2. The Strength of Tobacco Control Index

Frances A. Stillman, Carol L. Schmitt, Pamela I. Clark,
William M. K. Trochim, and Stephen E. Marcus

Contributors: Warren Strauss and Jyothi Nagaraja

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2. The Strength of Tobacco Control Index

The Strength of Tobacco Control (SoTC) index was created to measure the program effects of the American Stop Smoking Intervention Study (ASSIST) and to serve as an overall measure of tobacco control intensity at the state level. The measure comprises three constructs (resources, capacity, and efforts) that constitute the multiple facets and components of tobacco control. This chapter describes four key stages of the evolution and use of SoTC:

- ***Development of the SoTC index** around the three constructs (resources, capacity for state-level tobacco control, and program efforts focused on policy and social-environmental change); development of a survey methodology for measuring these constructs; and determination of how the level of these constructs in a specific state constitutes the SoTC for that state;*
- ***Collection and analysis of the SoTC data and validation of the SoTC heuristic map** using factor analysis and structural equation modeling;*
- ***Results of SoTC,** including comparison of SoTC results across states and analysis of how SoTC relates to intermediate and final outcome measures;*
- ***Use of SoTC to evaluate individual state programs:** beyond ASSIST program evaluation, the SoTC measure is useful as a means for states to conduct a process analysis of their tobacco control programs.*

Introduction

This chapter discusses the development and implementation of the SoTC index—a state-level measure of tobacco control interventions—and provides the SoTC score and its component constructs for each state. Based on three key constructs—resources, capacity, and efforts—the SoTC index represents a "dose-level" measurement of ASSIST interventions for the 17 states within the project and other states that benefited from the diffusion of these interventions through other initiatives.

The success of the ASSIST evaluation depended on identifying accurate metrics for assessing state-level performance in tobacco control outcomes. Moreover, this project set out to measure the impact of interventions that were being used far beyond the states originally funded by the ASSIST project. The SoTC index represents an indirect measure of state-level tobacco control performance, using aggregated results derived from its three constructs and their supporting data sources. The development process for the SoTC index serves as an example of participatory design, validation of real-world factors, and collection and analysis of data from multiple sources. Its values were correlated significantly with other constructs such as legislative policy scores and, as discussed in more detail in chapter 9 of this monograph, ultimately correlated with tobacco control outcomes at the state level.

Development of the Strength of Tobacco Control Index

The ASSIST evaluation presented a unique challenge with implications for the future of evidence-based public health. The challenge was to develop a measure that (1) could be used outside the bounds of a controlled trial and (2) could be related to public health outcomes. The SoTC index is a metric that measures the magnitude of a state's tobacco control program. The index was based on a heuristic model that was internally and externally validated and was subsequently used to evaluate the effects of ASSIST interventions. Further, SoTC holds promise as a process evaluation measure that states can use to assess their tobacco control programs.

As described in chapter 1, ASSIST was implemented during a period when state-level tobacco control programs were instituted in all 50 states and the District of Columbia. State, federal, and foundation initiatives built varying levels of tobacco control infrastructures, and at the close of the twentieth century this infrastructure received additional funding from settlements of lawsuits against the tobacco industry. By the time of the ASSIST evaluation, every state had a functioning tobacco control program, and the ASSIST effects could not be easily disentangled from the effects of other initiatives. This meant that ASSIST could not be evaluated by simply comparing ASSIST states with non-ASSIST states. The ASSIST evaluation team agreed that an index quantifying each state's tobacco control program was required for the evaluation statistical models and that this index should include a measure of program components (activities) and a measure of how tobacco control programs are organized to deliver those components (inputs). SoTC was developed to be this standard measure of state-level tobacco control programs.

The major challenge in constructing this metric was to develop and test a measure that adequately described the intensity of a state's tobacco control program. In addition, coalition building was a core component of ASSIST, and a state's tobacco control program could not be adequately measured unless all the organizations delivering tobacco control in that state were identified and their contributions measured. These challenges were addressed in the construction of the SoTC survey instruments, in the identification of respondents, and, subsequently, in the data-reduction strategy that produced the SoTC scores.

This chapter examines the development, validation, results, and future applicability of SoTC as a metric, both for the ASSIST program and for the future evaluation of state-based tobacco control programs.

Defining State-level Tobacco Control Programs and Development of the Heuristic Map

Within the ASSIST evaluation model,[1] the SoTC index quantifies the state's tobacco control program. The state tobacco control program includes the inputs (resources and capacity) that a state has available for tobacco control and the tobacco control activities (efforts) it performs. Another component

of the overall evaluation framework, the Initial Outcomes Index, measured the initial policy outcomes produced by the program (see chapter 4). The components of the SoTC index were defined, constructed, and implemented in a logical and scientifically defensible manner. Potential index components were identified in an extensive literature review and analyzed for their parsimony, scientific support, and feasibility. A heuristic map for SoTC was developed. This heuristic map was used to develop the survey instrument, the data collection process, and the subsequent analytic plan.

An expert panel, the SoTC Workgroup, was convened to determine the components that constituted SoTC and to assess how those components could be validly and reliably measured. The workgroup began by reviewing the extant literature on state tobacco control programs and consulting tobacco control experts. On the basis of its initial review, the workgroup determined that a quality tobacco control program was based on the following three constructs:

- **Resources:** assets for tobacco control
- **Capacity:** ability (including infrastructure) to implement tobacco control activities, given sufficient resources
- **Efforts:** the comprehensiveness of tobacco control activities, from policy-focused activities to program services

The workgroup subsequently identified 27 variables that they considered measures of these constructs. Each of the proposed 27 variables was then rated on the following criteria:

- *Parsimony* was defined as the degree to which the variable centrally and simply described an ASSIST-like intervention expected to affect changes in policy and media, based on descriptions of ASSIST.[2,3] Each variable was rated for parsimony on a scale ranging from 1 (no expected relationship to the ASSIST evaluation conceptual framework) to 5 (the strongest expected relationship to the ASSIST evaluation conceptual framework).
- *Scientific support* was defined as demonstrated reliability and validity in peer-reviewed journals and other scientific publications. Scientific support was rated on a scale ranging from 1 (measure may have face validity, but operational definitions in the literature do not support construct validity or reliability), to 3 (an accepted measure used in several publications that have used a common measurement approach with slight variations), to 5 (a standardized measure with demonstrated reliability and validity that has been used in several different studies).
- *Feasibility* was defined as data that could be collected within the allocated time frame (during 1999 to coincide with the Current Population Survey data collection)[4] and at a reasonable cost. Feasibility was rated on a scale ranging from 1 (feasibility undetermined), to 3 (feasibility established and data for variable must be collected), to 5 (data are currently collected and available).

Two members of the workgroup reviewed the evidence on each variable.

For cases in which the raters did not agree, the entire workgroup discussed the variable under consideration until they reached consensus. Variables with high ratings on all three criteria were retained. Variables that received low ratings on scientific support were retained only if they were deemed central to measuring a component of SoTC, and variables rated low on feasibility were eliminated. At the end of this process, 14 variables remained in the SoTC index. For each variable selected, the workgroup provided sample items from the extant scientific literature and suggested potential informants or archival data sources. The original list of proposed indicators, their ratings, and recommendations for inclusion are included in appendix 2.A, and a list of the 14 variables with sample items and information sources is included as appendix 2.B.

Subsequently, a second workgroup was convened to examine whether the variables identified adequately and validly represented the three constructs (resources, capacity, and efforts). This workgroup examined the applicability of the variables to evaluating state-level tobacco control programs and corroborated these measures against applicable research literature. This expanded group included members with additional skill sets—psychometricians (to address validity and data-reduction considerations), evaluation researchers, multilevel analysts, tobacco epidemiologists, and survey researchers, along with several members of the original expert panel. In addition to refining and validating the criteria behind SoTC, this group helped to develop and refine the data-collection instruments behind the three SoTC constructs into their final form.

This process also resulted in a heuristic map (figure 2.1) that depicts a hierarchy of all components in the proposed SoTC index. As may be seen in this map, the SoTC index is composed of three constructs at the highest level: resources, capacity, and efforts. In turn, these constructs comprise several domains.

Description of the Constructs and Domains

The heuristic map was used to generate survey items from which an SoTC index score could be generated and to subsequently guide the analysis and interpretation of the data. Table 2.1 presents the constructs, indicators (domains), and associated measures. As the survey items were generated, a fuller description of the three constructs emerged.

- The *resources* construct may be described as the "raw materials" a state needs to engage in tobacco control. The resources construct was defined as the amount of money allocated for a state's tobacco control program and the number of full-time equivalent staff assigned to tobacco control in a state.
- The *capacity* construct may be described as the "engine" or the potential ability a state has to perform tobacco control activities. This construct was originally defined by state leadership support for tobacco control, the character of relationships between state tobacco control agencies, the independence and power of the health department

Figure 2.1. Heuristic Map of Components Proposed for Strength of Tobacco Control Index

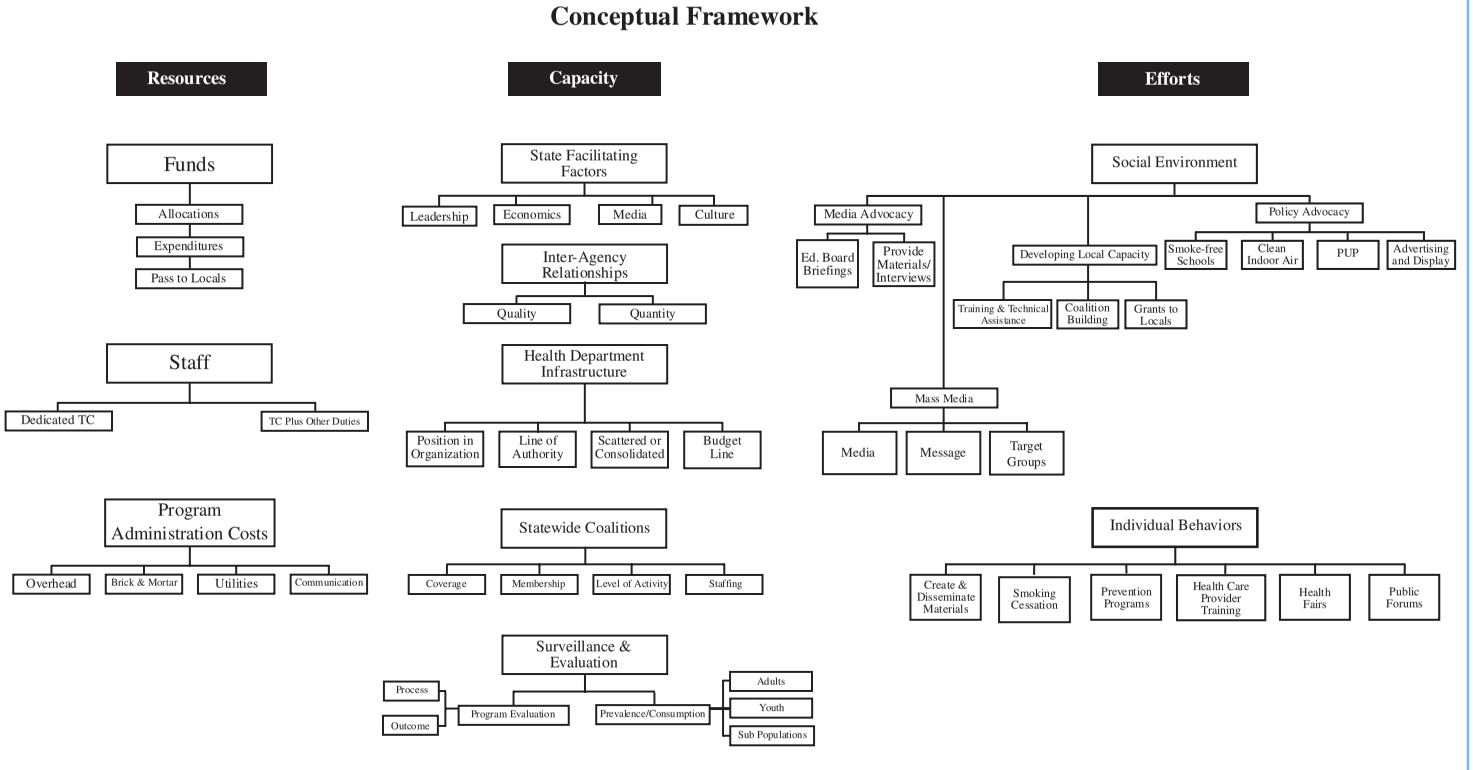


Table 2.1. The Constructs, Domains, and Measures of the Strength of Tobacco Control (SoTC) Index

Construct/Domain	Description of measures
Resources	
Staff	▪ Number of full-time staff dedicated to tobacco control
Funding	▪ Amount of money received by the state health department and major agencies
Capacity	
Leadership	▪ Support of governor for tobacco control ▪ Support of state representatives for tobacco control ▪ Support of state senate for tobacco control ▪ Support of state attorney general for tobacco control ▪ Support of the chief health officer for tobacco control
Interagency relationships	▪ Interaction with state health department as viewed by all other agencies ▪ Frequency of contact with state health department as viewed by all other agencies ▪ Perceived quality of interactions between all agencies BUT state health department as viewed by all other agencies ▪ Perceived quantity of interactions between all agencies BUT state health department as viewed by all other agencies
Health department infrastructure	▪ Level of involvement in deciding which tobacco-related programs the agency participates in ▪ Level of involvement related to hiring decisions ▪ Distance (inclusive) between the chief tobacco control person and the state's chief health officer
Statewide coalitions	▪ Does your coalition have any paid staff? ▪ Proportion of state that is covered by local coalitions
Staff experience	▪ Months at agency ▪ Months in current position ▪ Months involved with tobacco control
Efforts	
Media advocacy	▪ Does agency hold media editorial board briefings? ▪ Does agency give press background information on smoking issues? ▪ Does agency give interviews? ▪ Has agency included media reps in tobacco control activities?
Mass media	▪ Specific mass media (e.g., TV, radio) used by organizations ▪ Specific targets of antitobacco message (e.g., demographics) ▪ Was message used in mass media efforts focused on tobacco industry tactics?
Developing local capacity	▪ Specific training and technical assistance activities an agency is performing at the local level ▪ Specific coalition-building activities an agency is performing at the local level ▪ Does agency give grants/contracts to local agencies?
Policy advocacy	▪ Does agency do policy advocacy on smoke-free schools? ▪ Does agency do policy advocacy on clean indoor air? ▪ Does agency do policy advocacy to repeal or fight preemption laws? ▪ Does agency do policy advocacy to restrict tobacco ads and displays? ▪ Does agency do policy advocacy to increase tobacco taxes? ▪ Does agency do policy advocacy to increase youth possession penalties?
Individual behaviors	▪ Does agency disseminate materials for general public? ▪ Does agency do cessation focused on specified target groups? ▪ Does agency do school/youth prevention? ▪ Does agency do health provider training? ▪ Does agency do health fairs? ▪ Does agency do public forums?

tobacco control program director, the composition and character of the state-level tobacco control coalition(s), and the experience level of state tobacco control professionals.

