliance

A4= Attitude toward methods which could help stores comply

A5= Attitude toward minors' access policies

A6= Practices of dealing with an employee who sells to a minor

4.4.2 Research Question No. 1 (Survey Question 8)

The first research question is:

Are there significant differences in attitudes towards factors which could be used by enforcement or other agencies to motivate compliance, between stores that received the compliance checks and enforcement and stores that did not receive the intervention?

Multiple regression was employed to estimate the relationship between a set of independent variables, which included group membership (stung and cited or no intervention) and the dependent variable which was a composite score calculated from survey question 8 parts a - h (see Appendix C). Respondents were asked to rate methods on a scale of 1 to 7, representing strongly disagree to strongly agree. The variables included in the composite score were the factors which could motivate compliance: fines and penalties, likelihood of certain punishment, educational materials, employee training, revoking of tobacco license, printing names in a newspaper of stores who sell, printing names in a newspaper of clerks who sell, suspension of license to sell tobacco products for one to seven days, and tobacco distributors withholding financial incentives.

This composite variable represents each subject's response to attitudes toward these strategies which enforcement or other agencies could and do use to achieve compliance. These variables represent strategies that are currently being used: fines and penalties and printing the names of clerks and stores who sell in the newspaper and strategies that could be implemented in the future (revoking of license to sell tobacco). The dependent variable measures a general attitude of agreement or disagreement towards these methods aimed at achieving compliance.

After accounting for group membership, the model included explanatory variables: position of respondent in store (owner, manager, owner/manager), store type (large, convenience, and gas), and location of store (country, small town, and urban) (see Table 4.32).

Table 4.32
Multiple Regression
For Attitudes Toward Methods Employed By Enforcement
and Other Agencies To Achieve Compliance

VARIABLE	Estimated Beta	SE	p Value Class
Group			
Control	0.481	1.306	0.629
Treatment (Reference)			
Position of respondent			
Owner	-1.762	1.741	0.049
Manager	0.915	1.853	
Owner/Manager (Reference)			
Store type			
Large	-3.750	1.656	0.078
Convenience	-3.043	1.598	
Gas (Reference)			
Store location			
Country	-3.492	1.819	0.082
Small Town	-0.039	1.464	
Urban (Reference)			

F=2.36, p value = .023, $R^2=.058$

Dependent Variable = Attitudes,

Mean = 29, N= 274

After accounting for group membership, the model shows that position of respondent in the store, store type, and store location are associated with the attitude variable representing methods which enforcement and other agencies could use to achieve compliance (F=2.36, p value = .0236, $R^2= .058$). The attitude variable representing

these methods is moderately associated with position of respondent (p value = .049).

Owners are more likely to disagree with these strategies than managers or owner/managers. Store type is mildly inconclusive but suggestively associated with the attitude variable (p value = .0788). Large stores are more likely to disagree with the methods than convenience and gas station. There is a moderately similar effect for store location (p value = .082). Country stores tend to have a more negative attitude than do stores located in small towns or urban settings.

4.4.3 Research Question No. 1 (Survey Questions 1, 10, 14)

The second composite dependent variable represents each subject's attitude toward policies intended to achieve compliance to the Minors and Tobacco Laws. Three survey questions were included in the composite variable: attitudes toward the likelihood of inspection, attitudes toward licensing of tobacco retailers, and attitudes toward seriousness of minors' access problem. All questions were measured on a scale of 1 to 7, where 1 represents a negative response and 7 a positive response, with possible scores ranging from 7 to 21 (see Table 4.33).

Table 4.33
**Multiple Regression for
 Attitudes Toward Policies Intended to
 Achieve Compliance to the Minors and Tobacco Laws**

VARIABLE	Estimated Beta	SE	p Value Class
Group			
Control	-1.028	0.439	0.024
Treatment (Reference)			
Position of respondent			
Owner	0.057	0.567	0.0001
Manager	2.060	0.588	
Owner/Manager (Reference)			
Store location			
Country	-1.745	0.604	0.015
Small Town	-0.894	0.491	
Urban (Reference)			

F=9.33, p-value=.001, $R^2=.146$
 Dependent Variable= Policies,
 Mean=12, N=279

The model shows strong evidence that group membership, position of respondent in store and store location are associated with the attitude variable representing policies intended to control minors' access to tobacco products (p value = .0001, $R^2 = .146$). There is strong evidence to suggest that group (stung and cited or no intervention) is associated with the policy attitude variable (p value .024) The control group (no intervention) is more likely to have negative attitudes toward policies aimed at controlling

minors' access than the treatment group (stung and cited). There is very strong evidence to suggest that managers have a more positive attitude toward policies aimed at controlling minors' access (p value .0001) than do owners and owner/managers. Stores in country locations are more likely to have negative attitudes toward these policies than stores in small towns or urban settings (p value = 0.0156).

4.4.4 Research Question No.2 (Survey Question 12)

The second research question is:

Do employers who received the enforcement intervention differ from employers who did not receive the intervention in the ways they attempt to achieve compliance to the Minors and Tobacco Laws with their employees?

The third composite dependent variable computed represents each subject's response to attitudes toward materials and methods that may be used to achieve employee compliance to the Minors and Tobacco Laws. The new composite variable was calculated from responses to survey question 12 (see appendix C). Respondents were asked to rate methods in question 12 on a scale of 1 to 7 representing not helpful at all to very helpful. Possible scores could range from 6 to 42, where 6 represents not helpful and 42 represents very helpful. Attitudes on the following methods were assessed: educational material, training video, rewards for stores who comply, a tool to help check ID, signs, and community recognition for compliant stores (see Table 4.34).

Table 4.34
Multiple Regression
for Attitudes Toward Methods Used to Help Stores
Achieve Employee Compliance

VARIABLE	Estimated Beta	SE	p Value Class
Group			
Control	1.079	0.841	0.300
Treatment (Reference)			
Ownership type			
Owner Operated	-2.084	0.874	0.017
Franchise	0.497	1.656	
Corporation (Reference)			
Store location			
Country	-0.784	1.179	0.051
Small Town	-2.199	0.932	
Urban (Reference)			

F=3.05, p value=.01, $R^2=.053$
 Dependent Variable=Methods,
 Mean=34, N=280

After accounting for group membership, the model shows that ownership type and store location are associated with the attitude variable representing methods which can be used to help stores and employees comply with the Minors and Tobacco Laws (p value = .01, $R^2 = .053$). The attitude variable is strongly associated with ownership type (p value = .017). Owner operated stores are more likely to view the methods represented in the attitude variable as not helpful than are franchise and corporate-owned stores. Store location is moderately associated with the attitude variable

(p value = .05). Stores located in small towns are more likely to see the methods as less helpful than are stores located in urban settings.

