Building a health promotion agenda in local newspapers

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Abstract

This is an analysis of newspaper coverage of breast cancer topics during a community-based health promotion campaign. The 4-year campaign, called the Breast Cancer Screening Campaign (BCSC), was devoted to promoting mammography screening in a Midwestern state. The BCSC included both paid advertising and volunteer-led community interventions that were intended, in part, to increase the flow of information about breast cancer and mammography screening in the local mass media. Findings showed that intervention was positively associated with local newspaper content about breast cancer, but the effects were confined to communities served by weekly newspapers. We discuss the implications of this study for future community-based health promotion campaigns.

Introduction

The general public relies on the media as important sources of health information (Wade and Schramm, 1968; Toggerson, 1981; Freimuth et al., 1984; Johnson, 1998). Reagan and Collins¹ (Reagan and Collins, 1987) research showed that for health care information in two small communities, the newspaper outranked other media, being listed just below physicians, family and relatives. A 1997 national poll commissioned by the National Health Council and Robert Starch Worldwide entitled ‘Americans Talk about Science and Medical News’ [as cited in (Johnson, 1998)] showed that the respondents’ primary sources of medical news were television (40%), doctors (35%), magazines or journals (35%) and newspapers (16%). Studies by Johnson and Meischke (Johnson and Meischke, 1992a,b) clearly identified media as a main source of cancer-related information and a study by Meischke et al. (Meischke et al., 2002) showed that women reported mass media as the most frequently reported source of information on heart attacks, followed by health care providers.

In efforts to promote breast cancer early detection, health communicators turn to the media for three primary purposes: (1) as part of a campaign to prompt screenings and promote screening behavior; (2) to add the topic of breast cancer screenings to the ‘public agenda’, and (3) working for policy changes that lead to increased rates of screening [(Freimuth, 1995), p. 79].

This study is an analysis of newspaper coverage of topics being promoted by a community-based health promotion program called the Breast Cancer Screening Campaign (BCSC). Community-based health promotion programs such as the BCSC are initiated at the local level where groups or coalitions form to address specific health issues. Sometimes referred to as community action groups, people from the community join together for a collective cause.

The BCSC was part of a research project devoted to promoting mammography screening in a Midwestern state. The BCSC was financially supported

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by the National Cancer Institute (CA58659). Among other activities, the campaign developed community action teams to, in part, increase information flow about breast cancer and mammography screening in local media. This process of attempting to alter the news media emphasis on a particular topic is referred to as media agenda building (Berkowitz, 1992; Hubbell and Dearing, 2003) or media advocacy (Stead et al., 2002; Dorfman, 2003; Stillman et al., 2004). The news-flow study provided a process evaluation of the media agenda-building objective within the larger multi-strategy campaign.

This study posed two main questions to assess the impact of the BCSC on media coverage:

1. After intervention, did newspapers in the intervention region of the BCSC carry more content about breast cancer and mammography screening than did newspapers outside of the intervention region?

2. Did the amount of change in newspaper content vary by newspaper type and community type?

The first research question assumes that the activities of the community-based health promotion would result in increased levels of relevant newspaper content. This assumption is based on the observation that mass media are profoundly influenced by organized activity (Finnegan et al., 1999). In the control, or non-intervention region, no significant differences in content would be expected.

The second question is raised because previous research suggests that community groups will be more successful in altering the news agenda of weekly newspapers, given the local orientation and the limited staff and resources and this type of newspaper (Hindman, 1996). The size and complexity of the community has also been shown to be related to community decision making, news source diversity and the orientation to local versus non-local news (DuBick, 1978; Donohue et al., 1989, 1995; Finnegan and Viswanath, 1996; Hindman et al., 1999). Larger communities tend to have more diverse centers of power and influence than do smaller, more homogenous communities. Newspaper content tends to reflect these different levels of community complexity in the way that conflict is reported and in the degree of specialization of coverage. Community-based groups that seek to advocate change may be more successful if they first identify and then gain the cooperation of the sources of power and influence within the community (Viswanath et al., 1994).