- The *efforts* construct described the tobacco control activities that the state tobacco control program engaged in.* These efforts were categorized into activities that focused on changing the social climate of tobacco use (e.g., media advocacy efforts to gain antitobacco coverage and an antitobacco editorial slant) and activities that focused on individual behavior change (e.g., education programs and cessation services).

Development of the Data Collection Instruments and Analytic Plan

The SoTC index measures were collected with two data-collection instruments:

1. **A self-administered questionnaire (worksheet).** The original SoTC workgroup recognized that some data collection could not be completed easily by telephone. For example, it might have been difficult for respondents to provide information accurately about funding amounts without consulting records or co-workers. The self-administered questionnaire asked respondents to list the amount of funding they received from such sources as the National Cancer Institute, Robert Wood Johnson Foundation, Centers for Disease Control and Prevention, and state-level sources, and to list the number of full-time equivalent staff members dedicated to tobacco control in their organizations. In addition, respondents estimated the percentages of time and money they spent on interventions aimed at changing the social environment, on interventions aimed at changing individual behaviors, and on administrative functions. This instrument is included as appendix 2.C.
2. **A computer-assisted telephone interview.** The remaining data were collected by telephone interview. This instrument is included as appendix 2.D.

Both instruments were tested in cognitive interviews in a laboratory environment. The interviews resulted in minor modifications in wording, particularly for item instructions and formatting of the self-administered questionnaire.

The original SoTC workgroup plan included an analytic strategy for the SoTC survey to be aggregated into an index using standard scaling techniques, including the use of *z*-score sums and principal components analysis. Once the survey instruments were tested, an expert panel was convened to finalize the analytic plan.

*A state tobacco control program was defined as the state health department and its state-level tobacco control partners. At the minimum, that partnership included the state health department, the three voluntary agencies (American Cancer Society, American Heart Association, American Lung Association), and any state-level tobacco control coalition(s).

Collection, Analysis, and Validation of SoTC Data

Once the conceptual model for the SoTC index was defined, its implementation involved a three-step process:

- **Collection:** Participants were identified and data were collected using the survey instruments described in the previous section.
- **Analysis:** Single SoTC scores for each state were derived from these data, using a heuristic map as a basis for interpreting and aggregating data for each of the three constructs, which were subsequently combined to form the single SoTC score.
- **Validation:** Factor analysis and structural equation modeling were performed to assess the internal consistency of the original heuristic model. SoTC constructs were correlated with ratings from expert opinions to assess the construct validity of the overall index and its components.

The next sections describe the details of these three processes.

Data Collection

The data collection phase began with the identification of stakeholders in each state's tobacco control community. Each person interviewed was asked to identify additional tobacco control professionals in their states—that is, a snowball sample of respondents. U.S. Office of Management and Budget clearance was obtained for this process. The responses to these interviews were used to calculate the SoTC index values for each state.

During ASSIST, NCI formed a strategic alliance with the American Cancer Society (ACS), which had already partnered with the American Lung Association (ALA) and American Heart Association (AHA) to form the Coalition on Smoking OR Health in 1982. This partnership allowed ASSIST to build on the ACS national structure. In addition, "as a nongovernmental organization, ACS could advocate for public policies and speak out against the tobacco industry in ways that a government agency was precluded from doing."[5(p48)] Moreover, states were directed to form tobacco control coalitions that included voluntary agencies, advocacy groups, minority groups, and business leaders. These groups and organizations were to be recruited for a cohesive and comprehensive coalition that could work collaboratively and implement strategies and interventions that would promote strong tobacco control, including legislative and policy approaches.

The initial fixed-list respondents of the SoTC survey were defined as staff members of state health departments, statewide tobacco control coalitions, and state-level components of all three voluntary health organizations (American Cancer Society, American Lung Association, and American Heart Association). The exception was the District of Columbia, where the respondents were from city-level agencies and organizations. The degree to which other state-level organizations participated in tobacco control varied widely. Therefore, these organizations were identified through the snowball sample procedure.

The initial respondent list was compiled from several sources. The program offices for ASSIST (National Cancer Institute [NCI]), Initiatives to Mobilize for the Prevention and Control of Tobacco Use (IMPACT—CDC), and SmokeLess States (Robert Wood Johnson Foundation) provided lists of their state grantees, which included all state health departments and some voluntary agencies. Additional voluntary agency contacts were identified by their national offices and through searches of their Internet sites, telephone calls to state offices, or a combination of these strategies.

To develop the snowball sample, each fixed-list respondent was asked to identify other state-level entities that conducted tobacco control activities. Before they were interviewed, snowball-identified entities were screened (either by telephone or, if available, via the Internet) to ensure that they were state-level agencies active in tobacco control and that their organization had not previously completed this survey. Once interviewed, these respondents became an additional source of referrals. A state's sample was considered complete when there were no new nominations from within that state. In a few cases, health department contacts were called to verify that the list of respondents interviewed in their state was inclusive.

All respondents answered the computer-assisted telephone interview. In addition, a subset of respondents completed the self-administered questionnaire.

The unit of measurement in the survey was the agency or organization. Only one computer-assisted telephone interview per entity was conducted, although more than one person in an agency could contribute to the interview. The instruments were constructed as modules, and lead-in screening items were constructed for each module. To complete a module, a respondent had to have self-referred into the module via the screening items. Self-referral thereby became the criterion for identifying the appropriate individual as the respondent for an entity.

SoTC Respondents

Staff from 372 agencies and organizations in 50 states and the District of Columbia completed the computer-assisted telephone interview. This represented 100% of health departments, voluntary agencies, and state-level coalitions in each state, plus organizations identified through snowball sampling. Self-administered questionnaires were completed by all 139 agencies that directly received federal, state, or foundation funds, or who had received funds from state lawsuits against the tobacco industry. The original data-collection plan included self-administered questionnaire completion by all respondents. Despite follow-up telephone calls, however, the overall response rate for these questionnaires did not exceed 55%. The decision was then made to target questionnaire return from those agencies with identifiable and stable funding sources. These respondents included all state health department representatives (both ASSIST and IMPACT states), SmokeLess States grantees (identified by the SmokeLess States office), and recipients of tobacco industry settlement funds outside the

Master Settlement Agreement (these respondents were identified by the health department respondents in those states). All self-administered questionnaires were obtained from these agencies.

Data Analysis

The objective of the data analysis was to derive a single SoTC score for each state as well as a score for each of the three major constructs (resources, capacity, and efforts). This goal was accomplished by using the heuristic map to sequentially assess each of the hierarchical groupings and subsequently combine the assessments. Figure 2.1 illustrates the hierarchical groupings of the SoTC construct, moving from domain and subdomains to the single SoTC rating. A later section of this chapter addresses the comparative importance of individual construct scores and the overall composite measure.

The utility of single performance scores has recently been questioned. The balanced scorecard approach is perhaps the best-known "dose measure" derived performance metric currently used in private industry. Performance on this metric requires that a program be assessed on four categories—financial, customer, internal business process, and innovation and learning. The criticisms of this approach are that unlike the SoTC index, the balanced scorecard is not based on a theoretical perspective and it does not

Examples of the Self-referral Process

Interrelationships between state agencies module. This module required a respondent within each state agency who was most likely to have worked directly with other state-level organizations. If the fixed-list respondent was not the person directly in contact with the other agencies and organizations, that person's subjective evaluation of the working relationship between the respondent's agency and other entities could be misleading. To prevent this potential problem, each agency respondent was screened as follows: "We would like to ask some questions about the interrelationships of tobacco control organizations in your state. Are you the person in your organization who has the most contact with other tobacco control organizations?"

If the response was "yes," the relationship module was completed by that person. If the response was "no," an intra-agency snowball referral to the appropriate person was obtained, that part of the process was ended, and the rest of the interview was continued. The appropriate person within that agency was then contacted, and the screening question was asked again. The module would then be completed by that respondent only if he or she self-identified through the screening item.

Health department infrastructure module. Because the state health department was the recipient of ASSIST and most other state-level tobacco control funding, the way in which the state health department was organized to implement tobacco control programs was an important element of the SoTC index. Only the highest-level tobacco control officer in the state health department answered the questions in the health department infrastructure module. The respondent was asked, "Would you describe yourself as the highest-level tobacco control specialist in your organization?"

If the response was "yes," the infrastructure module was completed. If the response was "no," the respondent was asked, "Who would you say is the highest-level tobacco control specialist in your organization?" The named official was then contacted, and the screening process was repeated until someone self-identified into the module.

incorporate stakeholder input.[6] While the SoTC measure underwent an extensive validation process and was associated with lower cigarette consumption, analyses of specific state programs show a complex interplay among these construct values that is not completely reflected in the single score.

To ensure that all variables combined had the same measurement scale, all variables were standardized before being combined at any level of that hierarchy (e.g., survey question, subdomain, domain, or construct). The goal of the SoTC index was to provide a single measure that both explained strength of tobacco control at the state level and also captured the maximum variability in those survey measures that were consistent with the conceptual model. By using a hierarchical principal components approach to combine the survey variables at each level of hierarchy within the conceptual model (using weights from the first eigenvector), the maximum amount of variability among the questionnaire responses was captured. The model validation described in the next section (and detailed in appendix 2.E) suggested that the SoTC score better discriminated between states when several domains were omitted. Therefore, the final SoTC scores were based on this "reduced" model.

For example, respondents answered a series of questions about the use of mass media in their tobacco control efforts; these questions constitute the mass media subdomain. Each respondent's answer to the survey questions in the mass media subdomain was standardized. Those scores were then entered into a principal components analysis. The principal components equation for that set of standardized scores was then solved, yielding one mass media subdomain score for each respondent. At the subdomain level, a mean state score was calculated from the principal components score. Subsequently, the mass media subdomain score was combined with the other subdomains (e.g., media advocacy, policy advocacy, developing local capacity) to compose the social environment domain, which is focused on changing the social environment of tobacco use. The social environment domain was then combined with the individual behavior efforts domain (e.g., efforts aimed at changing individual behaviors) to form the efforts construct.

Finally, the three constructs—resources, capacity, and efforts—were combined using the same analytic technique (hierarchical principal components analysis). This process resulted in a single aggregate SoTC score for each state.

Validation of the Conceptual Model

Additional analyses explored whether the data supported the structure of relationships hypothesized by the analytic map—for example:

- Did the data show that the efforts variable was truly made up of the individual behaviors and social environment domains?
- Did the data show that these domains were more related to the efforts construct than to the capacity or resources constructs?

Factor analysis and structural equation modeling were used to answer these questions. These analyses indicated that the domains making up the efforts construct were significantly related to each other and not to domains within the resources or capacity constructs (appendix 2.E). Likewise, the domains making up the resources construct were significantly related to each other and not to domains within the capacity or efforts constructs.

The relationship between the domains in the capacity construct was not as clear-cut, and additional analyses were performed to determine which domains yielded the best SoTC index model. When all 12 domains were included in the model, that model accounted for 50% of the variability in the correlation matrix. However, after removing three domains within the capacity construct—leadership, health department infrastructure, and staff experience—the model accounted for 60% of the variability in the correlation matrix. The SoTC index scores used in the ASSIST evaluation therefore consisted of these nine domains. The model validation analysis and justification for the reduced model are described in more detail in appendix 2.E, and the participatory approach used to validate the SoTC criteria is described in appendix 2.F.

Results of SoTC

Table 2.2 shows the SoTC index scores and the three construct scores (resources, efforts, and capacity) for the 50 states and the District of Columbia, and figures 2.2 through 2.5 show maps of these results by state. ASSIST states did not differ significantly from non-ASSIST states on overall SoTC score or on any of the three constructs.

The Relationship between SoTC Scores and Other Indicators

The SoTC scores for all states and the District of Columbia were compared with the legislative score (described in chapter 3). The legislative score, a component of the Initial Outcomes Index, measures the strength of a state's policies on clean indoor air and youth access to tobacco. Since these two policy areas were part of the focus of the ASSIST program, it was expected that a strong tobacco control program (as measured by the SoTC index) would be associated with higher levels of tobacco control policy. Table 2.3 shows the results of this analysis. The overall SoTC index score was significantly correlated with the legislative score and with the efforts construct.

The SoTC scores for all states and the District of Columbia were also compared with the prevalence of tobacco use measured at the state level in the Tobacco Use Supplement of the Current Population Survey.[7] Table 2.4 shows the results of the analyses of state SoTC scores and construct scores for 1999, and the prevalence of tobacco use by state for 2000.

Prevalence of tobacco use was significantly correlated with the SoTC index score as well as the resources and capacity constructs but was not significantly correlated with the efforts construct. In addition, per capita adult cigarette consumption levels showed a correlation with both the SoTC index and its capacity construct.

Table 2.2. Standardized Strength of Tobacco Control (SoTC) Index and Construct Scores, 1999–2000, by State, Sorted by SoTC Scores

(Shading indicates ASSIST states.)