4.4.5 Research Question No. 2 (Survey Question 5)

A composite dependent variable was computed representing practices for dealing with employees who sell tobacco to minors. The new composite variable was calculated from responses to survey question 5, which represented the following practices: employee warning, dock employee pay, employee dismissal, employee educational training, and doing nothing (see Appendix C). Respondents were asked to rank these practices on a scale of 1 to 7, where 1 represents strongly disagree and 7 strongly agree. Composite scores could range anywhere from 7 to 35.

There is no evidence to show the presence of any association between practices dealing with employees who sell tobacco to minors and the independent variables considered. ($F=1.07$, $p\text{-value}=.39$, $R^2 = .0442$).

5. DISCUSSION, CONCLUSIONS AND POLICY IMPLICATIONS

This chapter will discuss the results and conclusions of the statistical analysis of this research based on the theoretical framework presented in Chapter 2, future policy implications of the research, and suggestions for future research. The chapter is presented in seven sections: one for each research question, findings as they apply to the Health Belief Model, conclusions and policy implications, future applications, and suggestions for future research.

5.1 Attitudes, Practices, and Beliefs of Retailers Relating to Achieving Compliance to the Minors and Tobacco Laws (Research Question No.1)

Respondents were asked whether or not they agreed or disagreed with a variety of methods which can be used by enforcement or other agencies to achieve compliance with the Minors and Tobacco Laws. These methods include fines and penalties, likelihood of certain punishment, educational materials, employee training, revoking of tobacco license, printing names in the newspaper of stores who sell, printing names in the newspaper of clerks who sell, suspension of license to sell tobacco products for one to seven days, and distributors withholding financial incentives. In addition, respondents were asked if they felt it was likely or unlikely that their store would be inspected for compliance to the Minors and Tobacco Laws, whether or not customers had direct access to tobacco products in their store, and if they agreed or disagreed with the licensing of Oregon

retailers to sell tobacco products. The following sections, 5.1.1 through 5.1.5, will discuss the conclusions and findings related to these questions.

5.1.1 Respondents' Perception of the Likelihood Their Store Could Be Inspected

Of these survey questions, the only one that was statistically significant between groups (stung and cited, no intervention) was the respondents' attitude toward the likelihood of being inspected. Retailers that had been stung and cited are more likely to believe in the possibility that they can be stung and cited again at anytime. In their expected utility model of corporate deterrence proportion, Braithwaite and Makkai (1991) suggest that detection of non-compliance when accompanied by punishment serves as a deterrence to non-compliance. Once a store has been stung and cited one time, its perception of the probability of detection for non-compliance increases. The expected outcome will be greater efforts of those once stung and cited stores to comply with the Minors and Tobacco Laws to avoid additional detection of non-compliance. In addition, managers are more likely to believe that their store could be inspected at any time than owners and owner/managers.

5.1.2 Methods Used By Enforcement or Other Agencies To Motivate Compliance

The analysis of methods that could be used by enforcement or other agencies to achieve retailer compliance to the Minors and Tobacco Laws were not statistically different between groups. Respondents from both groups (stung and cited, no

intervention) have similar evaluations of these strategies. Respondents from both groups agree that using positive incentives and fines and penalties are the most important motivations for compliance. It is interesting, but not surprising, that the most agreed upon strategies represent persuasion and punishment. Sigler and Murphy (1988) recommend that successful strategies for changing behavior from non-compliance to compliance must include a mix of both persuasion (carrots) and punishment (sticks). Oregon retailers agree.

The strategies that Oregon retailers disagree with are the two strategies that include publicity and community attention for selling tobacco to a minor by printing the name of clerks and stores who sold in the newspaper. Given this response, the reason retailers don't like publicity and community attention may be associated with their dread of public shaming. Both Braithwaite (1989) and Andenaes (1974) believe that public shaming serves as a deterrence for non-compliance. Braithwaite submits that the smaller and more interconnected a community is the more effective public shaming is as a means of deterrence to crime. In addition, Andenaes offers that there is greater importance placed on the shame associated with punishment than on the punishment itself and that when the individual is subject to social rejection and contempt for non-compliant behavior, this serves as a deterrent. In the light of this, the reasons for up-front compliance may include what Lngbien and Kerwin (1985) refer to as intangible benefits of community prestige and reputation. It is worth further investigation to see whether public attention directed toward non-compliant stores serves to motivate other stores to comply.

When investigating public shaming this researcher conducted a census survey of all over-the-counter tobacco retailers conducted in Benton County Oregon and found that 60% of retailers said they disagreed with publishing the name of the clerks who sell tobacco to a minor and 43% said they disagreed with publishing the name of the store who sold in the local newspaper. (Unpublished, Benton County Project, 1995). This response by retailers to public shaming suggests that both Braithwaite's and Andenaes' theories have merit in achieving higher levels of retailer compliance to the tobacco laws.

Furthermore, when these strategies (fines and penalties, likelihood of certain punishment, positive incentives and rewards, revoking of license to sell tobacco, printing the name of the store in the newspaper, printing the name of the clerk in the newspaper, tobacco distributor withholding financial incentives and suspension of license to sell for one to seven days) were analyzed in relationship to the respondents position in the store (owner, manager, owner/manager) it was found that managers were more likely to agree with the use of fines and penalties, likelihood of certain punishment, and revoking of license to sell tobacco, as methods which could encourage businesses to comply with the Minors and Tobacco Laws. Owners are the most likely to disagree with the use of each of these strategies. Owners are also less supportive of the use of punitive legal strategies to encourage compliance. Targeted compliance checks for these owner operated stores may encourage them to increased levels of compliance. To ease the adversarial attitudes that seem to exist between small owner-operated, mom and pop, type stores and law enforcement, these stores should receive educational materials that help them better understand the issues surrounding minors' access to tobacco products. Owner-operated

stores are more likely to disagree with a strategy which would revoke the license of a retailer to sell tobacco than are franchise or corporate owned stores.