**Method**

The BCSC first divided the state into a northern, or treatment, group of 26 counties and a southern, or control, group of 25 counties. Although the treatment and control conditions were assigned arbitrarily, this quasi-experimental design does not include the degree of statistical control offered by completely random assignment of subjects. Using archival data, however, we determined that the North and South were similar in terms of the percentage of rural population (55.3 versus 50.0%) and percentage of women reporting ever undergoing a mammogram (44.7 versus 44.5%) (McCaul et al., 1998). The treatment and control counties were also not significantly different in terms of county populations and the number of residents in the county with college degrees. The northern, or treatment, counties did, however, have a significantly higher mean percentage of residents in non-agricultural, fisheries or forestry occupations, (79%) than did the southern, or control, counties (72%). These differences will be controlled in the statistical tests of campaign differences.

The community intervention began with a 12-week paid newspaper and radio advertising campaign directed at the counties in the northern half of the state (McCaul et al., 1998). The advertising campaign was designed to increase perceptions of personal vulnerability for breast cancer. The campaign message recommended the American Cancer Society mammography screening guidelines and encouraged women to access screening services through their physician or local medical facility. Forty-one spokespeople who would appear in the advertisements were recruited from...
across the northern counties of the state so that each advertisement was regionalized for the audience. The spokespeople included breast cancer survivors, mammography advocates and physicians or other health professionals who fit the testimonials presented in the advertisements.

In the intervention communities, the paid advertising campaign was then followed by 2 years of community activities led by a network of approximately 120 volunteers working in 24 counties and two reservations. As with the paid advertising campaign, persons in counties in the northern half of the state received the community intervention, whereas persons in the southern half served as no-treatment controls.

The volunteers were organized into community action teams to promote breast cancer early detection and address community barriers to screening. Existing community systems for volunteer mobilization were used including American Cancer Society units, state Association of Family and Community Education clubs, the medical community, and other community groups. Volunteers developed and implemented an action plan through community teams.

The community action teams used existing communication channels, including local mass media, to increase information flow about breast cancer and mammography screening. The teams attempted to establish relationships with local media gatekeepers by becoming credible sources of health information. In support of that goal, educational materials were made readily available for volunteer use through a central clearinghouse.

Sample and data collection
All 89 of the state’s newspaper association member newspapers were included in the sample. The northern intervention counties were represented by four daily and 48 weekly newspapers (N = 52); the southern control counties were represented by four daily and 33 weekly newspapers (N = 37). Content analysis was used to systematically measure newspaper coverage about breast cancer and mammography screening. The data collection process was done through a state newspaper association clipping service, a firm that hires and trains employees for this specific task. Two samples of content were drawn over time from each of the 89 newspapers to represent pre-intervention and intervention time periods in both intervention and control areas of the BCSC. Pre-intervention clippings included a deliberate sample of all newspapers from 1 September 1993 through 31 August 1994. The intervention sample was drawn from 1 September 1995 through 31 August 1996 from the same list of newspapers. Item selection was limited to newspaper articles and corresponding graphics and photographs that identify breast cancer or mammography in the headline, subhead or first paragraph of copy. Acceptable references included the phrases breast cancer, breast health, mammogram, mammography and breast screening. Exception was made for feature stories focused on breast cancer or mammography, but where the reference was not made in the headline or initial paragraph. The use of a clipping service for content analysis limited the analysis of intercoder reliability on content variables. Given the study’s goals of testing treatment/control differences, rather than testing hypotheses about content differences, this limitation was considered acceptable.

Dependent measures
For each newspaper included in the study, the number and column inches of stories with reference to breast cancer and mammography were summed for both the before intervention and during intervention time periods. The research questions were tested using after-intervention content levels as dependent variables. The before-intervention content level served as a control variable.

Independent measures
The pre/post control group design provided for comparison of newspaper content from the intervention region to the control region before and during the intervention period. To address the first research question, the change in the mean level of breast cancer-related newspaper content in control (N = 37) and intervention (N = 57) communities were compared.
The second research question followed previous studies which suggest that intervention would result in more changes in newspaper content in weekly newspapers and in newspapers serving smaller, less structurally pluralistic communities. For this question, the independent variables were newspaper and community characteristics.

Newspaper characteristics were represented by the newspaper’s frequency of publication. Weeklies \((N = 81)\) were coded as ‘0’ and dailies \((N = 8)\) were coded as ‘1’.