State	SoTC Index Score	Resources	Efforts	Capacity
AZ	4.03	4.85	1.13	1.76
CA	3.73	4.13	1.31	1.80
MN	1.74	3.54	–0.46	–0.11
FL	1.70	1.38	0.12	1.75
MS	1.28	1.83	1.63	–0.75
NJ	1.12	–0.11	0.87	1.68
RI	1.09	–0.54	2.35	0.95
MD	0.97	–0.36	2.42	0.46
HI	0.96	–0.27	1.22	1.27
MI	0.90	–0.17	1.37	0.93
OR	0.90	0.05	0.63	1.25
OK	0.84	–0.47	1.20	1.26
NY	0.69	–0.17	1.18	0.64
KS	0.47	–0.44	–0.21	1.59
MA	0.46	1.12	–0.30	–0.10
IA	0.41	–0.36	–0.16	1.33
CT	0.37	–0.50	1.43	0.18
GA	0.39	–0.39	0.89	0.41
AK	0.30	–0.44	1.69	–0.22
WA	0.23	–0.19	–1.35	1.71
ID	0.13	–0.55	0.01	0.85
AR	0.08	–0.20	–0.75	0.96
VA	0.07	–0.38	0.73	–0.01
WI	–0.04	–0.21	–0.18	0.29
NC	–0.14	–0.13	–0.52	0.26
AL	–0.18	–0.14	1.07	–1.02
KY	–0.19	–0.47	1.88	–1.30
UT	–0.29	–0.38	–0.43	0.18
NE	–0.31	–0.48	–1.16	0.80
CO	–0.40	–0.12	–0.40	–0.36
NH	–0.45	–0.50	1.23	–1.28
SC	–0.48	–0.51	–1.82	1.02
NM	–0.53	–0.40	–0.92	0.11
WV	–0.53	–0.29	0.36	–1.01
TX	–0.61	–0.11	–0.79	–0.49
PA	–0.68	–0.33	0.15	–1.10
IL	–0.71	–0.45	0.36	–1.19
MO	–0.79	–0.37	0.78	–1.75
DC	–0.87	–0.47	0.17	–1.32
WY	–0.92	–0.53	–2.44	0.63
ND	–0.93	–0.61	–1.90	0.30
OH	–1.05	–0.32	–0.26	–1.52
DE	–1.07	–0.52	–0.63	–1.05
IN	–1.08	–0.29	–1.24	–0.88
SD	–1.20	–0.50	–0.69	–1.30
ME	–1.24	–0.32	–0.73	–1.56
TN	–1.28	–0.61	–2.98	0.43
NV	–1.42	–0.59	–2.56	–0.20
VT	–1.50	–0.58	–0.43	–2.00
MT	–1.60	–0.61	–1.27	–1.52
LA	–2.30	–0.50	–1.59	–2.77
Overall				
Mean	0.0	0.0	0.0	0.0
SD	1.20	1.58	1.26	1.60
ASSIST				
Mean	.11	.026	–.017	.24
SD	.78	.97	1.11	1.10
Non-ASSIST				
Mean	–.05	–.01	.01	–.12
SD	1.32	1.25	1.35	1.29

Figure 2.2. Strength of Tobacco Control Scores by State

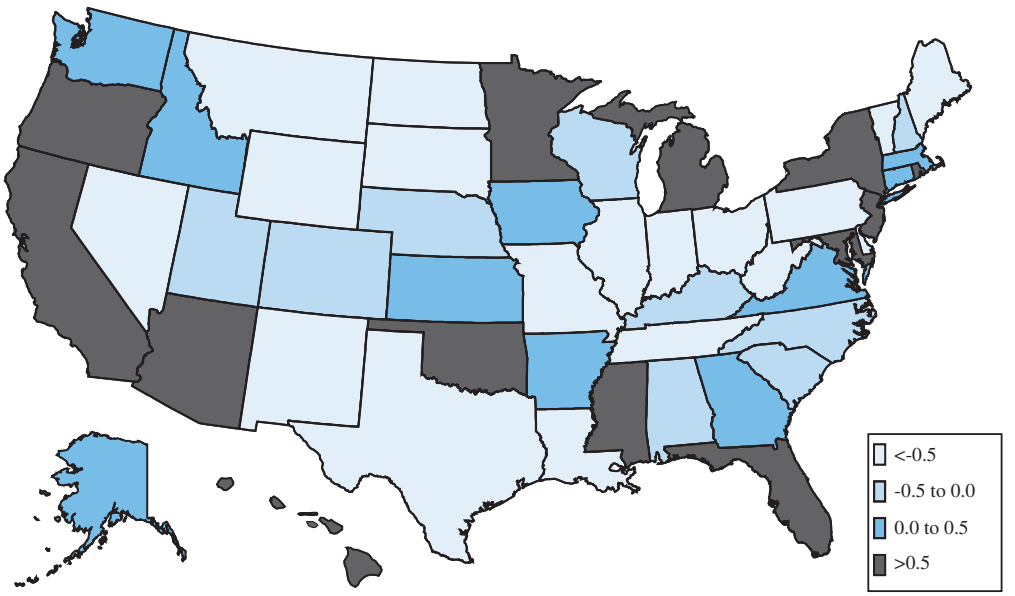


Figure 2.3. Resources Construct Scores by State

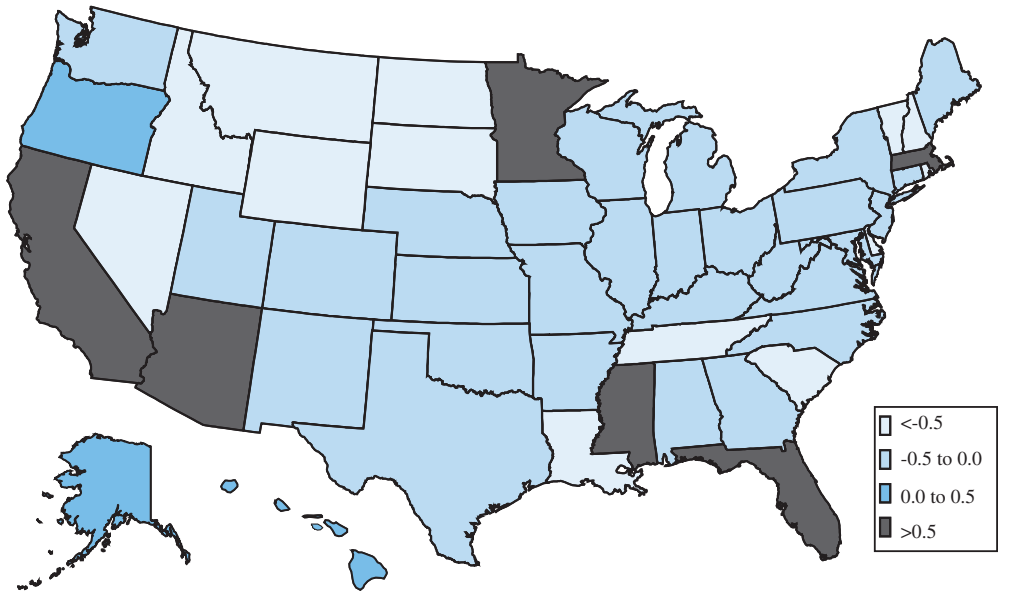


Figure 2.4. Efforts Construct Scores by State

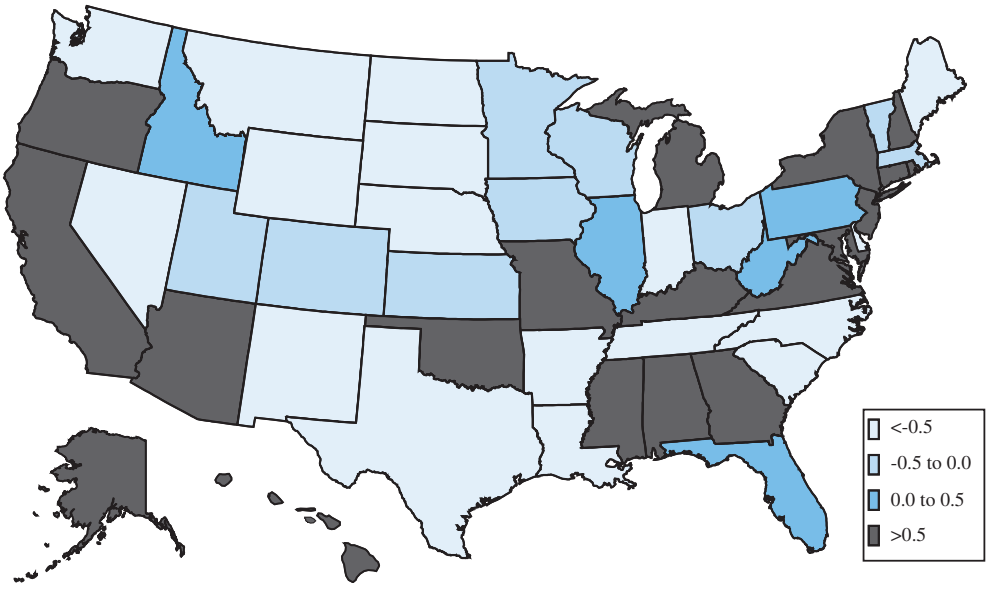


Figure 2.5. Capacity Construct Scores by State

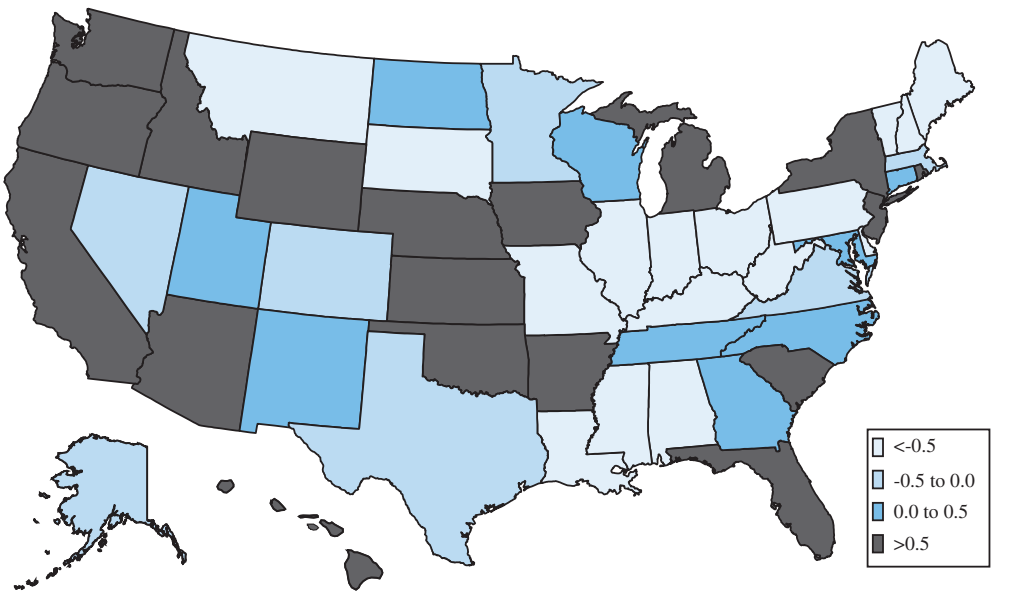


Table 2.3. Correlation of Legislative Scores (1999) with SoTC Scores (1999)

Correlation/ Significance	SoTC	Resources	Capacity	Efforts
Pearson *r*	.318	.129	.068	.336
p	.023	.366	.633	.016

Table 2.4. Correlation of Tobacco Use Prevalence (2000) with SoTC Scores (1999)

Correlation/ Significance	SoTC	Resources	Capacity	Efforts
Pearson *r*	–.404	–.323	–.313	–.180
p	.003	.021	.025	.207

Although these correlations were statistically significant, one must interpret them with caution. The ASSIST states were not randomly selected, and the baseline prevalence of tobacco use was different in each. Baseline differences and other covariates had to be accounted for in the analyses. The degree to which SoTC index values related to these results is more fully explained in chapter 9, including a discussion of multivariate models that include the SoTC.

Limitations of the SoTC Index

The resultant SoTC scores performed well in the evaluation analyses. However, as with any measure, limitations in the conceptualization, measurement, and data-reduction strategies may have biased some individual state scores. For example, the heuristic model is based on the assumption that a high-scoring tobacco control program will have all the inputs and engage in all the activities measured. The heuristic model and subsequent survey may not have been comprehensive enough to capture all the components necessary to produce an effective tobacco control program. In addition, while the SoTC index captured whether a specific tobacco control activity was performed in a state, the "dose" of that activity was not measured. An organization that held one editorial board briefing in a year received the same score on that item as an organization that held weekly editorial board briefings, and this bias was included in the aggregate state score.

Other potential biases resulted from the respondents interviewed. Although great care was taken to ensure that all organizations engaged in tobacco control in a state were interviewed, some organizations may have been omitted. Each organization's contribution to tobacco control was equally weighted, and this equal weighting may have yielded an inaccurate picture of an individual state tobacco control program. For example, while the health department may have received the bulk of money for tobacco control in a state, its activities did not carry greater weight within the SoTC

construct than did the activities of any other agency. These challenges and limitations should be acknowledged, and individual states can address them in light of their own environmental context. But for the purpose of the ASSIST evaluation, the aggregate scores were found to provide a valid measure of the program inputs and activities.

Use of the SoTC to Evaluate Individual State Programs

The first sections of this chapter describe why the SoTC index was needed for the ASSIST evaluation and how the index was constructed and tested, in addition to providing individual state scores and some of the index's univariate relationships with other index scores in the evaluation. Chapter 9 reports a significant multivariate relationship between the SoTC index and tobacco consumption. In addition, while other researchers have reported a relationship between tobacco control outcomes and funding,[8] the ASSIST evaluation demonstrated the relationship between another component of tobacco control—program capacity—and outcomes.

This section examines the domain-level indicators within each of the three main constructs of SoTC at the state level. While the aggregate measures of SoTC and the three major constructs are well suited to between-state comparisons, the domain-level indicators are measures that may be more important for understanding how individual states meet unique environmental challenges. For example, in a state with high tobacco taxes, tobacco control advocates may be less likely to focus on legislation to increase them further. Alternatively, a state with a strong tobacco industry presence may expend high levels of effort without concomitant gains in tobacco control legislation. As such, the domain scores and their component measures may be better used as part of a state process evaluation that incorporates contextual factors such as state political climate and tobacco industry activities.

Inputs: Resources and Capacity

Funds allocated for tobacco control varied widely by states during the 1990s. Table 5.2 in chapter 5 shows per capita funding by state throughout the decade and provides an overview of the change in absolute state funding for tobacco control during this period. This information provides some context for understanding why some states had more well-established tobacco control programs than others.

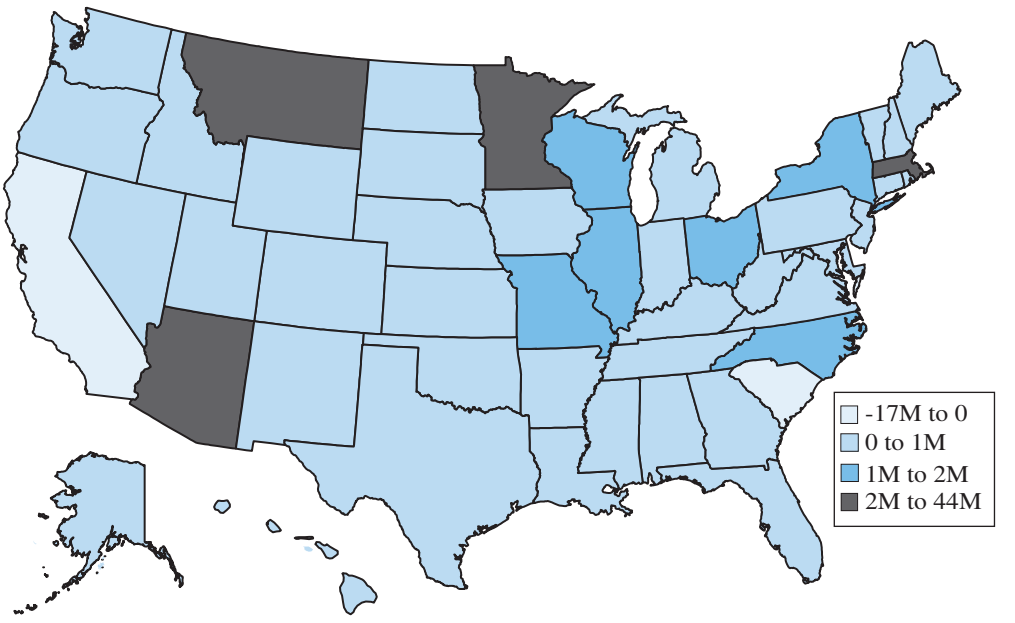
Table 2.5 shows the component domain scores for the resources and capacity constructs. This table is sorted by funds allocated to states for tobacco control. The resource construct of SoTC revolves significantly around funding, and many of the ASSIST states received tobacco control funding for the first time during the program. Figure 2.6 shows the level of increased tobacco control funding during this period. However, while well-funded tobacco control programs, such as those in Massachusetts and California, have yielded significant decreases in smoking prevalence,[9,10] one of the more important findings of this study was that funding alone was a necessary

Table 2.5. Inputs: Resources and Capacity, Sorted by Funds

(Shading indicates ASSIST states.)