5.1.3 Access to Tobacco Products

There is no statistically significant difference between groups (stung and cited or no intervention) in whether or not customers had access to tobacco products. In Oregon, 40% of stores do not allow customers to have direct access to any tobacco products. Gas stations with markets and small convenience stores are more likely to prohibit customer access to tobacco products than are large grocery or department stores.

Consistent with these findings, owner operated stores are more likely to deny customer access to tobacco products than franchise and corporate-ownership types. In stores where customers do not have access, cigarettes and chewing tobacco are usually displayed behind or above the counter. In face-to-face interviews with tobacco retailers in Benton County Oregon (1994), a retailer confided that tobacco distributors encouraged placement of cigarettes that would make shoplifting by young people easy. This could be the reason for barrels of cigarettes situated close to store exits. Many of the larger stores lock up cartons of cigarettes but leave single packs easily accessible to customers.

5.1.4 Licensing of Tobacco Products

Licensing of tobacco retailers and revocation of the license if retailers sell to minors is considered an essential component of the Model Law which includes the ideal policies for the prevention of minors' access to tobacco products (US DHHS, 1990).

Currently, thirty-one states have such a license on their books, but the literature does not contain any references to enforcement of these licensing laws by revoking the license when sales to minors are detected (Federal Register, 1993). Oregon does not have a retailer licensing law. Retailers from both groups (stung and cited, no intervention) are equally opposed to such a license. Retailers oppose licensing because they believe there are already enough government regulations (Altman, D., et al. 1992). Qualitative responses from several respondents in this research supported the attitude that retailers feel there are already too many government regulations, red tape, and fees. For many of the small convenience stores, cigarette sales comprise a significant percentage of profits; loss of a license to sell tobacco would put many of these small businesses in financial jeopardy. Plaid Pantry stores in Oregon receive 27% of their total profits from tobacco sales (CEO Plaid Pantry, 1996).

5.1.5 Attitudes Toward Policies Aimed At Controlling Minors' Access

Strong evidence from the data suggest that group (stung and cited or no intervention), position of respondent in the store (owner, manager, and owner/manager), and location of the store (country, small town, and urban) were associated with attitudes toward policies aimed at controlling minors' access to tobacco. The control group (no intervention) held more negative attitudes toward these policies. Furthermore, stores located in the country are more likely to hold negative attitudes toward these policies. Managers are more likely to hold positive attitudes toward policies aimed at controlling minors' access to tobacco products than owners or owner/managers.

5.2 Attitudes and Practices of Retailers When Dealing with Employees Who Sell Tobacco to Minors (Research Question No. 2)

5.2.1 Dealing With Employees Who Sell

Respondents were asked whether or not they agreed or disagreed with a variety of procedures which may be used when dealing with an employee who sells tobacco to a minor. These practices included warning, docking pay, dismissal, educational training, and doing nothing. The most agreed-upon procedure for both groups was to warn employees and provide educational training followed by dismissal of the employee. In a survey of retail executives, Altman, et al. (1992) found the same results, concluding that merchant education and employee training are the cornerstones to effective community intervention aimed at reducing minors' access.

Strong evidence from the data suggest that the treatment group was less supportive of dismissing an employee who sells to a minor than the control group. Clearly, stores that receive a citation are less likely to believe that dismissal of an employee who sold to a minor is the answer for dealing with that employee than are stores that did not receive a citation. Apparently, retailers who have actually had to deal with an employee who sold to minors are not as punitive in their attitudes as retailers who have never had an employee cited for selling to a minor. Further, respondents representing franchise stores are more supportive of dismissal of an employee who sells to a minor

than corporate and owner-operated stores (Franchise stores in Oregon are primarily Seven-Eleven stores).

5.2.2 In Store Methods For Achieving Compliance

Respondents were asked if they thought certain methods, which could be used to achieve higher levels of compliance in their store, were either helpful or not helpful. These methods included educational material, training videos, rewards, a device for checking birth date and ID in computing the actual age, signs, and community recognition. Both groups felt that the provision of these resources for their employees would be helpful. The method seen as most helpful to employees was a device for checking ID, followed by education materials, videos, and signs which state the law.

Among clerks who sold during the December to March 1997 Synar inspections in Oregon, 40% had requested and seen the minors' ID before permitting the purchase. In Oregon, the teen-ager trying to make an undercover purchase must look no older than 16 (Oregon Department of Human Resources, 1997). The results of this research indicate that retailers know that their employees need help in correctly determining the age of the customer from the ID.

The treatment group was slightly more positive for each method except community recognition for stores who follow the law. This finding is consistent with findings that community recognition, when associated with non-compliance, is not favorably viewed. If their dislike for community recognition coincides with Braithwaith's public shaming theory, then community recognition may be used as a deterrent.

Managers are more likely to see videotapes and rewards as helpful in achieving store compliance than are owners and owner/managers. Convenience and gas station stores are more supportive of community recognition for compliance than are larger stores. These small stores are an integral part of their local communities and neighborhoods; their reputations is an important part of their community image and ability to attract repeat customers (Braithwaith, 1989).

Willey, et al. (1995) found in Project T.R.U.S.T. that educational material delivered in a face-to-face manner, training videotapes for sales clerks, and positive reinforcement for compliant retailers positively impacted compliance of San Diego retailers to the Minors and Tobacco Laws. In selected Oregon communities, Biglan, et al. (1995) demonstrated that merchant education, rewards, reminder visits, and positive publicity for compliance resulted in reduced tobacco sales to minors. Both of these studies emphasize the effectiveness of education and positive reinforcement in communities where minors' access laws are unenforced. However, the studies go on to caution that educational and positive reinforcement strategies must be ongoing in order to maintain continued compliance among retailers. In Oregon, where Synar mandated enforcement is already in place, an educational and positive reinforcement intervention may add to the efficacy of law enforcement intervention to achieve higher levels of retailer compliance. Additional sting operations conducted by health departments in their communities or by stores themselves on their own employees will add additional impetus to the enforcement arm.

