Brief Report

A Short Online Community Readiness Survey for Smoke-Free Policy

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Abstract

Introduction: Rural residents in the United States are more likely to use tobacco, have less access to tobacco control resources and efforts, and are more highly exposed to secondhand smoke than their urban counterparts. The purpose was to design and pilot test a shortened, self-administered online survey (Community Readiness Survey-Short form [CRS-S]) to assess community readiness for smoke-free policy in rural communities. The Community Readiness Survey-Long form (CRS-L) is a 30- to 90-min telephone-administered survey. The Community Readiness Model can guide the design of programs and policy interventions to reduce health risks.

Methods: 160 key informants from Wave 3 of a 5-year community-based randomized controlled trial set in Kentucky completed the CRS-L; 61 of approximately 140–284 items were significantly related to the relevant readiness dimension subscores and selected for inclusion. The online CRS-S was created with these items using Qualtrics software; 43 smoke-free advocates who had completed the CRS-L during Wave 4 were invited to participate. Correlations between the CRS-S and the CRS-L on overall readiness and the dimension scores were calculated. Readiness scores were correlated with existence of public policy and voluntary smoke-free policies to assess convergent validity.

Results: The correlation between the overall CRS-S and CRS-L scores was relatively strong (.82), and there is evidence to support convergent validity. Most respondents completed the CRS-S in less than 15 min and preferred this format.

Conclusions: The CRS-S is a valid and less time- and resource-intensive method to assess readiness for smoke-free policy in rural communities.

Background

Although smoke-free legislation is widespread in the United States (Americans for Nonsmokers' Rights Foundation, 2011),

rural communities are not fully protected by comprehensive smoke-free policies and are disproportionately exposed to secondhand smoke (SHS; Ferketich et al., 2010). Rural residents are more likely to use tobacco and have less access to tobacco control resources and efforts than their urban counterparts (Eberhardt, Ingram, & Makuc, 2001; McMillen, Breen, & Cosby, 2004; McMillen, Frese, & Cosby, 2004; Northridge et al., 2008). These higher smoking prevalence rates correlate to greater SHS exposure. It is estimated that 33.1% of children in larger rural areas and 35% of children in small rural areas live with a smoker compared with 24.4% of urban children (U.S. Department of Health and Human Services, 2011).

Health care is often limited or unavailable in rural areas. Compared with their urban counterparts, rural residents are more likely to report fair to poor health status and chronic conditions (Agency for Healthcare Research and Quality, 2004). The percentage of those without health insurance is higher in rural than urban areas due to high poverty rates, remoteness, and cultural norms (Agency for Healthcare Research and Quality, 2004; DeNavas-Walt, Proctor, & Smith, 2008). A combination of poor health status and access to health care translates into the need for strong smoke-free policies in rural areas.

Changing health policy relies on a community's readiness to change (Ogilvie et al., 2008; Jumper-Thurman, Vernon, & Pledet, 2007). The Community Readiness Model (CRM) was originally intended to evaluate a community's capability of developing and implementing prevention interventions (Oetting et al., 1995). The CRM has been expanded to guide policy development, enactment, and evaluation (Engstrom, Jason, Townsend, Pokorny, & Curie, 2002; Jason, Pokorny, Kunz, & Adams, 2004; Modayil, Cowling, Tang, & Roeseler, 2010; York, Hahn, Rayens, & Talbert, 2008). York and colleagues (2008) revised the CRM for smoke-free policy advancement and found the model to be appropriate for understanding local policy development.

The purpose of the study was to develop and pilot test an online, self-administered shortened version of the Community Readiness Survey-Long Form (CRS-L; Hahn, Rayens, & York,

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in press). The aims were to (a) create an abbreviated instrument, the Community Readiness Survey-Short (CRS-S), by determining, for each of the six CRS-L stages of readiness (unawareness, vague awareness, preplanning, preparation, initiation, and endorsement), the items that were most strongly associated with each dimension score; (b) evaluate the associations between the overall readiness score and dimension scores from the CRS-L and corresponding CRS-S using data from a pilot study; and (c) assess convergent validity of the CRS-S and CRS-L by comparing readiness scores to the existence of comprehensive local smoke-free laws and voluntary indoor smoke-free policies in county government buildings, malls, shopping centers, or retail centers in rural communities.