	Resources		Capacity				
State	Funds	Staff	Leadership	Interagency relationships	Health dept. infrastructure	Coalition	Staff experience
CA	4.74	1.06	1.34	1.36	0.52	1.45	–0.32
MN	4.16	0.19	1.83	–0.43	–0.89	0.20	–0.89
MS	1.90	0.25	0.18	–0.62	–0.26	–0.56	0.70
FL	1.08	0.74	0.38	1.28	–0.89	1.45	–0.86
MA	1.07	1.52	1.78	–0.70	1.35	0.45	3.06
AZ	0.34	6.42	1.12	1.29	0.65	1.45	–0.75
OR	–0.01	0.11	–0.75	0.42	–0.19	1.45	–1.61
NY	–0.04	–0.37	–1.84	–0.02	–0.26	0.95	–0.37
ME	–0.19	–0.25	2.53	–0.82	–0.05	–1.56	–1.34
MI	–0.21	0.53	–2.59	1.66	–0.89	–0.05	2.60
WI	–0.24	–0.23	–0.85	–0.03	0.45	0.45	–1.54
NJ	–0.25	–0.04	0.51	1.16	0.52	1.45	0.95
WA	–0.25	–0.08	1.95	1.82	–0.26	0.95	–0.45
MD	–0.26	–0.25	–0.14	0.26	2.06	0.45	–1.30
NC	–0.28	–0.18	–1.16	0.50	–1.66	–0.06	0.54
UT	–0.28	–0.32	–1.14	0.98	2.06	–0.56	–0.39
CO	–0.30	–0.23	–1.19	–0.55	0.65	–0.06	–1.71
IL	–0.30	–0.16	–0.93	–1.08	–0.96	–0.81	0.07
IN	–0.30	–0.24	0.31	–1.45	1.35	–0.06	1.84
MO	–0.31	–0.21	–0.78	–1.75	–0.96	–1.06	–0.76
NM	–0.31	0.07	–0.22	0.26	1.35	–0.06	1.13
RI	–0.31	–0.35	0.89	2.00	–1.02	–0.30	0.34
SC	–0.31	–0.24	–0.29	0.62	1.35	0.95	0.48
VA	–0.31	–0.32	–1.14	0.64	2.06	–0.56	0.45
WV	–0.31	–0.08	–0.83	–1.67	0.52	–0.06	–0.20
AK	–0.32	–0.41	–0.23	2.08	–0.26	–2.06	–0.98
AL	–0.32	–0.07	0.30	0.10	0.58	–1.56	5.17
DE	–0.32	–0.39	1.41	0.66	–0.26	–2.06	–1.71
HI	–0.32	–0.18	2.01	0.46	–0.96	1.45	1.71
ID	–0.32	–0.31	0.16	0.93	–0.89	0.45	0.33
KY	–0.32	–0.31	–0.73	–1.58	–0.12	–0.56	0.03
OH	–0.32	–0.29	0.26	–1.06	1.35	–1.31	1.16
PA	–0.32	–0.12	–1.18	–1.54	–0.26	–0.31	–0.18
TX	–0.32	0.18	0.01	0.43	1.35	–1.06	–0.38
CT	–0.33	–0.39	–1.99	–1.42	1.22	1.45	0.49
DC	–0.33	–0.31	2.55	–1.02	–1.66	–1.06	–1.80
GA	–0.33	–0.27	–0.93	1.37	1.35	–0.56	–0.63
IA	–0.33	–0.17	–1.34	0.56	0.65	1.45	1.84
KS	–0.33	–0.44	–2.14	1.60	–1.66	0.95	1.49
MT	–0.33	–0.46	0.82	–1.96	–0.89	–0.56	–1.38
NE	–0.33	–0.36	0.01	0.25	–0.19	0.95	0.14
NH	–0.33	–0.27	1.26	–1.53	–0.83	–0.56	–1.09
OK	–0.33	–0.31	0.22	0.43	–0.05	1.45	0.30
VT	–0.33	–0.43	3.28	–0.99	–1.66	–2.06	–0.51
AR	–0.34	0.60	3.01	1.12	–0.26	0.45	–1.38
LA	–0.34	–0.35	0.43	–3.50	–0.19	–1.06	0.81
ND	–0.34	–0.50	–3.07	0.57	–0.96	–0.05	0.61
NV	–0.34	–0.46	–0.47	–0.28	–0.05	–0.05	–0.41
SD	–0.34	–0.46	–2.71	–1.57	–3.14	–0.56	–1.54
TN	–0.34	–0.50	–1.67	0.21	0.65	0.45	–1.71
WY	–0.34	–0.35	1.75	0.55	0.52	0.45	–0.06
ASSIST							
Mean	1.80	–0.03	–0.06	0.07	0.21	0.09	0.24
SD	1.10	0.46	1.46	1.17	1.07	0.75	1.38
Non-ASSIST							
Mean	0.04	0.02	0.03	–0.04	–0.11	–0.05	0.12
SD	0.96	1.19	1.53	1.25	1.12	1.14	1.38

Figure 2.6. Change in Tobacco Control Funding (in Dollars), 1991–98



but not a sufficient factor for public health outcomes in tobacco control.

Funding has built capacity to deliver tobacco control in many states—particularly those states with longstanding programs—and capacity can be used to gain more funding. For example, table 2.5 shows that most states had similar funds for tobacco control at the end of the ASSIST period. The only outlier states were those with well-established tobacco control programs (California and Massachusetts) in addition to states that had recently received lawsuit settlement funds from the tobacco industry (such as Minnesota, Mississippi, and Florida). Table 2.5 also illustrates the fact that states had different strengths in capacity. For instance, while some states had their highest scores in health department capacity, others had their highest scores in interagency relationships or coalitions. These data can be incorporated with information about a state's environmental context as part of a process evaluation. In this way, state program staff can better understand how best to use the resources they have to build capacity and how that capacity enables or hinders their ability to perform tobacco control activities.

Activities

The components of the SoTC efforts construct allow individual states to measure their program activity focus. Table 2.6 presents the component domain scores for the efforts construct. As this table illustrates, states concentrated their efforts in different domain areas, presumably reflecting such factors as

Table 2.6. Components of the Efforts Construct, Sorted by Efforts Score

(Shading indicates ASSIST states.)

		Social environment				
State	Overall	Media advocacy	Mass media	Policy advocacy	Local capacity	Individual behavior
MD	3.02	2.01	2.59	0.91	3.06	2.21
KY	2.98	2.34	1.66	2.16	2.36	1.06
AK	2.72	1.64	2.57	1.70	1.84	0.91
RI	2.19	0.55	2.49	2.09	1.05	2.92
NH	2.11	1.87	1.44	1.85	0.94	0.51
NY	2.09	1.34	1.93	2.03	0.69	0.44
HI	1.58	0.77	0.27	2.39	1.06	1.05
OK	1.56	1.81	0.48	0.73	1.50	1.03
CA	1.55	1.07	1.55	1.39	0.46	1.29
MI	1.25	2.46	0.37	0.36	0.58	1.71
OR	1.14	2.84	0.19	–0.53	0.99	0.20
GA	1.07	–1.28	1.71	1.23	1.15	0.86
CT	1.01	0.80	1.75	–0.16	0.51	2.10
NJ	0.94	0.15	–0.71	2.18	0.98	0.95
CO	0.88	–0.50	2.03	0.95	–0.05	–1.81
WI	0.76	1.01	1.30	–0.81	0.72	–1.20
VA	0.64	1.09	–0.31	–0.40	1.46	0.94
IL	0.58	0.39	1.86	–0.51	–0.07	0.20
WV	0.53	0.69	–0.30	1.38	–0.19	0.24
PA	0.48	0.70	–1.57	0.83	1.40	–0.16
DC	0.35	–1.22	1.35	0.88	–0.15	0.00
MO	0.33	1.00	–0.40	–0.74	1.14	1.37
MS	0.20	0.30	1.05	0.63	–1.32	3.39
NE	0.12	–0.07	–0.38	1.26	–0.44	–2.70
KS	–0.09	–0.13	–0.48	0.14	0.19	–0.37
ID	–0.11	–1.16	–0.65	0.46	0.88	0.14
AL	–0.16	–1.04	0.65	0.27	–0.42	2.51
MN	–0.17	0.92	–0.85	–0.75	0.29	–0.85
AZ	–0.20	–0.73	–1.26	0.44	0.86	2.70
ME	–0.24	0.86	–1.40	1.55	–1.52	–1.36
OH	–0.25	–0.36	0.22	–0.37	–0.22	–0.32
IA	–0.27	–0.44	–0.72	0.46	–0.09	–0.07
FL	–0.28	–1.15	1.18	–2.02	1.01	0.56
VT	–0.52	–1.43	–0.04	0.41	–0.55	–0.40
NM	–0.56	–3.53	1.44	0.70	–0.55	–1.45
UT	–0.61	–1.06	0.63	–1.46	0.04	–0.32
AR	–0.67	1.42	–2.35	0.27	–1.01	–0.96
MA	–1.08	0.16	–0.96	0.20	–2.32	0.46
TX	–1.14	–1.68	0.33	–1.02	–0.98	–0.57
DE	–1.32	0.12	–0.54	–0.53	–2.62	–0.02
WY	–1.35	–1.18	–1.12	0.64	–2.16	–3.98
SD	–1.35	0.16	–0.95	–3.17	0.16	–0.11
LA	–1.41	–1.42	–0.60	–1.21	–0.86	–2.06
NC	–1.43	–1.30	–1.56	–0.96	–0.34	0.35
IN	–1.61	–0.82	–2.68	–1.52	0.40	–1.06
WA	–1.62	–0.42	–1.75	–1.02	–1.36	–1.29
ND	–1.77	1.81	–1.32	–1.61	–3.48	–2.36
MT	–2.64	–2.30	–2.03	–3.74	0.38	–0.06
SC	–2.97	–2.72	–0.72	–2.30	–2.77	–0.94
TN	–3.03	–0.97	–3.08	–2.52	–1.96	–3.43
NV	–3.24	–3.36	–2.29	–3.14	–0.66	–2.28
ASSIST						
Mean	0.00	0.05	–0.12	0.17	–0.10	–0.03
SD	1.40	1.50	1.49	1.37	1.24	1.34
Non-ASSIST						
Mean	0.00	–0.03	0.06	–0.09	0.05	0.02
SD	1.57	1.46	1.45	1.50	1.38	1.68

The Future of SoTC: Tracking Trends over Time

The SoTC data were collected at only one time point for the ASSIST evaluation and were used to create a single measure of exposure to tobacco control at the state level. However, the SoTC surveys generated rich descriptive information that has not yet been fully mined. The survey was repeated in 2002 and again in early 2004 as part of the SmokeLess States evaluation and will continue to be collected in 2006 and 2008 through funding by the Robert Wood Johnson Foundation. With this trend, data factors that emerged as being important for ASSIST can be examined from the perspective of how they have evolved over time. Moreover, initial analyses suggest that these data can be used to document changes in state tobacco control programs. Still, many questions remain—for example:

- The distribution of SoTC scores suggests that while a few states were functioning at a high level and a few states were functioning at a low level, most were functioning at about the same level. In this case their relative rankings may not be particularly meaningful.
- Until the ASSIST evaluation, the components of SoTC were not consistently measured for all states. Therefore, there is no way to document how state tobacco control programs evolved from mostly voluntary efforts to maintenance of effective programs in state health departments with capacity for continued effect on tobacco use.
- Funds for tobacco control have recently decreased. The SoTC data collected for and after the ASSIST evaluation may be combined with case studies to document how these funding cuts have affected state tobacco control programs.

The SoTC is now available as a tool for states to use in measuring their own resources, capacity, and efforts. A baseline (1999–2000) measure for each state is available for measuring change over time, identifying strengths and weaknesses, and adapting efforts to regional conditions. By using these data as a basis for comparison over time, SoTC will be useful to tobacco control practitioners as they develop strategies to reduce the epidemic of tobacco-related addiction, disease, and death.

state support for tobacco control, tobacco industry activities, populations with unique needs, and tobacco control staff strengths and interests.

Domain-level scores can provide a more nuanced picture of tobacco control programs in individual states, as they show areas where states focused their efforts. For instance, in 1998–99 Rhode Island's scores suggest that their focus was on mass media (2.49) and policy advocacy (2.09) efforts with a lower effort score in media advocacy (0.55). In contrast, Michigan's scores suggest that their major focus was on media advocacy efforts (2.46) and that they focused a lesser amount of effort on mass media (0.37) and policy advocacy (0.58). Maryland's highest effort score was in building local capacity (3.06), followed by mass media (2.59) and media advocacy (2.01). Maryland's lowest effort score was policy advocacy (0.91). Where a state tobacco control program focuses its efforts and the degree to which these efforts yield intermediate and long-term outcomes are determined by whether the state has the funding to build and sustain a basic tobacco control infrastructure and by each state's unique economic, political, and other contextual factors.

While the overall SoTC index and constructs (resources, efforts, and capacity) have been validated and are correlated with several important measures used in the ASSIST evaluation model, a deeper

examination of these data at the state level suggests questions for planning and evaluating state tobacco control programs:

- How does a state with high resources (e.g., funding) and lower capacity compare with a state with low resources and higher capacity, even though both have similar SoTC index scores?
- Do extremes in one specific construct—or its subfactors—affect the overall effectiveness of SoTC as an evaluation metric for state programs?
- What can we learn from "outlier" states (such as California) that have disproportionate levels of funding relative to outcomes, as well as other factors such as the maturity of those states' existing tobacco control programs?

Questions like these represent promising areas for further study. Although a validated, composite metric represents an important step in program evaluation, these state results suggest that the SoTC data could help individual states identify their strengths and weaknesses and subsequently help them better adapt to the challenges they face.

Summary

Public health programs are implemented and evaluated at the state level, and this limits the number of observations available for statistical comparisons to 50 (or 51 if the District of Columbia is included). An analysis using only 50 observations in turn severely restricts how many factors can be included in a statistical analysis. Therefore, the construction of highly aggregated measures (such as the SoTC index) is required.

Many critical public health issues do not lend themselves to solutions through randomized clinical trials as used for therapeutic agents. It is not possible to selectively deny a public health intervention to specific population groups (as a control group) or to hold other comorbid social or environmental factors constant between them. While ASSIST was in progress, its interventions spread from ASSIST to non-ASSIST states. This meant that the ASSIST evaluation had no control states to which ASSIST states could be compared. Instead, the SoTC measure was constructed to assess the relative strength of ASSIST-like programs in every state, and this measure was subsequently correlated to outcomes.