5.2.3 Attitudes Toward ‘In Store’ Methods For Achieving Compliance

When assessing these methods together (educational material, training videos, rewards for compliance, a tool for checking ID, signs, and community recognition for following the law), it was found that owner-operated stores and stores located in small towns are more likely to view the methods as less helpful than are franchise and corporate-owned stores located in urban areas.

5.3 Practice of Receiving Economic Incentives and Compensation from Tobacco Distributors. (Research Question No. 3)

5.3.1 Economic Compensation From Tobacco Distributors

Respondents were asked if they received economic compensation from tobacco distributors for tobacco ads, displays or counter space in their store. There was no statistical significance between groups (stung and cited or no intervention). Fifty-eight percent of all respondents said their stores received economic compensation and incentives from tobacco distributors. Small convenience stores and mini-markets are the most likely to receive these compensations followed by larger stores and gas stations. It is well documented in the literature that young people buy most of their tobacco products from convenience stores. Point-of-sale advertising of tobacco products represents 7.4% of the total tobacco advertising and promotional budget (Lynch, 1994). Retailers are reimbursed for marketing and displaying tobacco products to appeal to minors. The retailer receives compensation for displays and counter space, stocking a variety of brands, and providing space for self service and easy access displays. Incentive payments for a moderate size convenience store might be as high as \$8,000 per year (Lynch, 1994). A tobacco retailer in Benton County confided during another face-to-face interview with this researcher that her store received \$7,000 per year for tobacco displays.

The current FDA proposal intending to reduce minors' access to tobacco products includes a proposal to ban the sale or distribution of promotional products (such as caps, T-Shirts, towels, and sweatshirts) bearing the name, logo or other identifying feature of a

tobacco product. Again, convenience stores are the primary outlet for these gimmicks. In addition, the proposed FDA regulation would require all point-of-sale advertisements to be in a black and white, text only format (Zieve, 1996). These less attractive and less enticing ads and displays could encourage stores to reject the enticements and incentives offered by the tobacco distributors.

Additionally, compensation for these ads and promotions often occur at the corporate level, as is the case with Dari Mart Stores in Oregon. Dari Mart managers that were surveyed in Benton County by this researcher in prior research revealed that they were unaware of the scope of compensation from tobacco distributors for their particular store. These negotiations and transactions occur at the corporate level. The impact of the economic relationship between corporate headquarters and the tobacco industry on the attitudes and practices of corporate owned stores was not assessed in this research. In Oregon, the grocers association employs lobbyists at the state level to discourage the passage of regulations affecting minors' access. This provides some indication of the financial relationship between grocery stores and the tobacco industry.

5.4 Application of Research Findings to the Health Belief Model

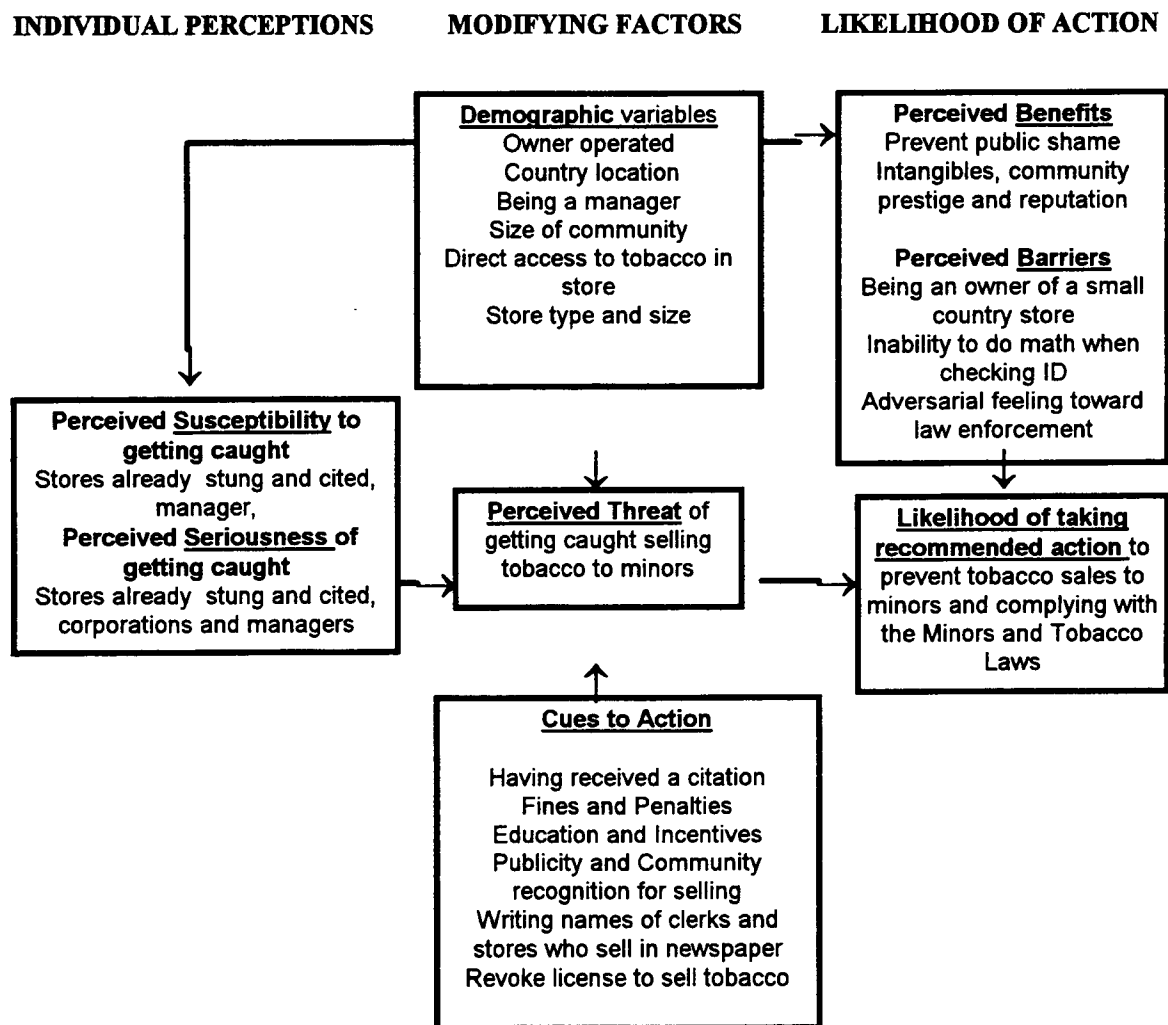


Figure 5.1 Adapted from the Health Belief Model (Rosenstock, Drachman, and Kirscht, 1974). Health Belief Model used to understand factors contributing to tobacco retailers response to the Minors and Tobacco Laws.