Methods

Design

The CRS-S was created through a secondary analysis of the Wave 3 CRS-L data ($N = 160$) from a 5-year community randomized controlled trial designed to promote smoke-free policy in rural Kentucky. Once the items were selected, a cross-sectional design was used to pilot test the CRS-S during Wave 4. One to two smoke-free policy advocates in each of the 22 treatment communities were invited to participate. Participants were active in the smoke-free campaigns in their community and had participated in Wave 4 CRS-L; each received a link to the online survey through the Qualtrics e-mail distribution system, and reminder e-mails were sent to noncompleters 1 week later. Of the 43 invited, 32 completed the CRS-S (74% response rate) representing 22 counties. Prior to data collection, this study was approved by the University of Kentucky Institutional Review Board.

Measures

Community Readiness Survey-Long Form

The telephone-administered CRS-L is based on the CRM (York et al., 2008). The questionnaire ranges from 140 to

284 questions, with seven possible additional questions per city in the county. Assuming the maximum number of questions possible for a community with one city, the readiness dimension breakdown is resources (67), knowledge (13), leadership (22), climate (22), political climate (7), and existing policies (9). The interview is designed to be administered over the telephone by trained research personnel. The CRS-L takes approximately 30–90 min to complete ($M = 46$ min, $SD = 21.6$).

The reason for the range in number of questions is because some questions are repeated for each city in the county, and some questions have multiple follow-ups depending on response pattern. An example of a question repeated for every city within a community is the position of the mayor on smoke-free policies (for/against/uncommitted/don't know). The number of questions also varies based on level of smoke-free activity in the community. For example, a yes response to the question, "In the past year, has your group or coalition conducted events in X County to educate the public on second-hand smoke?" prompts follow-up questions on the number and attendance.

Community Readiness Survey-Short Form

The CRS-S, an online survey using Qualtrics software, includes 61 items designed to assess each of the six dimensions of readiness: resources, knowledge, leadership, climate, political climate, and existing policy (see Table 1). To develop the CRS-S, a subset of items were chosen from the CRS-L. Using Wave 3 data from the longitudinal study, items were retained that were significantly associated with the corresponding dimension score. For a small number of items, wording was changed slightly to be more inclusive within a single item. For example, the CRS-S contains a combined item for assessing lobbying potential of the American Heart Association, American Lung Association, and similar organizations rather than individual items for each organization as in the CRS-L.

Table 1. Dimensions and Stages of Community Readiness for the CRS-S

Dimensions	Definition	CRS-S sample item	Total items
Existing voluntary policy efforts	Private smoke-free policies (e.g., smoke-free restaurant policies adopted by restaurant owners)	In your community, about what percent of restaurants are totally smoke-free voluntarily, meaning smoking is not allowed anywhere inside the building?	6
Knowledge	Events or opportunities the smoke-free coalition to for public education related to SHS or smoke-free policy	In the past year, has your group or coalition conducted events in your community to educate the public on SHS?	11
Leadership	Smoke-free policy support by leaders in the community (elected officials as well as active citizens)	How much leadership for smoke-free policy development does the local board of health provide? (1 = none; 5 = extensive; don't know; N/A)	4
Resources	Actual (money) and in-kind (volunteers, space, equipment) resources for the smoke-free campaign	How many key players does your group or coalition have?	19
Community climate	Community level social norms	In buildings that are smoke-free, how visible are the smoke-free signs? (e.g., storefront windows, indoor signage; <i>Not visible in any building, Occasionally visible, Visible in most to all workplaces, Don't Know</i>).	10
Political climate	Political realities within the community related to smoke-free issues	What is the position of the county Judge Executive on enacting a smoke-free law?	4

Note. CRS-L = Community Readiness Survey-Long form; CRS-S = Community Readiness Survey-Short form; SHS = secondhand smoke.