Public health interventions are influenced by and interact with the multiple facets of their environment in a dynamic and complex fashion. Aggregate indexes such as SoTC allow analysis of the interrelationship between the multiple factors that affect a tobacco control program and the outcomes the program influences. Such an analysis promotes rigorous and valid process and outcome evaluations of what is an inherently multivariate system.

Conclusions

1. The Strength of Tobacco Control index measures a state's overall tobacco control program. Survey instruments were constructed, tested, and applied with respondents from

entities engaging in state-level tobacco control. Data analysis showed that its three latent variables constitute a valid map of what Strength of Tobacco Control can measure with good internal coherence.

2. The Strength of Tobacco Control index was derived from component metrics in the areas of resources, capacity, and efforts. The resource component addressed both financial and manpower assets devoted to tobacco control. Capacity addressed areas such as legislative support, coalitions, and public health infrastructure. Efforts incorporated areas of comprehensive activity such as policy-focused initiatives, education, and mass media.
3. State Strength of Tobacco Control values were correlated significantly with other data sources such as legislative policy scores and tobacco use prevalence. In addition, the Strength of Tobacco control index performed well in the evaluation analyses detailed in the final outcomes.
4. The Strength of Tobacco Control model can serve as a guide for future evaluations of state tobacco control programs and is a basis for identifying optimal practices for tobacco control. In addition, it represents an example of a "dose-level" measure that can be used for evaluating the effectiveness of future complex population-level public health interventions.
5. The tracking of trends in Strength of Tobacco Control results over time represents a promising area for research in evaluating the long-term effectiveness of tobacco control programs.

Appendix 2.A. Assessment Rating of Variables

	Criteria			
Variable	**Parsimony**	**Scientific support**	**Feasibility**	**Recommendation**
Resources				
Per capita dollars expended for tobacco control efforts	3	3	5	Y
Number of state-level personnel				
Full Time Equivalents working on tobacco control	3	3	3	Y
Capacity				
Organizational capacities of each of top 5–6 state-level tobacco control organizations	3	1	2	Y
Frequency of contact among top 5–6 state-level tobacco control organizations	5	3	3	Y
Type of contact among top 5–6 state-level tobacco control organizations	5	3	3	Y
Total number of state organizations involved in tobacco control	5	3	3	Y
Percentage of organizations that actively participate in state coalition	5	3	3	Y
Number of local coalitions and tobacco control organizations	5	3	3	Y
Percentage of state covered by local coalitions	5	3	1	N
Perceived capacities of local coalitions/communities	3	1	2	Y
Dose strength of training and technical assistance provided from state-level organizations to local levels	3	3	2	Y
Antitobacco efforts				
Quality of state tobacco control plan	5	3	4	Y
Percentage of efforts devoted to policy and media advocacy	5	3	4	Y
Comprehensiveness of tobacco control efforts (i.e., number of different strategies in "typology")	3	3	4	Y
Focus of strategy of implementation (i.e., level at which funds are expended)	3	2	3	Y
Perceived potency of state policy change efforts	1	3	2	N
Perceived potency of private policy change efforts	1	3	2	N
Perceived potency of media change efforts	1	3	2	N

Appendix 2.B. Key Elements of Strength of Tobacco Control Efforts

Resources: Mobilization of resources committed to antitobacco efforts

Indicators[a,b]	Variables	Sample items[c]	Feasibility[d]
The amount, types, and sources of money	Per capita dollars expended for tobacco control efforts	▪ Does your organization receive any federal funds? If yes, how much do you receive from (name of federal source) in 1999? What are the funds used for? Does your organization spend this money itself or pass it to other organizations through sub-grants? ▪ Does your organization receive any state funds? If yes, how much do you receive from (name of state source) in 1999? What are the funds used for? Does your organization spend this money itself or pass it to other organizations through sub-grants?	May be collected from ▪ Key informants at state level ▪ Program records of – federal and state government – voluntary associations – national and state foundations

[a]Downey, L.E., and J. Gardiner. 1996. *Youth access to tobacco: A partial inventory of state initiatives.* Chicago: University of Illinois at Chicago, Office of Social Science Research.

[b]Association of State and Territorial Health Officials. 1991. State tobacco prevention and control activities: Results of the 1989–1990 Association of State and Territorial Health Officials (ASTHO) survey. Final report. *Morbidity and Mortality Weekly Report* 40 (RR-11): 1–41.

[c]Gardiner, J. 1998. *Strength of state tobacco control efforts.* Final report to the National Cancer Institute ASSIST program. University of Illinois at Chicago, Office of Social Science Research.

[d]Gold, M., L. Burnbauer, and K. Chu. 1995/96. How adequate are state data to support health reform or monitor health system change? *Inquiry* 32:468–75.

Appendix 2.B. (continued)

Capacity: Knowledge, skills, and infrastructure for implementing antitobacco efforts

Indicators[e]	Variables	Sample items[f]	Feasibility[g]
Personnel	Number of state-level personnel	How many people in your organization work on tobacco control and counting all the people, what would be the full-time equivalent?	May be collected from ▪ Key informant interviews
State-level organizational capacity for tobacco control	Organizational capacities of each of top 5–6 state-level tobacco control organizations in: ▪ Financial management ▪ Training and technical assistance for local level ▪ Implementation of tobacco control programs ▪ Policy and media advocacy ▪ Institutionalizing programs ▪ Surveillance and evaluation	For measuring surveillance and evaluation: ▪ Does your organization conduct an annual survey on tobacco use? ▪ Does your organization monitor tobacco control legislation/ policies? ▪ Does your organization have designated staff responsible for maintaining tobacco control related data? ▪ Does your organization have designated staff responsible for evaluation of tobacco control efforts?	▪ Key informant interviews
State-level interorganizational collaboration	▪ Frequency of contact among top 5–6 state-level tobacco control organizations ▪ Type of contact among top 5–6 state-level tobacco control organizations	During the last 12 months, what have you been doing concerning tobacco control activities with personnel from (name appropriate state-level organization) Code for highest level: 0 = no contact 1 = networking (exchanging information for mutual benefit) 2 = coordinating (exchanging information and altering activities for mutual benefit and a common purpose) 3 = cooperating (exchanging information, altering activities, and sharing resources for mutual benefit and a common purpose) 4 = collaborating (exchanging information, altering activities, sharing resources, and enhancing each other's capacity for mutual benefit and a common purpose)	▪ Key informant interviews (network analysis)

[e]Meissner, H. I., L. Bergner, and K. M. Marconi. 1992. Developing cancer control capacity in state and local public health agencies. *Public Health Reports* 107:15–23.

[f]Himmelman, A., M. Luxenberg, and C. Schmitz. 1995. *Consortium Activities Diagnostic Survey: A tool to understand the ways that groups work together.* Minneapolis: University of Minnesota, Center for Urban and Regional Affairs.

[g]Calloway, M., J. Morrisey, and R. Paulson. 1993. Accuracy and reliability of self-reported data in interorganizational networks. *Social Networks* 15:377–98.

Appendix 2.B. (continued)

Capacity: Knowledge, skills, and infrastructure for implementing antitobacco efforts

Indicators[h,i]	Variables	Sample items[j]	Feasibility
State-level coalition capacity	▪ Total number of state organizations involved in tobacco control ▪ Percent of organizations that actively participate in state coalition	▪ Questions to key informants representing state coalitions: – How many organizations currently belong to your state-level tobacco control coalition? – What is the number of regularly attended meetings in your coalition during the past 12 months? ▪ Review of coalition records for membership lists and meeting attendance	▪ Key informant interviews ▪ ASSIST, IMPACT, SmokeLess States progress reports ▪ Coalition records
Local community capacity	▪ Number of local coalitions and tobacco control organizations ▪ Perceived capacities of local coalitions/communities	When you think of all the counties across your state, in approximately how many of these counties are there: a. organized tobacco control efforts b. tobacco control efforts that have successfully mobilized diverse constituencies c. efforts that have developed strategic plans for tobacco control d. efforts that have marshaled their own local resources for tobacco control e. policy advocacy efforts for tobacco control on the local level f. efforts that have been successful in changing local policies Response format: none, just a few, about half, most, all, don't know	▪ National organization databases (e.g., Americans for Nonsmokers' Rights, ASSIST Coordinating Center) ▪ Key informant interviews
Supportive linkages between state and local levels	Dose strength of training and technical assistance provided from state-level organizations to local levels	Please indicate whether, in the past 12 months, (name of organization) has provided none, a little, some, or a lot of training and TA to local tobacco control efforts in each of the following areas: a. How to mobilize (recruiting members/organizations) b. How to structure a local coalition c. Building members' knowledge and skills d. How to collaborate with other organizations or local coalitions Response format: none, a little, some, a lot, don't know	▪ Key informant interviews

[h]Schwartz, R., C. Smith, M. A. Speers, L. J. Dusenbury, F. Bright, S. Hedlund, F. Wheeler, and T. L. Schmid. 1993. Capacity building and resource needs of state health agencies to implement community-based cardiovascular disease programs. *Journal of Public Health Policy* 14 (4): 480–94.

[i]Goodman, R., A. Steckler, and M. Alciati. 1997. A process evaluation of the National Cancer Institute's Data-based Intervention Research Program: A study of organizational capacity building. *Health Education Research: Theory and Practice* 12:101–17.

[j]Goodman, R., M. Speers, et al. in press. An attempt to identify and define the dimensions of community capacity to provide a basis for measurement. *Health Education & Behavior.*

Appendix 2.B. (continued)

Antitobacco efforts: The quality of planning and the array of programs, policies, and practices used in tobacco control

Indicators[k,l]	Variables	Sample items[m,n]	Feasibility
Quality of state plan for antitobacco strategies	Quality of state plan composed of expert rating for ▪ Overall logic model described/implied ▪ Clarity and specificity of objectives ▪ Duration and intensity of activities ▪ Feasibility of activities ▪ Innovativeness ▪ Overall quality ▪ Comprehensiveness of plan	Clarity and specificity of information about Objectives: 1 = vague, grandiose terms (e.g., "promote cessation") with little detail 3 = goals stated with enough clarity so that at least half of them could be quantified (e.g., "promote city ordinances banning cigarette vending machines") 5 = all or almost all goals have quantifiable levels of outcome specified (e.g., "increase the percentage of workplaces with smoke-free policies by 20%")	May be collected from ▪ State tobacco control plans
Typology of antitobacco strategies	▪ Percentage of efforts devoted to policy and media advocacy ▪ Comprehensiveness of tobacco control efforts (i.e., number of different strategies in typology) ▪ Focus of strategy implementation (i.e., the level [state, local] at which funds are expended)	Considering all the funds you receive from federal, state, and nongovernmental sources, can you estimate what percentage of funds currently goes into the following types of tobacco control programs? ▪ Enforcement and inspections ▪ Individual-oriented cessation and treatment programs ▪ School-based prevention programs ▪ Public education/media campaigns ▪ Community-based approaches, including advocacy and coalition building ▪ Evaluation, surveillance, and research ▪ Other tobacco control activities, including program administration	▪ ASSIST, IMPACT, and SmokeLess States progress reports ▪ Key informants

[k]Center for Substance Abuse Prevention. 1995. *National Evaluation of the Community Partnership Demonstration Grant Program: Executive Summary of the Fourth Annual Report.* Rockville, MD: Department of Health and Human Services, Substance Abuse and Mental Health Services Administration.

[l]Kegler, M. C., A. Steckler, K. McLeroy, and S. H. Malek. 1998. Factors that contribute to effective community health promotion coalitions: A study of 10 project ASSIST coalitions in North Carolina. *Health Education & Behavior* 25 (3): 338–53.

[m]Butterfoos, F., R. Goodman, A. Wandersman, R. Valois, and M. Chinman. 1996. The Plan Quality Index: An empowerment evaluation tool for measuring and improving quality of plans. In *Empowerment evaluation,* ed. D. Fetterman, S. Kaftarian, and A. Wandersman. Thousand Oaks, CA: Sage Publications.

[n]Mitchell, R., J. Stevenson, and P. Florin. 1996. A typology of prevention activities: Applications to community coalitions. *Journal of Primary Prevention* 16(4): 413–36.

Appendix 2.C. Agency Worksheet

Strength of Tobacco Control

Agency Worksheet

OMB #: 0925-0471
EXP DATE: 8/31/2002

Conducted by:
Battelle Centers for Public Health Research and Evaluation

Conducted for:
The National Cancer Institute

1999–2000

1. What is your organization's fiscal year cycle? Please ✓one box.

- ❑ Calendar year
- ❑ July 1 – June 30
- ❑ Oct. 1 – Sept. 30
- ❑ Other: ___ ___ to ___ ___ (month day to month day)

2. What is your <u>most recent</u> completed fiscal year? Please ✓one box.

- ❑ FY1997
- ❑ FY1998
- ❑ FY1999

3. Please fill in the chart below, describing your agency's funding for tobacco control for the most recent fiscal year and for fiscal years 1996 and 1993.

	Most Recent Fiscal Year				*FY <u>1996</u>*	*FY <u>1993</u>*
Source of Funding	**Amount of Funding Received for Tobacco Control**	**Amount Spent on Tobacco Control**	**Amount Paid to Contractors Who Performed Statewide Tobacco Control Activities**	**Amount Awarded for <u>Local</u> Programs**	**Amount of Funding Received for Tobacco Control in FY <u>1996</u>**	**Amount of Funding Received for Tobacco Control in FY <u>1993</u>**
National Cancer Institute (NCI) ASSIST	$	$	$	$	$	$
Centers for Disease Control (CDC) IMPACT	$	$	$	$	$	$
Robert Wood Johnson Foundation Smokeless States	$	$	$	$	$	$
State General Fund	$	$	$	$	$	$
State tobacco excise tax	$	$	$	$	$	$
FDA	$	$	$	$	$	$
Synar Surveillance Funds	$	$	$	$	$	$
Other: _____	$	$	$	$	$	$
Other: _____	$	$	$	$	$	$
Other: _____	$	$	$	$	$	$

Appendix 2.C. (continued)

4. During the most recent fiscal year, what proportion of your agency's tobacco control staff time (Column A) and dollars (Column B) were spent in the broad activity areas listed? Please feel free to approximate the percentage of dollars and time. Each column should add up to 100%.

If you have difficulty classifying a program activity, please either call Carol Schmitt or Pamela Clark at (800) 777-6115 for assistance, or describe the program in the space labeled "Other activity" and we will classify it for you.