Application of the results of this study to the health belief model enables simplicity of explanation of some of the research findings discussed in preceding and proceeding sections of this chapter. The model not only illustrates variables that may contribute to or detract from compliance behavior but also depicts the complexity of the interactions of those variables.

There are demographic variables which contribute to the behavioral outcome (compliance to the law): position of respondent in the store (owner or manager), store type, store location, and store ownership type.

Stores that were stung and cited and managers have an increased perception of the susceptibility to getting caught. After subjective evaluation of responses to survey questions 8 and 12, it also appears that stores that were stung and cited, managers, and corporations have a greater perception of the seriousness of getting caught.

Benefits of compliance include the prevention of public shame for non-compliance and positive public and community recognition for compliance. Barriers to compliance are being an owner of a convenience store located in a rural setting, adversarial feelings toward law enforcement, and clerks, inability to calculate the age of minors after checking ID. Cues to compliance actions include having received a citation, fines, penalties, revoking of license to sell tobacco, education, positive incentives, and publicity (both positive and negative).

This model will be helpful in the future when explaining factors relating to compliance with policy makers, educators and legislators.

5.5 Conclusions and Policy Recommendations

The following section will include conclusions and policy recommendations that can be drawn from the findings of this study. A general discussion of retailers' attitudes toward regulations and compliance, factors affecting their attitudes, and factors affecting their compliance are discussed. For policy makers who are concerned with regulating tobacco sales to minors, a summary of suggested policy recommendations contained in this section include:

1. an increased number of compliance checks and vigilance toward enforcement of the minors and tobacco laws,
2. the use of both negative and positive strategies toward retailers to achieve compliance,
3. publicizing the names of clerks and stores who sell tobacco to minors in the newspaper (negative advertising),
4. publicizing the names of clerks and stores who do not sell tobacco to minors during a compliance check (positive reinforcement),
5. equipping retailers with a device to assist them in calculating the age of the minor from their ID,
6. providing retailers with an educational training video for employees on minors' access to tobacco and how to prevent tobacco sales to minors,
7. implement a tobacco licensing law,

8. educate owners of small convenience stores, especially those located in rural areas, regarding minors' access and the purpose of policies aimed at reducing minors' access to tobacco products,
9. encourage retailers to eliminate customers' direct access to tobacco products in their stores.

5.5.1 Stores That Were Stung And Cited

When retailers are stung and cited they are more likely to believe that they could be stung again at any time. Active enforcement of the Minors and Tobacco Laws results in increased levels of vigilance to comply by those stores who receive a citation and believe that this law is and will be enforced-- potential violators should beware. To avoid repeated encounters with the law, retailers wish to be more diligent in making sure that their store is complying with the Minors and Tobacco Laws. Sting operations and citations increase the perception among those retailers that subsequent checks could occur. Compliance checks and citations contribute to supportive attitudes towards Minors and Tobacco Laws. Furthermore, the stores that were stung and cited also have a more supportive attitude toward policies aimed at controlling minors' access to tobacco products.

Citing an offender actually increases support for policies aimed at controlling minors' access. More compliance checks and citations may have the effect of creating a greater support base for these laws and strategies among tobacco retailers.

The stung and cited group is less supportive of dismissing an employee who sold tobacco to a minor than the group that was not stung or cited. Employers who have

employees who were cited for breaking the Minors and Tobacco Law would rather warn and educate those employees than dismiss them. Knowing this, stores that have been cited should be supplied with educational materials and tools for the purpose of helping employees avoid future illegal sales to minors. The provision of educational materials and information to the cited store could also promote good will between regulatory agencies and the store.

5.5.2 Persuasion and Punishment

Both groups in this study felt that the most effective methods for motivating compliance should include both positive incentives and fines and punishment.

Future implementation of the Synar Amendment should not only include citations for non-compliance, but, in addition, serious efforts should be made to disseminate rewards for those who comply. Positive incentives should also be developed to stimulate compliance; and educational materials, training videos, and signs should be made available to stores.

5.5.3 Publicity For Non-Compliance

Printing the names of non-compliant clerks and stores in the newspaper is an unpopular strategy among retailers of both groups. Both Braithwaite (1989) and Andenaes (1974) believe that public shaming serves as a deterrent to non-compliance and in this case may serve as a method to increase compliance. A store's reputation is paramount, especially in small towns and communities. These small town stores are an

integral part of their local communities and neighborhoods; their reputations are an important part of their community image and ability to attract repeat customers (Braithwaith, 1989). Conversely, printing the names of compliant stores and clerks may be a marketing edge and offer positive advertising if a store achieves a high compliance rating within a community. Media opportunities for publicizing non-compliance and compliance should be developed at both the local and state level.

5.5.4 In-Store Methods For Achieving Compliance

Respondents from both the control and treatment groups felt that a device for helping clerks accurately check customers' ID for age would be the most helpful tool to help employees achieve compliance, followed by educational materials, training videos, and signs about the law to be displayed in the store.

Therefore, all stores should be encouraged to provide their employees with a device for checking the age on customer ID. Among clerks who sold during the January to June 1996 Synar inspections in Oregon, 30% had requested and seen the minors' identification before permitting the purchase. It must be noted that the teen-ager trying to make the purchase must look no older than 16 (Oregon Department of Human Resources, 1996). Additionally, corporations, franchise chains and enforcement agencies should collaborate on the production of a video to be used for training employees on how to avoid selling tobacco to minors. Every store should have access to educational materials and signs.