Data Analysis

Pearson's product-moment and Spearman's rank correlation were used to assess associations between continuous and ordinal variables as appropriate. Paired *t* tests were used to determine whether the CRS-L and CRS-S differed for each dimension score. Two-sample *t* tests were used to determine if average scores on the CRS-L and CRS-S differed between counties with and without comprehensive smoke-free laws and counties with and without voluntary smoke-free policies in government buildings and malls/shopping areas. Presence or absence of smoke-free laws was verified by research project staff; presence of voluntary smoke-free policies was based on advocates' self-report. Data analysis was conducted with SAS for Windows (v. 9.2, 2002–2008); an alpha level of .05 was used throughout.

Results

Of the 32 respondents, 88% were female and all were Caucasian, similar to the full Wave 4 sample (76% female, 99% Caucasian). Comments from participants revealed a preference for the short form, not only due to shorter time demand but also the convenience of the online format. Most (62.5%) completed the CRS-S in less than 15 min. For those who completed the survey in one sitting, the average time to complete was 14.7 min (*SD* = 11.8).

Comparison of CRS-L and CRS-S Scores

The correlations among the six readiness dimensions for the CRS-L and CRS-S are shown in Table 2. The average correlation among the dimensions of the CRS-L was .42 (*SD* = 0.13, range: 0.18–0.68) compared with .44 (*SD* = 0.15, range: 0.20–0.70) for the six CRS-S dimensions. With degree of correlation categorized by level of the corresponding *p* value (with groups of >.05, ≤.05, ≤.005, ≤.0001), there were five pairwise associations that were greater for the CRS-L relative to the CRS-S; four that were greater for the CRS-S relative to the CRS-L; and six that were of the same order of magnitude. These results suggest that the average strength of association among the dimensions was moderate for both forms. The correlations for the dimensions scores between the two forms were relatively strong, with a

mean of 0.67 (*SD* = 0.06, range: 0.57–0.76). The correlation between the CRS-L and CRS-S on overall readiness was .82, suggesting a strong degree of association in total scores between the two forms of the survey.

Finally, paired *t* tests to determine whether the average difference between corresponding dimension scores on the CRS-L and CRS-S are shown in the last column of Table 2. The largest differences were observed for leadership (*p* ≤ .0001) and existing policies (*p* ≤ .005), with smaller average differences for political climate and resources (*p* ≤ .05 for each comparison). Differences in knowledge and climate between the long and short forms were not significant.

Convergent Validity of the CRS-L and CRS-S

Compared with counties without smoke-free laws, those with comprehensive smoke-free laws had significantly higher scores on both the CRS-S and CRS-L dimensions of leadership, climate, political climate, and the overall readiness score. Voluntary policy in county government buildings was also associated with (a) higher scores on both the CRS-S and CRS-L dimensions of knowledge, leadership, and political climate and (b) higher scores on the CRS-L dimensions of resources and community climate. Finally, voluntary policy (i.e., one not enacted by government ordinance or regulation) in shopping areas was related to higher scores on the CRS-S dimensions of climate and political climate and the CRS-L dimension of climate.

Discussion

There was a relatively strong correlation (.82) of the overall scores on the CRS-L and the CRS-S. While four of the six dimensions exhibited a significant average difference between the CRS-L and CRS-S, the absolute size of all differences was relatively small compared with the potential maximum difference of one. The findings also suggest that the CRS-L and CRS-S have strong convergent validity when scores are compared between counties with and without smoke-free laws.

Table 2. Pearson Product-Moment Correlations Among CRS-L and CRS-S Dimension Scores; Correlations Between the CRS-L and CRS-S for Each Dimension; and Paired *t* Tests Comparing CRS-L and CRS-S for Each Dimension (*N* = 32)