ACTIVITY	A. % of *Time*	B. % of *Dollars*
Programs targeted at individuals. Such as prevention and/or cessation for children or pregnant women, cessation programs for current smokers, programs delivered through work sites or healthcare facilities, health care provider training, teacher training, school-based prevention/cessation programs, and health fairs.	_____ %	_____ %
Programs intended to change the social climate of tobacco use. Such as advocating for work and school site policy initiatives (e.g., clean indoor air policies), working to pass laws or ordinances (local or state), media advocacy (e.g., editorial broad briefings, responding to requests from the media for interviews or information, or providing background materials for the media), doing retailer tobacco sales age restriction compliance checks, and giving technical assistance to local coalitions or other groups to do these community-level activities.	_____ %	_____ %
Programs intended to educate the public. Such as using mass media (billboard campaigns, radio spots, television, or Web pages) or holding public education programs.	_____ %	_____ %
Building and strengthening coalitions. Such as holding organizational meetings and joint conferences, providing technical assistance on how to build membership in coalitions, and assisting with communication channels within coalitions, newsletters, Web sites, e-mail and other mailing services, or other technical assistance for building or strengthening coalitions.	_____ %	_____ %
Developing and/or implementing surveys, funding or doing research. Such as surveillance of smoking prevalence rates, public opinion surveys, and program evaluations, or other research evaluation.	_____ %	_____ %
Program administration. Such as facilities rental, utilities, communication costs, and other overhead.	_____ %	_____ %
Other activity:	_____ %	_____ %
Other activity:	_____ %	_____ %
TOTAL	**100 %**	**100 %**

Appendix 2.C. (continued)

	In Most Recent FY	In FY1996	In FY1993
5. How many staff members were dedicated 100% to tobacco control activities?	⌊__⌋	⌊__⌋	⌊__⌋
A. How many full-time equivalent (FTE) staff does that number represent?	⌊____⌋.⌊_⌋ FTE	⌊____⌋.⌊_⌋ FTE	⌊____⌋.⌊_⌋ FTE
6. Not considering any staff represented in Item 5, how many additional staff spent at least 25% of their time on tobacco-related activities in the most recent fiscal year?	⌊____⌋.⌊_⌋ FTE		

7. Battelle Centers for Public Health Research and Evaluation will be calling you in the next few weeks to ask you to participate in a telephone interview.

What is the best time to reach you? **Day and Time:** _____

What is the best phone number to use to reach you at this time? **Phone:** ⌊___⌋/⌊___⌋-⌊____⌋

What is another good time to reach you? **Day and Time:** _____

What is the best phone number to use to reach you at this time? **Phone:** ⌊___⌋/⌊___⌋-⌊____⌋

8. Please list names and telephone numbers of others in your organization who helped provide information for this worksheet.

Name 1): _____ ***Position***: _____

Phone: ⌊___⌋/⌊___⌋-⌊____⌋

Name 2): _____ ***Position***: _____

Phone: ⌊___⌋/⌊___⌋-⌊____⌋

Name 3): _____ ***Position***: _____

Phone: ⌊___⌋/⌊___⌋-⌊____⌋

Appendix 2.C. (continued)

9. What other organizations are involved with statewide tobacco control in your state? Please provide us with a contact name within the agency.

Agency: _____ **Name:** _____

Address: _____
Street

_____
City *State* *Zip*

Phone: ___/___-____ **Email Address:** _____

Agency: _____ **Name:** _____

Address: _____
Street

_____
City *State* *Zip*

Phone: ___/___-____ **Email Address:** _____

Agency: _____ **Name:** _____

Address: _____
Street

_____
City *State* *Zip*

Phone: ___/___-____ **Email Address:** _____

10. We would like to express our appreciation for your help with this project. May we send a note of appreciation to your supervisor? ❑ Yes ❑ No

Supervisor's Name: _____ **Position:** _____

Address: _____
Street

_____
City *State* *Zip*

Thank you for your assistance with this important project.
Please use the envelope provided to return the completed worksheet.

Battelle CPHRE
6115 Falls Road, Suite 200
Baltimore, MD 21209

Appendix 2.D. Survey 2

Strength of Tobacco Control

Survey 2

OMB #: 0925-0471
EXP DATE: 8/31/2002

Conducted by:
Battelle Centers for Public Health Research and Evaluation

Conducted for:
The National Cancer Institute

1999–2000

Public reporting burden of this collection of information is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to a collection of information, unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to NIH, Project Clearance Branch, 6705 Rockville Drive, MSC 7974, Bethesda, MD 20892-7974, Attn: 0925-0471. *Do not send the completed form to this address.*

PROGRAMMER NOTE: DK=8, RF=9.

START TIME ..... ☐☐:☐☐

MODULE A: UNIVERSAL

A1. In the past two years, has your organization participated in building, enhancing or maintaining local coalitions in your state? By local, we mean a coalition that is formed to serve the needs of a region, county, or municipality within your state, but is not a statewide coalition.

YES 1
NO ..... (SKIP TO A2) 2

A. In the past two years, has your organization provided any formal training for local coalitions?

YES 1
NO 2

B. In the past two years, have you assisted local coalitions in building or improving their capacity to communicate with their memberships?

YES 1
NO 2

C. In the past two years, has your organization assisted local coalitions to build their memberships?

YES 1
NO 2

D. In the past two years, has your organization assisted local coalitions to conduct needs assessments?

YES 1
NO 2

E. In the past two years, has your organization helped local coalitions to evaluate their programs?

YES 1
NO 2

F. In the past two years, has your organization helped local coalitions to mobilize diverse constituencies, such as different ethnic or socioeconomic groups?

YES 1
NO 2

G. In the past two years, has your organization helped local coalitions to generate local resources for tobacco control activities?

YES 1
NO 2

H. In the past two years, has your organization provided staffing for local coalitions?

YES 1
NO 2

I. In the past two years, has your organization supplied any other technical assistance to local coalitions?

YES ..... (SPECIFY) 1
NO 2

SPECIFY: _____ ☐☐

Appendix 2.D. (continued)

A2. In the past two years, has your organization sponsored or participated in any activity designed to assist tobacco users to quit?

YES 1
NO ..... (SKIP TO A3) 2

A. Who were the focus of your tobacco use cessation activities? Were they (READ OPTIONS)?

	YES	NO
1. Adults in general?	1	2
2. Youth?	1	2
3. Pregnant women?	1	2
4. Any other special groups?	1	2

(SPECIFY UP TO 3)

GROUP 1: _____ ☐☐

GROUP 2: _____ ☐☐

GROUP 3: _____ ☐☐

A3. In the past two years, has your organization disseminated materials for use by the general public, such as pamphlets, videos, or radio spots?

YES 1
NO 2

A4. In the past two years, has your organization created or produced your own pamphlets containing tobacco-related materials?

YES 1
NO 2

A5. In the past two years, has your organization created or produced your own videos or radio spots on tobacco-related issues?

YES 1
NO 2

A6. In the past two years, has your organization participated in any health fairs?

YES 1
NO 2

A7. In the past two years, has your organization provided or sponsored a telephone or internet help line for those who want to quit?

YES 1
NO 2

A8. In the past two years, has your organization provided tobacco use prevention programs for schools or youth groups?

YES 1
NO 2

A9. In the past two years, has your organization provided training for health care professionals about tobacco issues?

YES 1
NO 2

A10. In the past two years, has your organization participated in any public forum, such as seminars or workshops to educate the public about tobacco-related issues?

YES 1
NO 2

Appendix 2.D. (continued)

A11. In the past two years, has your organization purchased mass media, or had in-kind donations of mass media, to inform the public about tobacco-related issues?

YES 1
NO ..... (SKIP TO A12) 2

A. We would like to ask a few questions about your purchase or donation of mass media. What media did you use? Did you use (READ OPTIONS)?

	YES	NO
1. Newspapers	1	2
2. Billboards	1	2
3. Radio	1	2
4. Television	1	2
5. Other (SPECIFY)	1	2

SPECIFY: _____ ☐☐

B. When you used media, what groups did you specifically target with your messages Did you target (READ OPTIONS)?

	YES	NO
1. Youth	1	2
2. Adults in general	1	2
3. Policy makers	1	2
4. Minority groups (SPECIFY)	1	2

GROUP 1: _____ ☐☐
GROUP 2: _____ ☐☐
GROUP 3: _____ ☐☐

C. In the past two years, did you purchase media coverage that focused on tobacco industry efforts or tactics?

YES 1
NO 2

A12. In the past two years, has your organization participated in media advocacy activities? By media advocacy, we mean activities that are intended to get influential media representatives to understand and agree with anti-tobacco positions and policies.

YES 1
NO ..... (SKIP TO A13) 2

A. We would like to ask a few questions about your advocacy activities. In the past two years, has anyone from your organization attended a newspaper or magazine editorial board briefing?

YES 1
NO 2

B. In the past two years, has anyone from your organization provided the press with background materials on smoking issues?

YES 1
NO 2

C. In the past two years, has anyone from your organization responded to interview requests by the media?

YES 1
NO 2

Appendix 2.D. (continued)

D. In the past two years, has your organization involved media representatives in your tobacco control activities?
YES 1
NO 2

A13. In the past two years, has your organization participated in policy advocacy activities, such as working to change laws or policies regarding tobacco use, sales, or display in your state?
YES 1
NO ..... (SKIP TO A14) 2

A. We are interested in which public policy areas you have been involved with. In the last two years, has your agency worked to promote clean indoor air?
YES 1
NO 2

B. In the past two years, has your agency worked to initiate or increase penalties for youth tobacco possession, use, or purchase?
YES 1
NO 2

C. What about working to prevent or repeal penalties for youth tobacco possession, use or purchase?
YES 1
NO 2

D. In the past two years, has your organization worked to increase taxes on tobacco?
YES 1
NO 2

E. What about working to prevent or repeal preemption laws?
YES 1
NO 2

F. What about working on policies to limit how tobacco can be sold or displayed?
YES 1
NO 2

G. And what about work to change policy regarding tobacco use on school property or during school sponsored events?
YES 1
NO 2

A14. Does your organization have a designated legislative liaison for tobacco control policy to your state legislature?
YES 1
NO 2

A15. In the past two years, has any organization done a survey of tobacco use in your state?
YES 1
NO ..... (SKIP TO A16) 2
DK ..... (SKIP TO A16) 8

A. Did your agency sponsor or participate in this assessment?
YES 1
NO ..... (SKIP TO A16) 2

1. Did you survey tobacco use among youth?
YES 1
NO ..... (SKIP TO A15 A2) 2

a. Did you do the Youth Risk Behavior Survey?
YES 1
NO 2

b. Did you do the Youth Tobacco Survey?
YES 1
NO 2

c. Did you do a different survey?
YES ..... (SPECIFY) 1
NO 2

SPECIFY SURVEY 1: _____ ☐☐

SPECIFY SURVEY 2: _____ ☐☐

Appendix 2.D. (continued)

2. Did you survey tobacco use among adults?
YES 1
NO ..... (SKIP TO A15 A3) 2

a. Did you do the Behavioral Risk Factor Survey?
YES 1
NO 2

b. Did you do any other surveys?
YES ..... (SPECIFY) 1
NO 2

SPECIFY SURVEY 1: _____ ☐☐

SPECIFY SURVEY 2: _____ ☐☐

3. (Was/Were) your survey(s) designed to provide estimates of tobacco use among any minority groups?
YES ..... (SPECIFY) 1
NO 2

SPECIFY GROUP 1: _____ ☐☐

SPECIFY GROUP 2: _____ ☐☐

SPECIFY GROUP 3 _____ ☐☐

A16. In the past 2 years, has your organization formally evaluated the implementation and effectiveness of your tobacco control efforts?
YES 1
NO ..... (SKIP TO A17) 2

A. Does your organization have a system to continually or periodically monitor your program effectiveness?
YES 1
NO 2

A17. Does your organization have a routine mechanism for updating best practices regarding tobacco control?
YES 1
NO 2

A18. In the past two years, has your organization awarded grants or contracts for tobacco control activities?
YES 1
NO ..... (SKIP TO A19) 2

A. Does your organization require budget reports from the recipient organizations?
YES 1
NO 2

B. Does your organization monitor the expenditure of funds and the use of resources by the recipient organizations?
YES 1
NO 2

A19. Has your organization ever asked for a legal opinion from your State Attorney General's Office on a tobacco-related issue?
YES 1
NO ..... (SKIP TO A20) 2
DK ..... (SKIP TO A20) 8

A. Did the office supply an opinion in a timely fashion?
YES 1
NO 2

A20. Does your State Attorney General's Office have a designated tobacco specialist?
YES 1
NO ..... (SKIP TO A21) 2
DK ..... (SKIP TO A21) 8

A. Has that tobacco specialist, to the best of your knowledge, publicly campaigned in support of a tobacco control issue?
YES 1
NO 2

Appendix 2.D. (continued)

B. Has that tobacco specialist ever taken the lead on or initiated a tobacco control activity or program within your state?

YES 1
NO 2

A21. In the past two years, has your organization participated in a state-level tobacco control coalition?

YES 1
NO ..... (SKIP TO INSTRUCTION BOX) 2

A. We would like to ask a few questions about the structure and activities of the state level coalition. These questions are best answered by the staff person who is responsible for running the coalition. Are you the best person to ask, or is there someone else, either in your agency or in a different agency or organization that we should talk to?

SELF ..... (DO COALITION MODULE B) ... 1
SOMEONE ELSE IN SAME AGENCY (GET INTRA-AGENCY REFERRAL) ... 2
SOMEONE IN ANOTHER AGENCY (GET INTER-AGENCY REFERRAL) ... 3

IF HEALTH DEPARTMENT RESPONDENT, DO HEALTH DEPARTMENT CAPACITY *MODULE C*.
IF NOT HEALTH DEPARTMENT, DO SUPPORT *MODULE D*.
ALL RESPONDENTS DO INTERAGENCY RELATIONSHIPS *MODULE E*.

A22. In addition to the American Heart Association, the American Lung Association, The American Cancer Society, and your State Health Department, are there other state level organizations that you can refer us to that play a significant role in tobacco control in your state?

YES ..... (ASK A) 1
NO ..... (SKIP TO INSTRUCTION BOX) 2

A. Please tell me the agency and the name and telephone number of a contact person there.

AGENCY #1: _____

CONTACT PERSON: _____

PHONE NUMBER: |_|_|_| - |_|_|_| - |_|_|_|_|

AGENCY #2: _____

CONTACT PERSON: _____

PHONE NUMBER: |_|_|_| - |_|_|_| - |_|_|_|_|

AGENCY #3: _____

CONTACT PERSON: _____

PHONE NUMBER: |_|_|_| - |_|_|_| - |_|_|_|_|

INSTRUCTION BOX

SKIP TO MODULE F: DEMOGRAPHICS

END TIME ..... |_|_| : |_|_|

Appendix 2.D. (continued)

MODULE B: COALITION

B1. What is the name of your coalition? _____ ☐☐

B2. What is your position within the coalition? Are you (READ CATEGORIES)? CODE ONLY ONE.

SPECIFY: _____ ☐☐

A staff member providing support for the coalition 1
The president or chair of the coalition 2
Another elected or appointed leader of the coalition.....3
A representative of a member organization.....4
Other position.....(SPECIFY) 5

B3. What is the largest geopolitical boundary of your coalition's responsibility? Would you say (READ CATEGORIES)? CODE ONLY ONE.

A city, town or county 1
A region within the state.....2
The state 3
A region encompassing more than one state 4

B4. How large is your coalition in terms of member organizations?

OF ORGANIZATIONS ..... ☐☐☐

A. How many individual members?

OF INDIVIDUALS ..... ☐☐☐

B5. In what year was your coalition formed?