Community characteristics were represented by a ‘community structural pluralism index’. The structural pluralism index was used instead of a simple measure of community population because previous research indicates that newspaper content varies with the community’s population as well as its economic diversity (particularly, the less dependence on agriculture and extractive industries) and the educational levels in the community (Tichenor et al., 1980; Hindman, 1996). Because previous analysis showed northern, or treatment, counties were more economically diverse, the indicator of economic diversity (percentage of the workforce not in agricultural, fisheries or forestry occupations) was used as a control. Data for the community structural pluralism index were drawn from census files, including the population of each of the cities and counties, and the number of residents with a bachelor’s degree or higher. The three variables were standardized and added to form an index. Cronbach’s \(\alpha\) for the pluralism scale was 0.89.

### Results

Before addressing the individual research questions, the overall model was tested in a series of multiple regression equations in which variables representing pre-intervention content levels, the indicator of community economic diversity, community pluralism, newspaper frequency of publication, intervention and a multiplicative interaction term, pluralism \(\times\) frequency of publication, were used to predict local, state and national news about breast cancer, measured both as column inches and as numbers of stories. The goal was (1) to determine if the overall equations were statistically significant and (2) to determine if the interaction term was significant. If the overall equations are significant, then further analyses can follow. Similarly, if the interaction terms are significant, then the interacting variables must be controlled in order to interpret the main effects (Kerlinger and Pedhazur, 1973).

Table I shows that equations for local- and national-level content, measured both as column inches and as numbers of stories, were statistically significant and the interaction terms were also significant. The equation predicting state-level stories about breast cancer was not statistically significant for the column inch measure and was

| Story type | Column inches | | No. of stories | | | | Interaction term (newspaper type \(\times\) pluralism) | | Interaction term (newspaper type \(\times\) pluralism) |
|-----------|---------------| | | | | | | |
| Local     | \(0.345^c\)   | 0.309\(^b\) | \(0.356^c\) | 0.373\(^b\) |
| State     | NS            | NS         | \(0.083^a\) | NS       |
| National  | \(0.571^c\)   | 0.331\(^b\) | \(0.852^c\) | 0.237\(^a\) |

Interaction terms are partial regressions, controlling for community diversity, pre-intervention content levels, community pluralism, treatment and newspaper frequency of publication.

\(^aP < 0.05; \(^bP < 0.01; \(^cP < 0.001.\)
marginally significant for the number of stories measure. These findings indicate that further analysis of the local- and national-level content measures are warranted, and that to interpret the main effects, either community pluralism or newspaper type must be held constant.

The next step in the analysis is to control for newspaper type, and to determine whether local and national content could be successfully predicted with the independent variables, including the intervention and community pluralism indicators. Table II shows that among weekly newspapers, the model significantly predicted both local column inches and number of stories about breast cancer. Intervention was significantly associated with both column inches and numbers of stories about breast cancer, even when controlling for community economic diversity, pre-intervention content and community pluralism. This represents partial support for the first research question, which asked whether intervention would be positively associated with newspaper content about breast cancer. Among daily newspapers (not shown), neither equation (local column inches or local number of stories) reached statistically significant levels.

To further illustrate the findings, Table III shows the mean change scores for weekly and daily newspapers in the control and intervention communities. The change scores are content levels before intervention minus content levels after intervention. The results are shown for both content measures: column inches and numbers of stories.

Table III shows positive change scores for both control and intervention communities, indicating that local-level content about breast cancer had increased across all communities. The mean levels appear to be higher in intervention communities, as would be expected from the Table II results which showed significant intervention effects among weekly newspapers.

Extending the analysis to predictions of national-level content, Table IV shows that, among weekly newspapers, the model significantly predicted both national column inches of and number of stories about breast cancer. Interestingly, however, the intervention variable was not statistically significant in either equation, indicating that national content among weekly newspapers was primarily a function of pre-intervention levels of content. In other words, weekly newspapers that carried national content before the intervention time period tended to carry similar types of content after intervention, regardless of organized activities within the community.