5.5.5 Licensing

Oregon retailers oppose the licensing of tobacco retailers to sell tobacco. Opposition to licensing by retailers indicates the potential effectiveness (if enforced) of such a licensing law. Retailers are more likely to seriously consider the problem of minors' access if their license to sell tobacco is at risk.

Legislatures should be given the data from this research concerning opposition and support for licensing. In order to gain the support of Oregon retailers, a tobacco licensing law (similar to the alcohol licensing law) should be developed, and it should minimize the initial cost and red tape to retailers. Revenues generated from this license may be used for the enforcement of the Minors and Tobacco Laws.

5.5.6 Managers

Managers are more supportive of strategies and policies to achieve compliance to the Minors and Tobacco Laws than are owners and owner/managers. Managers are more likely to believe their store could be stung. Furthermore, they are more likely to agree with punitive strategies like fines and penalties, likelihood of certain punishments, and the revocation of a license to sell tobacco. Managers are also more interested in educating their employees by using videos and rewards. It appears from their responses that managers view the public health initiatives aimed at controlling minors' access to tobacco products more favorably than do owners.

Managers can be enlisted at the local and state level. They can provide valuable insight and expertise in developing ‘in store’ strategies for training employees in all types of stores. Corporations can recruit managers from around the state to develop and promote strategies for educating employees on how not to sell to minors and other approaches aimed at minimizing minors’ access to tobacco. Managers can also develop an educational training video to assist employers in the training of employees regarding minimizing tobacco sales to minors.

5.5.7 Owners and Owner-Operated Stores

Conversely, it appears that owners do not support and are threatened by enforcement and other endeavors to control minors’ access to tobacco products. Owners find materials that could help employees and stores achieve compliance to be not helpful. State and local efforts should be made to minimize the adversarial attitudes that seem to exist between owners and owner-operated stores and enforcement agencies striving to minimize minors’ access to tobacco products.

Small mom and pop type convenience stores can receive educational materials to help them better understand the issues surrounding minors’ access to tobacco products and their important role in solving the problem. Owners of small stores can be made to feel like allies not adversaries in efforts to minimize minors’ access to tobacco products. Stores that are stung and cited should promptly receive follow-up educational materials, and stores that are stung and not cited should receive prompt, positive publicity in their local community.

5.5.8 Direct Access to Tobacco Products

Customers are denied direct access to tobacco products in 40% of Oregon stores. Stores that deny direct access to tobacco are more likely to be smaller convenience stores. Larger stores should be informed that denying customers' direct access to tobacco products minimizes minors' attempts to illegally purchase tobacco and also eliminates tobacco product shoplifting. All tobacco products should be kept in locked cases or behind the counter. The Institute of Medicine, in its landmark report, concluded that placing tobacco products "out of reach reinforces the message that tobacco products are not in the same class as candy or potato chips" (Lynch & Bonnie, 1994; FDA Press Office, 1995).

5.5.9 Economic Compensation From Tobacco Distributors

Fifty-eight percent of all tobacco retailers in Oregon receive economic compensation from tobacco distributors. Tobacco distributors see small convenience stores as effectual outlets for their advertising gimmicks, promotions, and give aways. The current FDA proposal that calls for restricting point-of-sale advertising and promotion should be supported at the state and local level. If the FDA proposal does not pass, state and local policies aimed at restricting the scope and lucrative benefits to retailers of point-of-sale advertisements should be developed with the ultimate goal of removing point-of-sale ads and gimmicks from retail outlets that encourage minors to buy tobacco products.

5.6 Future Applications

“Now that the second-year results are available and show no improvement (reduction) from the first year, it appears that more of the business community (retailers) are realizing the sale of tobacco to minors is a larger problem than they perceived (or wanted the community to be aware of) and, more importantly, that state and federal agencies are going to address the health issue. The financial risks to the retailers (and manufacturers) are increasing and may produce more concern and effective actions regarding training and monitoring of sales staff” (Goff, 1996). This research will assist public health officials in the development of policies and strategies for the future implementation of the Synar Amendment and will provide the Oregon Department of Alcohol and Drug Abuse Programs with information regarding current knowledge, attitudes and practices of retailers. In addition, this information will be helpful in the compilation of an educational packet proposed to be sent to retailers sometime in 1997 and will provide the Oregon Department of Alcohol and Drug Programs with information regarding knowledge, attitudes and practices of tobacco retailers that will be helpful in the development of a training video for individuals who sell tobacco products. Finally, this research will assist Oregon legislators in the debate surrounding the licensing of tobacco retailers.

The findings from this study will also assist other states as they seek to comply with the Synar Amendment and achieve higher levels of retailer compliance to the Minors and Tobacco Laws, also.

5.7 Future Research

It is recommended that this research be replicated in different demographic areas within the United States and also in countries like the United States that have unenforced laws making it illegal for minors to purchase tobacco products. In addition, further research is needed to understand the behavioral and attitudinal differences between managers and owners. It would also be helpful to investigate the underlying differences in knowledge, attitudes and practices between rural and urban retailers.

Furthermore, the most recent Synar inspections in Oregon found that clerks ask underage minors for their ID, and yet 30%-40% will go ahead and make the sale even after checking the ID. This research found that retailers thought that a device to help clerks check ID would be very useful. Presently, research is needed to give public health officials a better understanding of how ID checking devices are used and why clerks continue to sell even after checking ID. In addition, the continued effectiveness of the Synar Amendment and its enforcement of the sale of tobacco to minors should be evaluated. More research should also be done investigating the profit motive in sales to

minors. This includes not only the continuation of tobacco profits from sales to minors, but also kick-backs (economic incentives for displays and ads within the stores targeted at minors) from tobacco distributors.

Finally, even though new FDA regulations went into effect in February of 1997 requiring clerks to check the ID of anyone who is under 27, public health officials and policy makers must remain vigilant to educate retailers and enforce existing minors' access laws aimed at protecting our future generations from death and disease.

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APPENDICES

APPENDIX A

March 18, 1996

Oregon

DEPARTMENT OF
HUMAN
RESOURCESHuman Resources
BuildingOFFICE OF
ALCOHOL AND DRUG
ABUSE PROGRAMS

Dear Owner or Manager::

The United States Congress passed legislation for the purpose of decreasing access to tobacco products by minors. This legislation greatly affects stores that sell tobacco products and their employees. However, no one really knows how Oregon retailers feel about the new legislation or if they plan to make any changes in store policies in response to the legislation.