YEAR FORMED..... 19☐☐

B6. Does your coalition have any paid staff?

YES..... 1
NO..... (SKIP TO B7)..... 2

A. What is the source or sources of the staffs' salary?

SOURCE #1: _____ ☐☐
SOURCE #2: _____ ☐☐
SOURCE #3: _____ ☐☐

B7. Which of the following have any representation in your coalition?

	YES	NO
a. Are voluntary health organizations represented?.....	1	2
b. Is the Parent Teacher Association represented?	1	2
c. Are schools of medicine, public health or nursing represented?.....	1	2
d. Are other colleges or universities represented?	1	2
e. Are law enforcement agencies represented?	1	2
f Are prosecutors or district attorneys represented?	1	2
g. Are judges or magistrates represented?	1	2
h. Are retail tobacco outlets represented?.....	1	2
i. Are public health officials represented?	1	2
j. Is the state medical society represented?	1	2
k. Is the state dental society represented?.....	1	2
l. Are religious organizations or faith groups represented?.....	1	2

Appendix 2.D. (continued)

Strength of Tobacco Control Survey 2 Page 8

B8. Which statement best describes the nature of your coalition's activities? READ CATEGORIES AND CODE ONLY ONE..

- Primarily information-sharing 1
- Primarily active participation in tobacco control activities 2
- Both information-sharing and participation in tobacco control activities 3

B9. In the past year, has your coalition sponsored or taken a lead role in any of the following activities?

	YES	NO
a. Policy advocacy activities, such as working to change laws or policies concerning tobacco use, sale, or display in your state?	1	2
b. Individual tobacco cessation programs, such as quit smoking classes or smokers' hot lines?	1	2
c. Using mass media, such as television or radio spots or billboards, to promote anti-tobacco positions?	1	2
d. Media advocacy activities, such as making editorial board visits or producing background materials for the press?	1	2

B10. In addition to your statewide coalition, can you estimate the proportion of your state that is covered by local coalitions? Would you say less than 10%, about a quarter, about half, about three fourths, or about all?

- <10% 1
- ABOUT A QUARTER 2
- ABOUT HALF 3
- ABOUT THREE QUARTERS 4
- ABOUT ALL 5

B11. About how many local coalitions are there in your state?

LOCAL COALITIONS ..... |_|_|_|

Appendix 2.D. (continued)

MODULE C: HEALTH DEPARTMENT CAPACITY

PROGRAMMER NOTE: This module is asked only if the respondent represents the State Health Department.

C1. Would you describe yourself as the highest level tobacco control specialist in your organization?

YES 1
NO ..... (GET INTRA-AGENCY REFERRAL AND TERMINATE MODULE) 2

A. Who would you say is the highest level tobacco control specialist in your organization?

SPECIFY: _____

C2. Which statement best describes your level of involvement in deciding which tobacco-related programs your agency participates in? CODE ONLY ONE.

I have very little input into decisions about which programs we participate in 1
I make recommendations regarding programmatic priorities that require a supervisor's approval 2
I have nearly complete autonomy in deciding my organization's tobacco program priorities 3

C3. What about hiring decision? If a tobacco control position were to be created in your organization, which of the following statements best describes your involvement in choosing whom to hire?

I have very little input into hiring decisions 1
I make recommendations regarding hiring decisions that require a supervisor's approval 2
I have nearly complete autonomy in making hiring decisions 3

C4. Which of the following two statements best describes how tobacco control is organized in your agency?

There is a designated tobacco control unit with a person or person who do tobacco control activities as their major function in the organization ..... (END) 1
There is no designated tobacco control unit; the activities are done within other functioning units 2

A. How many other units would you say are involved with tobacco control activities?

UNITS ..... |__|__|

B. Do any of these units which are doing tobacco control have a separate budget line for tobacco control efforts?

YES 1
NO 2

Appendix 2.D. (continued)

MODULE D: SUPPORT

PROGRAMMER NOTE: This module is asked of all respondents **except** Health Department.

D1. I am going to read the names of several entities. I would like your opinion about how supportive each of the following has been regarding your tobacco control agenda over the past two years. For each entity, please tell me if in your opinion they have been not at all supportive, fairly supportive, quite a bit supportive, or extremely supportive.

	NOT AT ALL SUPPORTIVE	FAIRLY SUPPORTIVE	QUITE A BIT SUPPORTIVE	EXTREMELY SUPPORTIVE
a. The Governor	1	2	3	4
b. The State House of Representatives	1	2	3	4
c. The State Senate	1	2	3	4
d. The media	1	2	3	4
e. The State Attorney General	1	2	3	4
f. The Chief Health Officer	1	2	3	4

MODULE E: INTERAGENCY RELATIONSHIPS

E1. We would like to ask some questions about the inter-relationships of tobacco control organizations in your state. Are you the person in your organization who has the most contact with other tobacco control organizations?

YES 1
NO ..... (GET INTRA-AGENCY REFERRAL AND TERMINATE MODULE) 2

E2. Now I am going to ask you about several organizations in your state. Which of the following four statements best describes your organization's interaction with the (READ ITEM)? Would you say you have had no contact, have tended to work at cross purposes (or had turf wars), have shared information with each other, have developed a plan to share responsibilities and to coordinate efforts, or have actually shared funding or staff?

E3. During the past two years, how frequently did you have contact with (READ ITEMS)? Would you say you had rare contact, occasional contact, or extensive contact?

	Had no contact	Tended to work at cross purposes/ turf wars	Shared information	We have a plan to coordinate efforts and share responsibilities	Actually shared funding or staff	RARE CONTACT	OCCASIONAL CONTACT	EXTENSIVE CONTACT
		ASK E3						
A. Department of Health	1	**2**	**3**	**4**	**5**	**1**	2	3
B. American Cancer Society	1	**2**	**3**	**4**	**5**	**1**	2	3
C. American Lung Association	1	**2**	**3**	**4**	**5**	**1**	2	3
D. American Heart Association	1	**2**	**3**	**4**	**5**	**1**	2	3
E. State Tobacco Control Coalition	1	**2**	**3**	**4**	**5**	**1**	2	3
F. State Attorney General's Office	1	**2**	**3**	**4**	**5**	**1**	2	3
G. State Medical Society	1	**2**	**3**	**4**	**5**	**1**	2	3
H. Date Dental Society	1	**2**	**3**	**4**	**5**	**1**	2	3
I. Tobacco Control Researchers in your state	1	**2**	**3**	**4**	**5**	**1**	2	3

PROGRAMMER NOTE: EXCLUDE FROM A-I RESPONDENT'S OWN AGENCY.

Appendix 2.D. (continued)

Strength of Tobacco Control Survey 2

MODULE F: DEMOGRAPHICS

F1. We would like to ask a few questions about you. What is your job title?

TITLE: _____ ☐☐☐

F2. How long have you worked for your present organization or agency?

YEARS ..... ☐☐
MONTHS ..... ☐☐

F3. How long have you been in your current position?

YEARS ..... ☐☐
MONTHS ..... ☐☐

F4. How long have you been involved in tobacco control?

YEARS ..... ☐☐
MONTHS ..... ☐☐

Thank you very much for your time. We appreciate your expertise.

Appendix 2.E. Validation of the Strength of Tobacco Control Model

This appendix discusses the analysis methods used to validate the SoTC model and the justification for using a reduced model in the calculation of the SoTC index score.

Validation of the Heuristic Model

The SoTC model was validated using principal components analysis, factor analysis, and structural equation modeling. The results of the structural equation modeling provided a measure of statistical significance associated with each pathway in the conceptual model and provided the estimated appropriate weighting factor (with error bounds) for combining the subdomains, domains, and constructs to summarize SoTC.

Correlation Analysis

A correlation analysis was performed across each variable in the SoTC hierarchy (subdomain) of the conceptual model as an exploratory tool. The purpose of this exercise was to determine how well the various different variables within the hierarchy interrelated. The expectation was that domain and subdomain variables from within the same construct would have stronger correlation coefficients than those that came from different constructs. The degree to which this could be established is the basis for the validation of the conceptual model.

Principal Components Analysis

The next step in analyzing each within-method correlation matrix was to perform a principal components analysis on a correlation matrix including all of the averaged variables at the subdomain and domain levels but not at the construct or SoTC levels. The purpose of this exercise was to demonstrate that a significant portion (greater than 50%) of the variability in the 12-variable correlation matrix could be explained within the first three vectors of factor loadings. The measure of the amount of variability explained by each factor loading was summarized as a proportion by the eigenvalue associated with each vector of factor loadings. It was presumed that these first three vectors were associated with the three latent constructs (resources, capacity, and efforts) depicted in the conceptual model. This presumption was verified using a factor analysis as described below.

Factor Analysis. Factor analysis can be considered as an extension of principal components analysis. The goal of factor analysis is to describe the structure of a correlation matrix for a set of response variables by using a smaller number of factors (or latent variables). The idea is to separate the response variables into groups, such that variables within a group are highly correlated with each other but not correlated as much with variables in other groups, with an implicit goal that each group of variables represents a single underlying construct, or factor, that is responsible for the observed correlations.

After an exploratory data analysis and the principal components analysis, it appeared as though the response variables in the correlation matrix could be separated into three groups that, in turn, were associated with one of the constructs in the conceptual model (resources, capacity, and efforts).

Essentially, the factor analysis allowed for use of an orthogonal transformation of the principal components analysis results to better visualize the separation between the three main constructs. Two algorithms for estimation were explored—principal components and maximum likelihood—and the results were summarized by plotting the resulting first three factor loadings in a three-dimensional plot to demonstrate how the different constructs separate from each other in describing SoTC. This plot was generated for the factor loadings before and after the orthogonal transformation was applied.

Structural Equations Model. A structural equations model was used to compare the relationships between observed variables from the SoTC survey and latent variables from the conceptual model, resulting in a covariance matrix with a certain structure that corresponded with the SoTC conceptual model. The model contains parameters that describe the contribution of each domain to its corresponding constructs and each construct to the overall measure of SoTC. These parameters were estimated with a structural equations model, using the covariance matrix of observed data as input to the model.

The results of the structural equations model provide a measure of statistical significance associated with each pathway in the conceptual model and the estimated appropriate weighting factor (with error bounds) for combining the subdomains, domains, and constructs to summarize SoTC. These weighting factors, quite naturally, are consistent with the eigenvalues from the principal components analysis conducted at each level of hierarchy within the conceptual model. The level of significance associated with each pathway within the structural equation model was then used to reduce and verify the conceptual model.

Results

Within-method Correlation Analysis

Within-method correlation matrices among domain-level variables are presented in table 2.E.1. The 12 × 12 domain-level correlation matrix or the reduced 9 × 9 correlation matrix that eliminates three of the variables related to the capacity construct, as appropriate, becomes the basis for all the remaining analyses (principal components analysis, factor analysis, and structural equations models). Subdomain variables from within the same construct were more highly correlated than variables that came from different constructs, exceptions being the leadership, health department infrastructure, and staff experience domains that contribute to the capacity construct. This supported the observed separation between the variables that contributed to the capacity construct in factor analysis figures.

Table 2.E.1. Within-method Correlation Analysis of Domain-level Strength of Tobacco Control Variables

Variables	Staff	Funds	Leadership	Interagency relationships	Health dept. infrastructure	Statewide coalition	Staff experience	Media advocacy	Mass media	Developing local capacity	Policy advocacy	Individual behaviors
Staff	1.00	.34	.18	.21	.11	.29	–.03	–.01	–.07	.11	.08	.33
Funds	.34	1.00	.25	.09	–.02	.22	–.03	.14	.09	.00	.05	.18
Leadership	.18	.25	1.00	–.00	–.04	–.14	–.12	–.14	–.11	–.14	.24	–.02
Interagency relationships	.21	.09	–.00	1.00	.11	.34	.07	.06	.12	.02	.19	.14
Health dept. infrastructure	.11	–.02	–.04	.11	1.00	.13	.18	–.13	.10	–.01	.07	–.01
Statewide coalition	.29	.22	–.14	.34	.13	1.00	.08	.12	–.09	.14	.06	.01
Staff experience	–.03	–.03	–.12	.07	.18	.08	1.00	–.09	–.04	–.10	.15	.25
Media advocacy	–.01	.14	–.14	.06	–.13	.12	–.09	1.00	.29	.39	.45	.36
Mass media	–.07	.09	–.11	.12	.10	–.09	–.04	.29	1.00	.48	.53	.50
Developing local capacity	.11	.00	–.14	.02	–.01	.14	–.10	.39	.48	1.00	.37	.55
Policy advocacy	.08	.05	.24	.19	.07	.06	.15	.45	.53	.37	1.00	.37
Individual behaviors	.33	.18	–.02	.14	–.01	.01	.25	.36	.50	.55	.37	1.00

Tables 2.E.2 and 2.E.3 provide the correlation matrices among construct-level variables. As seen from these tables, each of the three main construct-level variables appeared to summarize different information, since none of them are highly correlated with each other. However, all three of these constructs make a significant contribution to the overall summary measure of SoTC.

Principal Components Analysis

Table 2.E.4 provides the summary of the amount of variability explained within the first three principal components, when analyzing the 12 × 12 correlation matrix among the domain-level variables included in the SoTC conceptual model and a reduced 9 × 9 correlation matrix that eliminates three of the five domains related to capacity construct. As demonstrated in the table, approximately 50% of the variability in the 12 × 12 (full model) correlation matrix and 60% of the variability in the 9 × 9 correlation matrix (reduced model) could be explained by the first three factor loadings.

Factor Analysis

Figure 2.E.1 summarizes the factor analysis that essentially rotates the first three principal components, allowing for graphic grouping of the "like" variables that contribute to each of the three main constructs. This analysis demonstrates that it is possible to group the variables in a manner that clearly separates them into the three construct groups. The figure also demonstrates that there was substantial separation

Table 2.E.2. Within-method Correlation Analysis among Three Constructs and Overall Strength of Tobacco Control (SoTC) for Full Model

Variables	Resources	Capacity	Efforts	SoTC
Resources	1.00	.18	.22	.72
Capacity	.18	1.00	.14	.62
Efforts	.22	.14	1.00	.67
SoTC	.72	.62	.67	1.00

Note: Full model consists of all 12 domain-level variables.