Readiness Dimension	Correlations among dimension scores for the CRS-L and CRS-S ^a					Correlation between CRS-L and CRS-S dimension scores	<i>M</i> (<i>SD</i>) of (CRS-L–CRS-S) with <i>p</i> value for paired <i>t</i> test
	Knowledge	Leadership	Climate	Political climate	Existing policies		
Resources	0.35* (0.52**)	0.44* (0.32)	0.39* (0.63***)	0.36* (0.20)	0.18 (0.27)	.76***	0.05 (0.11)*
Knowledge		0.48** (0.33)	0.68*** (0.58**)	0.46* (0.40*)	0.27 (0.54**)	.67***	−0.03 (0.18)
Leadership			0.55** (0.39*)	0.46* (0.70***)	0.23 (0.32)	.57**	0.16 (0.16)***
Climate				0.49** (0.52**)	0.43* (0.35*)	.71***	−0.01 (0.13)
Political climate					0.53** (0.55**)	.65***	0.11 (0.25)*
Existing policies					—	.68***	0.10 (0.15)**

Note. CRS-L = Community Readiness Survey-Long form; CRS-S = Community Readiness Survey-Short form.

^aCRS-L correlation (CRS-S correlation) displayed in each cell.

*p ≤ .05. **p ≤ .005. ***p < .0001.

Strengths and Weaknesses of the Community Readiness Survey-Short Form

The CRS-S has several strengths. First, it has lower potential for respondent fatigue and is less resource-intensive (e.g., interviewer staff, long distance phone charges). The CRS-L can take up to 90 min to complete and is designed to be administered over the telephone. The CRS-S takes approximately 20 min to complete and can be done independently by the respondent. This has the potential to maximize retention in longitudinal studies by reducing respondent burden. Another strength of the CRS-S is the ability to start and stop the survey before completion. Participants would have the ability to seek information such as budgetary information to increase accuracy of their responses.

One weakness of the CRS-S is the online survey format. Though a majority of Americans have Internet access (Nielson Company, 2011), only 66% of American adults had a home broadband connection and 21% of American adults do not use the Internet at all (Pew Internet and American Life Project, 2011). Some rural residents may have particularly limited access to and unfamiliarity with a computer or the Internet, reducing the survey response rate.

In addition, since it was designed to be briefer than the CRS-L, it yields less information and includes no qualitative items. Compared with the CRS-L, community advocates using the results of the CRS-S to guide smoke-free community campaigns will have fewer items to base decisions on, but the information obtained will be quicker to collect and easier to automate for immediate use.

A potential limitation of this study is the small sample size, given the number of independent variables. In addition, further testing of the CRS-S is required as only 22 counties were evaluated using the revised survey. Finally, the survey questions were selected and tested based on data collected in rural Kentucky communities. The findings may not be applicable to other communities with differing culture and values.

Future Directions

This paper presents the results of the first pilot test of the CRS-S. The tool needs to be refined and tested with advocates from communities in other regions. An area of particular concern is the leadership dimension, which may require revisions in future studies. The scores from the leadership dimension on the CRS-S and the CRS-L had the lowest correlation of all dimensions (.57) and the largest difference on the paired *t* test analysis. Future studies could be conducted to further shorten the number of items.

The shortened readiness survey has potential to guide rural tobacco control advocates in planning smoke-free campaigns. Readiness assessments can provide valuable insight for community health initiatives (Ogilvie et al., 2008). The online readiness survey has the potential to be embedded into a website, such that advocates could respond to the items and get immediate, stage-based, and tailored interventions in combination with those from other advocates in their community. A plethora of advocacy tools, ranging from evidence-based media advertisements, peer-reviewed articles, branding materials, talking points, and model ordinances, could be automated and tailored for communities, based on their stage of readiness. For example, if community advocates take the

survey and are placed in the “vague awareness” category, advocates could receive materials on monitoring indoor air quality.

In addition, the online community readiness survey could be tailored for use in other health policy areas. The CRM has been used to examine domestic violence (Brackley et al., 2003), HIV/AIDS (Jumper-Thurman et al., 2007), and substance abuse (Ogilvie et al., 2008).

Conclusions

Rural communities are disproportionately affected by high smoking prevalence and weak tobacco control laws. Using the CRM to guide smoke-free policy development has promise in rural communities. The CRS-S is a valid and less time- and resource-intensive alternative to the CRS-L. Future studies need to revise and test the leadership dimension. In addition, the development of an online survey that provides an immediate score to the user would promote greater practical utility to guide smoke-free policy development in rural communities.

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Declaration of Interests

None declared.

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