Your store is one of a small number in which managers are being asked to give their opinion on these matters. It was drawn from a random sample of the entire state. In order that the results will truly represent the thinking of retailers in Oregon, it is important that each questionnaire be completed and returned. It is also important that persons with similar responsibility levels from each store participate in this study. Thus, we would like the questionnaire for your store to be completed by the manager or owner.

You may be assured of complete confidentiality. The questionnaire has an identification number for mailing purposes only. This is so we may check your store's name off of the mailing list when your questionnaire is returned. Your store's name will never be placed on the questionnaire or connected with any responses.

The results of this research will be made available to officials and representatives in our state's government, members of Congress, and interested citizens. You may request a summary of results by filling out the enclosed card and returning it with your questionnaire. Please do not put this information on the questionnaire itself.

We would be most happy to answer any questions you might have. Please write or call. The telephone number is (503) 945-6186.

Thank you for your assistance.

Sincerely,

Louise Muscato
Co-Project Director

Clinton Goff
Co- Project Director

John A. Kitzhaver
Governor



APPENDIX A - Continued

March 29, 1996

Oregon

DEPARTMENT OF
HUMAN
RESOURCES

Human Resources
BuildingOFFICE OF
ALCOHOL AND DRUG
ABUSE PROGRAMSPrevention and Treatment
for a Better Oregon

Dear Owner/Manager:

About three weeks ago we wrote to you seeking your opinion on new legislation regarding minors access to tobacco products and how that legislation has affected you and your store. As of today we have not received your completed questionnaire.

Our research unit has undertaken this study because of the belief that retailers opinions should be taken into account in the formation of public policies pertaining to decreasing minors access to tobacco products in Oregon.

We are writing you again because of the significance each questionnaire has to the usefulness of this study. Your stores name was drawn through a scientific sampling process in which every retailer who sells tobacco products had an equal chance of being selected. This means one out of every 15 Oregon retailers are being asked to complete the questionnaire. In order for the results of this study to be truly representative of the opinions of all Oregon retailers, it is essential that each store in the sample return their questionnaire. As we mentioned in our last letter, the questionnaire from your store should be completed by the manager or owner.

In the event your questionnaire has been misplaced, a replacement is enclosed.

Your cooperation is greatly appreciated.

Cordially,

Louise Muscato
Co-Project DirectorClint Goff
Co-Project DirectorJohn A. Kitzhaber
Governor

P.S. A number of people have written to ask when results will be available. We hope to have them out sometime next month.

APPENDIX A -Continued

 Oregon

 DEPARTMENT OF
 HUMAN
 RESOURCES

April 22, 1996

MAY 03 1996

Human Resources
BuildingOFFICE OF
ALCOHOL AND DRUG
ABUSE PROGRAMS

Dear Owner or Manager:

We are writing to you about our study of retailers' opinions and their store policies relating to minors' access to tobacco products. We have not yet received your completed questionnaire.

The large number of questionnaires returned is very encouraging. However, whether we will be able to describe accurately how Oregon retailers feel on these important issues depends on you and the others who have not yet responded. Past research shows that those who respond at a later period have different opinions in some areas.

This is the first statewide study of this type ever done. Therefore, the results are of particular importance to the many retailers, state legislators, and policy makers now considering what kinds of policies should be established in order to best meet the needs of retailers like yourself. The value of our results depends on how accurately we are able to reflect the broad spectrum of retailers' opinions.

Since we have not received yours to date, we have enclosed a replacement questionnaire for your convenience. We urge you to complete and return it as soon as possible if you want your opinions to be included with the other retailers in our sample.

Your contribution will ensure the success of this study and will be greatly appreciated.

Most Sincerely,

Louise Muscato
 Louise Muscato
 Co-Project Director

Clint Goff
 Clint Goff
 Co-Project Director

John A. Kitzhaber
Governor

APPENDIX B



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 957 SALEM, OREGON

POSTAGE WILL BE PAID BY ADDRESSEE

OFFICE OF DRUG AND ALCOHOL
ABUSE PROGRAMS
500 SUMMER ST NE 3RD FLOOR
SALEM OR 97301-9814



[] YES, I WOULD LIKE TO RECEIVE A SUMMARY OF
THE RESEARCH FINDING.

PLEASE SEND THE REPORT TO:
(Print name and address below)

APPENDIX B - Continued

**OFFICE OF ALCOHOL AND
DRUG ABUSE PROGRAMS
500 Summer Street NE
Salem, OR 97310-1016**

Dear Owner or Manager:

Date: _____

Last week a questionnaire seeking your opinion about new legislation affecting minors' access to tobacco products was mailed to you. Your store's name was drawn in a random sample of retailers in Oregon.

If you have already completed and returned it to us please accept our sincere thanks. If not, please do so today. Because it has been sent to only a small, but representative, sample of Oregon's retailers, it is extremely important that yours also be included in the study if the results are to accurately represent the opinions of Oregon retailers.

If by some chance you did not receive the questionnaire, or it got misplaced, please call us right now, collect (503- 945-6186) and we will get another one in the mail to you today.

Sincerely,

Louise Muscato
Project Director

Clint Goff
Project Director

APPENDIX C



**Oregon Department of Human Resources
Office of Alcohol and Drug Abuse Programs**

**Retailers Attitude Survey
Minors Access To Tobacco Products**

1. There is currently public debate surrounding tobacco use. In your opinion, how serious a problem do you consider the sale of tobacco products to minors to be in your community? On a scale of 1 to 7, where 1 is not a problem and 7 is a very serious problem.
(Please circle one number.)

**NOT A
PROBLEM**

**VERY SERIOUS
PROBLEM**

1	2	3	4	5	6	7
---	---	---	---	---	---	---

2. Have you ever heard of Oregon's Minors and Tobacco Law? (Please circle one number.)

- 1 YES
2 NO

3. The Oregon Legislature has established fines for violations of the Minors and Tobacco Law. Please indicate which category you believe best describes the dollar range of the fine.
(Please circle one number.)