Table 2.E.3. Within-method Correlation Analysis among Three Constructs and Overall Strength of Tobacco Control (SoTC) for Reduced Model

Variables	Resources	Capacity	Efforts	SoTC
Resources	1.00	.30	.22	.78
Capacity	.30	1.00	.12	.70
Efforts	.22	.12	1.00	.59
SoTC	.78	.70	.59	1.00

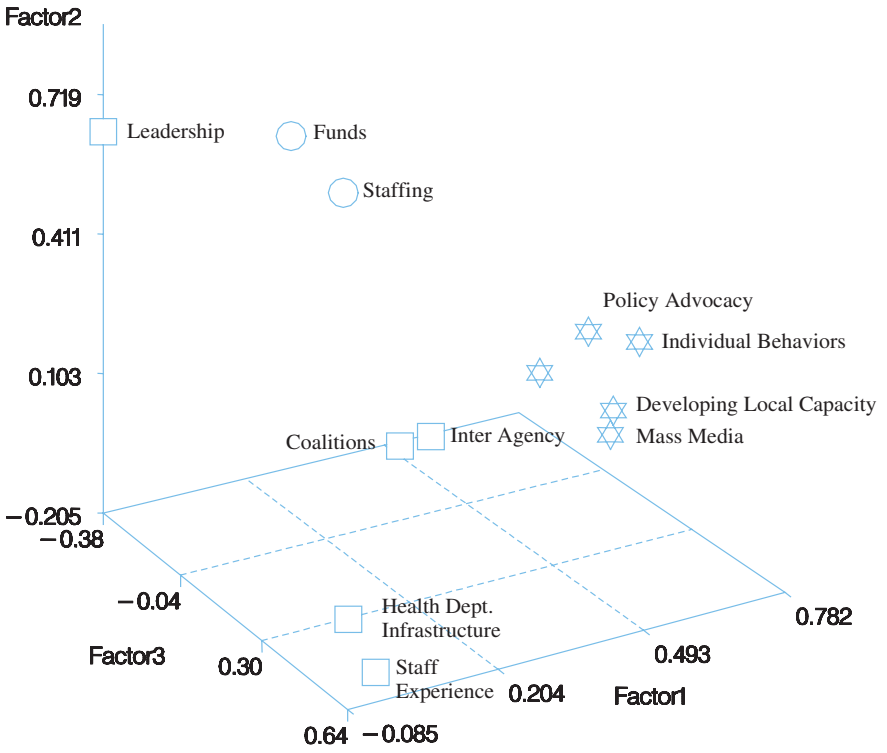
Note: Reduced model consists of only 9 of the 12 domain-level variables, eliminating 3 of the 5 variables related to capacity construct, based on the results of the structural equation model.

Table 2.E.4. Amount of Variability Explained by First Three Factor Loadings in Principal Components Analysis

Model	Factor loadings	Cumulative eigenvalues
Full[a]	1	0.24
	2	0.38
	3	0.50
Reduced[b]	1	0.32
	2	0.50
	3	0.62

[a]Full model consists of all 12 domain-level variables. [b]Reduced model consists of only 9 of the 12 domain-level variables, eliminating 3 of the 5 variables related to capacity construct, based on the results of structural equation models.

Figure 2.E.1. Factor Analysis for Full Model



between the five original variables that contributed to the capacity construct if viewed at the first three eigenvectors and suggests that reduced models should be investigated. The next section describes the results of the structural equation modeling analysis that was performed to accomplish this.

Structural Equation Modeling

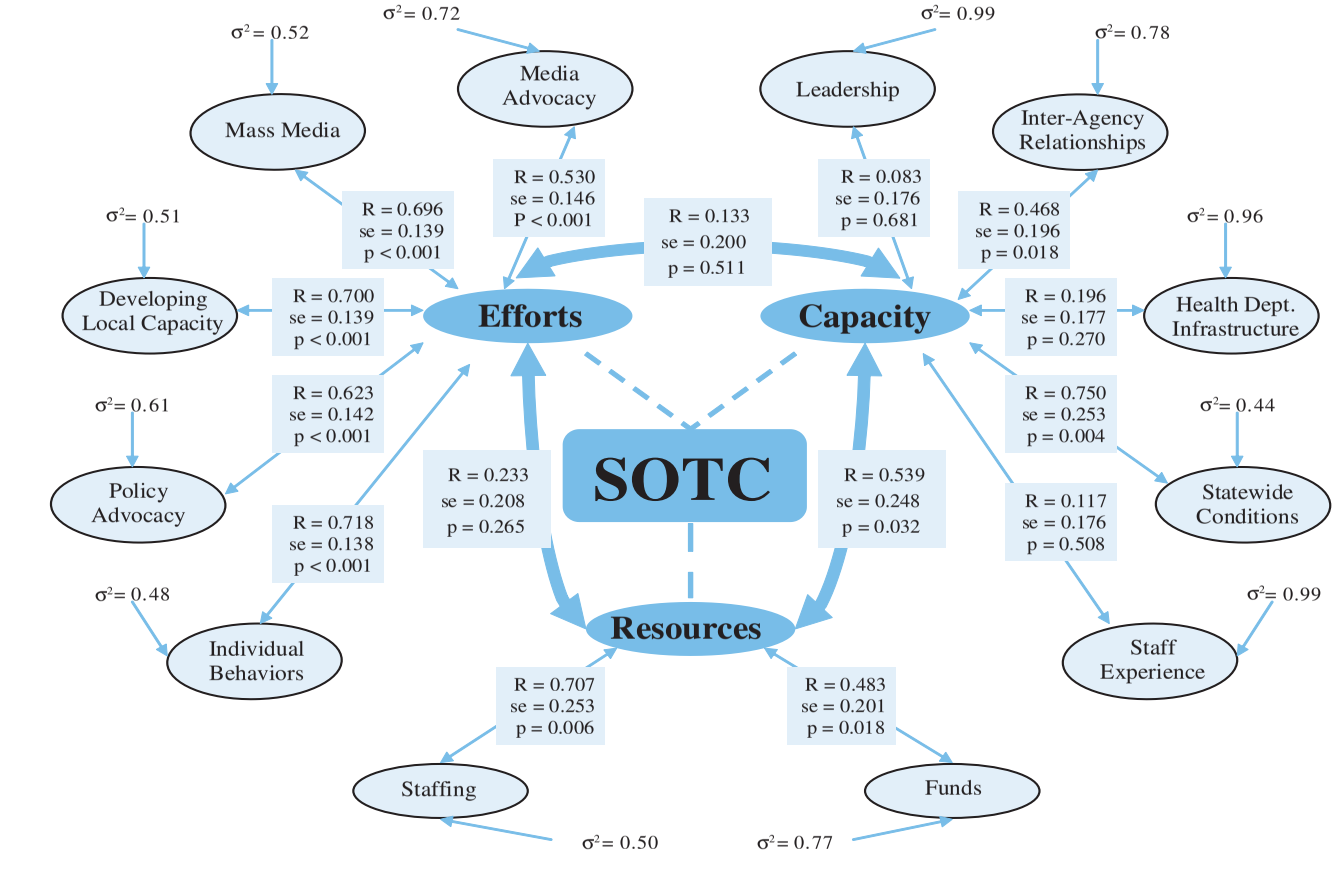
The results of a structural equation model fit to the full conceptual model, in which all 12 domain-level variables were entered as manifest variables in the analysis, are summarized in figures 2.E.2 and 2.E.3 for full and reduced models.

Each of these 12 variables contributed to one of three latent variables (constructs) in the SoTC conceptual model. The strength of these relationships is provided along the arrows (with correlation coefficients, associated standard errors, and *p* values). The error left unexplained is also provided (Φ2), and since this analysis was based on the analysis of a correlation matrix, *R*-squared for each structural relationship can be calculated as 1–variance. In addition, the *p* values for an overall model chi-square test and goodness-of-fit index statistic are also provided.

Note that in 9 of the 12 cases a significant amount of the variability was explained by the pathways in the conceptual model, the exceptions being the leadership, health department infrastructure, and staff experience domains that contribute to the capacity construct. Correlations between the three latent variables (at the construct level) are provided in these figures as well.

The model itself (as fitted) was not particularly well suited to assess the contributions to an overall SoTC score because it would be based on combining three variables that were already latent. However, the strength of these relationships was estimated independently of the structural equation modeling (as seen in tables 2.E.2 and 2.E.3); these estimates are seen in figures 2.E.2 and 2.E.3. Due to the weak relationships observed for three of the five capacity construct variables, the overall fit of the full model was not particularly good. However, figure 2.E.3 represents a reduced model (eliminating these three variables from the conceptual model) that fits the data quite well, based on the overall model chi-square test and goodness-of-fit index statistic.

Figure 2.E.2. Strength of Tobacco Control—Full Model



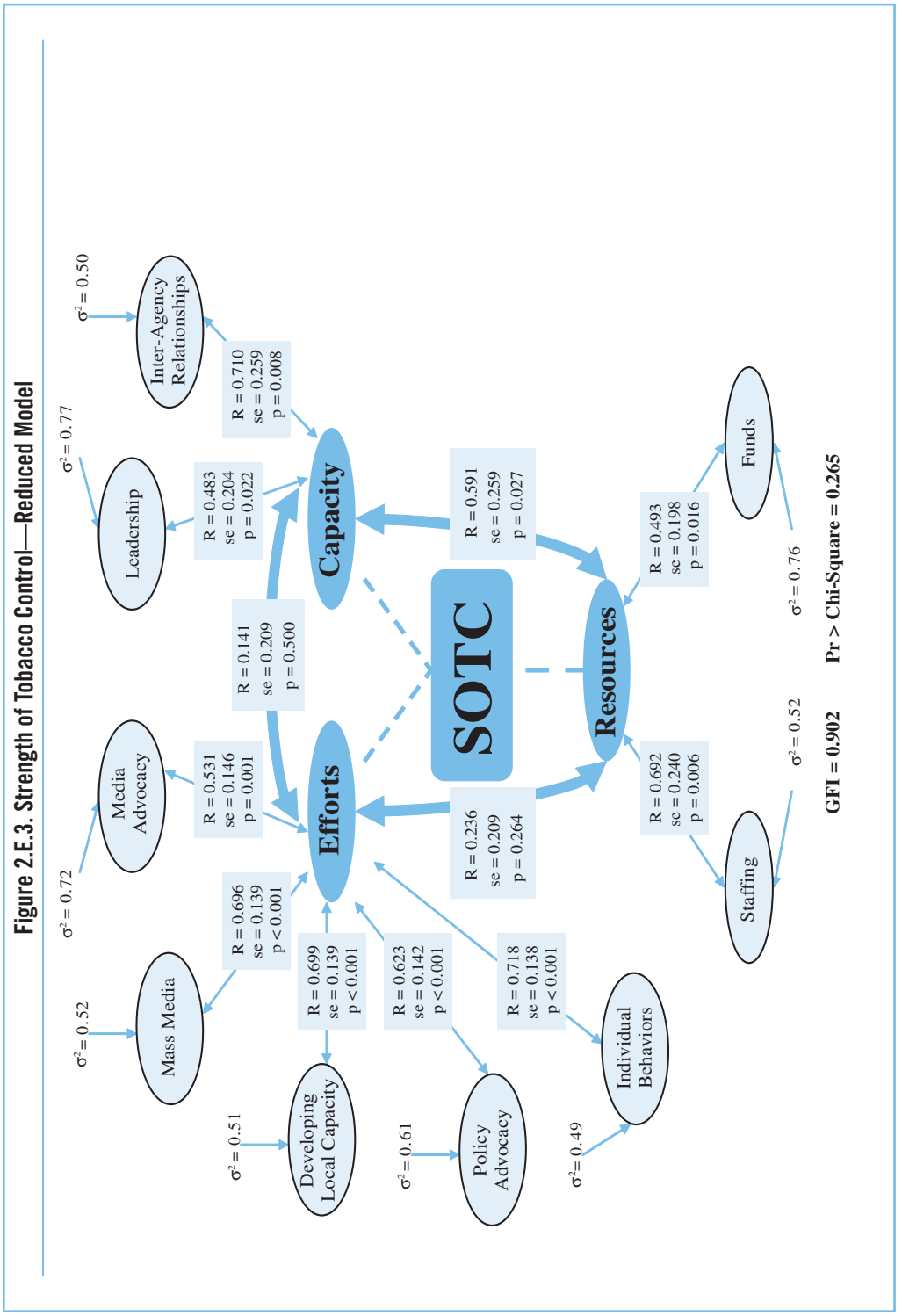


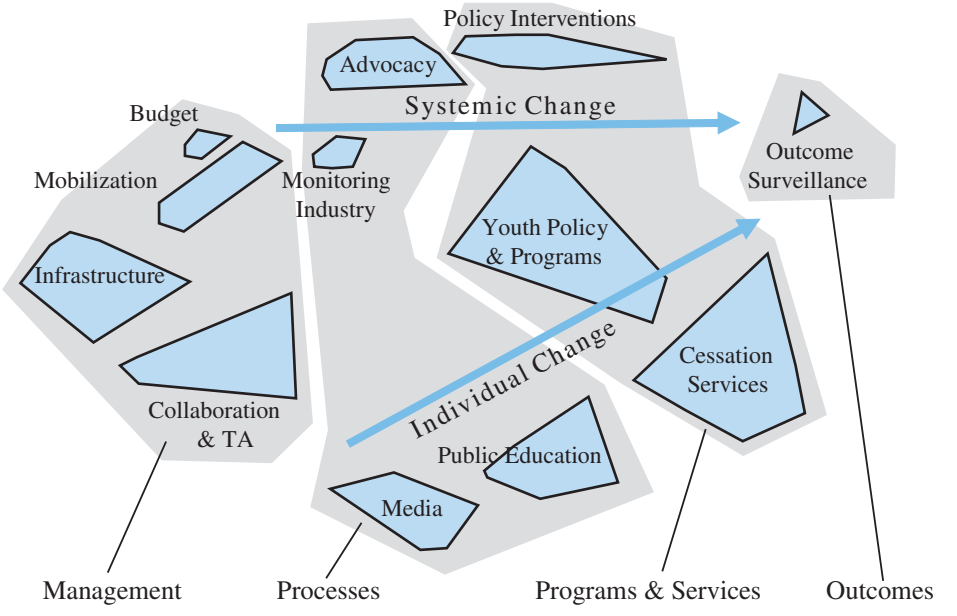
Figure 2.E.3. Strength of Tobacco Control—Reduced Model

Appendix 2.F. Construct Validation of Strength of Tobacco Control

Concept mapping (more fully described in chapter 8, pages 217–23) was used to validate the SoTC construct. Forty-three key stakeholders in the tobacco control and prevention field (state and local, frontline and research, experienced and relative newcomers) were asked to identify an initial set of tobacco control program components. Components were brainstormed over the World Wide Web, and the following focus statement was used: "One specific component of a strong tobacco control program is..." The statements provided by the respondents were subsequently revised and refined into a final set of 73 components that were sorted by 41 of the original 43 respondents and rated for whether they were a local, state, or mixed responsibility. Concept mapping was used to analyze the sorting and rating data and to generate the conceptual framework.

The results provide a summary of what key stakeholders in the tobacco control field identify as the components of a strong tobacco control program—components that are congruent with the SoTC. The basic conceptual framework categorizes the 73 specific components into 12 categories that, in turn, are grouped into four major areas (management, processes, programs and services, and outcomes) that suggest a natural progression, or logic model (see figure 2.F.1). The framework also shows that strong tobacco control efforts address both systemic and individual change, with respondents indicating that states should have greater responsibility for systematic change, while local communities should have greater responsibility for individual behavior change.

Figure 2.F.1. Basic Conceptual Framework



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