- 1 LESS THAN \$50
2 \$50 - \$100
3 \$100 - \$200
4 \$100 - \$500
5 MORE THAN \$500

4. Does your store have a procedure for training employees regarding the State of Oregon's tobacco laws? (Please circle one number.)

- 1 YES
2 NO

APPENDIX C - Continued

5. Retailers may use different procedures when dealing with employees who sell tobacco products to minors. The following is a list of possible procedures that may be used when employees sell tobacco to minors. Please indicate how strongly you agree or disagree with each procedure, on a scale of 1 to 7 where 1 is strongly disagree and 7 is strongly agree.

(Please circle one number for each procedure.)

**STRONGLY
DISAGREE**

**STRONGLY
AGREE**

A. warning employees	1	2	3	4	5	6	7
B. dock pay of employee	1	2	3	4	5	6	7
C. dismissal of employee	1	2	3	4	5	6	7
D. educational training for employee	1	2	3	4	5	6	7
E. do nothing	1	2	3	4	5	6	7

6. In your opinion which of these strategies is the most effective?

_____ *(Please enter one letter from the list above.)*

7. Often times tobacco retailers receive economic and other incentives from tobacco distributors for displaying tobacco ads or displays in their store. To the best of your knowledge, does your store receive money from tobacco distributors for tobacco ads, displays or counter space?

(Please circle one number.)

- 1 YES
- 2 NO
- 3 DON'T KNOW

8. Businesses are motivated to comply with laws and regulations for a variety of reasons. The following is a list of strategies which could encourage compliance to the Minors and Tobacco Laws. In your opinion do these strategies encourage compliance? Please indicate how strongly you disagree or agree on a scale of 1 to 7, where 1 is strongly disagree and 7 is strongly agree. *(Please circle one number for each strategy.)*

**STRONGLY
DISAGREE**

**STRONGLY
AGREE**

A. fines and penalties	1	2	3	4	5	6	7
B. likelihood of certain punishment	1	2	3	4	5	6	7
C. positive incentives and rewards	1	2	3	4	5	6	7
D. revoking of license to sell tobacco	1	2	3	4	5	6	7
E. printing names in paper of stores who sell	1	2	3	4	5	6	7
F. printing names in paper of clerks who sell	1	2	3	4	5	6	7
G. tobacco distributors withholding financial incentives from stores who sell to minors	1	2	3	4	5	6	7
H. suspension of license to sell tobacco products for one to seven days	1	2	3	4	5	6	7

9. In your opinion which of these strategies is the most effective?

_____ *(Please enter one letter from the list above.)*

APPENDIX C - Continued

10. How likely or unlikely do you think it is that your store will be inspected for compliance to the Minors and Tobacco Laws? *(Please circle one number.)*

VERY
UNLIKELY

VERY
LIKELY

1	2	3	4	5	6	7
---	---	---	---	---	---	---

11. In stores throughout Oregon tobacco products are displayed for customer purchase in a variety of ways. In some stores customers have access to tobacco products and in others they do not. Do customers have direct access to tobacco products in your store or not. *(Please circle one number.)*

- 1 YES, ACCESS
2 NO ACCESS

12. There are a variety of methods which could be used to help stores comply with the Minors and Tobacco Laws. In your opinion how helpful are the following methods which may be used to achieve employee compliance to the Minors and Tobacco Laws? On a scale from 1 to 7 where 1 is not helpful at all and 7 is very helpful. *(Please circle one number for each method.)*

NOT HELPFUL
AT ALL

VERY
HELPFUL

A. educational material regarding the law	1	2	3	4	5	6	7
B. training video for employees	1	2	3	4	5	6	7
C. rewards for stores who comply with the law	1	2	3	4	5	6	7
D. a tool to help employee check birth date on ID with current date to compute actual age	1	2	3	4	5	6	7
E. signs which state the law	1	2	3	4	5	6	7
F. community recognition for stores who follow the law	1	2	3	4	5	6	7

13. From October 1994 through August 1995, random, unannounced compliance checks of tobacco retailers have occurred. Stores throughout the state have been checked. To the best of your knowledge, has a sales clerk in your store received a citation for selling tobacco to a minor during a compliance check? *(Please circle one number.)*

- 1 YES, CLERK RECEIVED CITATION
2 NO CITATION RECEIVED (SKIP TO QUESTION 14)
3 DON'T KNOW (SKIP TO QUESTION 14)

- 13a. To the best of your knowledge, what was the amount of the fine the judge ordered?

\$_____ *(Please write fine amount.)*

- 13b. What action, if any, did your store take regarding this employee?
(Please describe below what action was taken.)

APPENDIX C - Continued

14. Some retailers support the licensing of tobacco while others are opposed. The type of licensing being referred to is similar to alcohol licensing. Please indicate your position on the licensing of retailers to sell tobacco products in Oregon. *(Please circle one number.)*

STRONGLY
OPPOSE

STRONGLY
SUPPORT

1	2	3	4	5	6	7
---	---	---	---	---	---	---

16. What best describes your position at your store? *(Please circle one number.)*

- 1 OWNER
- 2 MANAGER
- 3 OWNER & MANAGER
- 4 OTHER (Please specify _____)

17. Which of the following best describes your store type. *(Please circle one number.)*

- 1 GROCERY STORE
- 2 DRUG STORE
- 3 DEPARTMENT STORE
- 4 MINI MARKET
- 5 MARKET
- 6 GAS STATION
- 7 GAS STATION AND MINI MART
- 8 CONVENIENCE STORE
- 9 OTHER (Please specify _____)

18. Which of the following best describes your store's ownership? *(Please circle one number.)*

- 1 OWNER OPERATED
- 2 FRANCHISE
- 3 CORPORATION
- 4 OTHER (Please specify _____)

19. To the best of your knowledge, how many full time and part time employees work in your store?
(Please fill in the number.)

_____ FULL TIME EMPLOYEES

_____ PART TIME EMPLOYEES

20. What county is your store located in?

_____ COUNTY

21. Which best describes the location of your store? *(Please circle one number.)*

- 1 COUNTRY SETTING (RURAL)
- 2 SMALL TOWN
- 3 HIGHLY POPULATED (URBAN)

THANK YOU FOR TAKING THE TIME TO COMPLETE THIS QUESTIONNAIRE