Table II. Summary of hierarchical regression analysis for variables predicting local-level weekly newspaper content about breast cancer (N = 81)

<table>
<thead>
<tr>
<th>Block 1</th>
<th>Column inches</th>
<th>Block 2</th>
<th>Column inches</th>
<th>Block 3</th>
<th>Column inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>economic diversity</td>
<td>0.063</td>
<td>0.083</td>
<td>−0.004</td>
<td>0.072</td>
<td>−0.027</td>
</tr>
<tr>
<td>incremental $R^2$ (%)</td>
<td>0.4</td>
<td>6.4a</td>
<td>2.35a</td>
<td>7.8a</td>
<td></td>
</tr>
<tr>
<td>pre-intervention content</td>
<td>0.254a</td>
<td>0.225a</td>
<td>0.282a</td>
<td>0.235a</td>
<td></td>
</tr>
<tr>
<td>incremental $R^2$ (%)</td>
<td>5.0</td>
<td>7.1a</td>
<td>7.7a</td>
<td>11.7b</td>
<td></td>
</tr>
</tbody>
</table>

Cell entries are standardized regression coefficients. $^aP < 0.05; ^bP < 0.01; ^cP < 0.001$.  

Building a health promotion agenda in local newspapers
Among the daily newspapers in the sample, the equations (not shown) predicting national-level coverage of breast cancer were either not statistically significant in the case of the column inch measure or were unstable because of multicollinearity in the case of the number of stories measure.

Again, to show descriptive data regarding national-level content changes in weekly and daily newspapers, Table V shows the results for both control and intervention communities. Table V shows declines in national news about breast cancer, as indicated by negative change scores, in both intervention and control communities. Thus, there was more national-level coverage of breast cancer and mammography in all of the communities during the year before the community action teams became active (1 September 1993 through 31 August 1994). This unexpected finding is perhaps a reflection of the decline in national news coverage of breast cancer issues. Corbett and Mori (Corbett and Mori, 1999) noted a peak in breast cancer coverage in 1994. This peak in national newspaper coverage coincided with news of the discovery of a ‘breast cancer gene’ as well as ongoing coverage of celebrities talking about their breast cancer ([Corbett and Mori, 1999], p. 237). Once these high-profile cases receded from the news, additional coverage declined as well.

To summarize, the first research question was ‘After intervention, did newspapers in the intervention region of the BCSC carry more content about breast cancer and mammography screening than did newspapers outside of the intervention region?’.

The present findings indicate that, among weeklies, intervention was significantly associated with local content about breast cancer, even when controlling for pre-intervention levels of content. Intervention was not significantly associated with state- or national-level content. No significant relationships were found among daily newspapers.

### Table III. Change in local-level newspaper content about breast cancer, by newspaper type

<table>
<thead>
<tr>
<th>Control communities</th>
<th>Intervention communities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in local column inches</td>
<td></td>
</tr>
<tr>
<td>weeklies</td>
<td>12.7 (112.4), N = 33</td>
</tr>
<tr>
<td>dailies</td>
<td>77.5 (253.8), N = 4</td>
</tr>
<tr>
<td>Change in no. of local stories</td>
<td></td>
</tr>
<tr>
<td>weeklies</td>
<td>0.128 (0.99), N = 33</td>
</tr>
<tr>
<td>dailies</td>
<td>0.50 (3.4), N = 4</td>
</tr>
</tbody>
</table>

All values are mean change scores (SD), representing during intervention levels minus before intervention levels.

### Table IV. Summary of hierarchical regression analysis for variables predicting national-level weekly newspaper content about breast cancer (N = 81)

<table>
<thead>
<tr>
<th></th>
<th>Column inches</th>
<th>No of stories</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Block 1</td>
<td>Block 2</td>
</tr>
<tr>
<td>Block 1</td>
<td>economic diversity</td>
<td>0.100</td>
</tr>
<tr>
<td></td>
<td>incremental $R^2$ (%)</td>
<td>1.0</td>
</tr>
<tr>
<td>Block 2</td>
<td>pre-intervention content</td>
<td>0.395$^c$</td>
</tr>
<tr>
<td></td>
<td>incremental $R^2$ (%)</td>
<td>15.3$^a$</td>
</tr>
<tr>
<td>Block 3</td>
<td>community pluralism</td>
<td></td>
</tr>
<tr>
<td></td>
<td>intervention</td>
<td></td>
</tr>
<tr>
<td></td>
<td>incremental $R^2$ (%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adjusted $R^2$ (%)</td>
<td></td>
</tr>
</tbody>
</table>

Cell entries are standardized regression coefficients.

$^a$P < 0.05; $^b$P < 0.01; $^c$P < 0.001.
The second research question was ‘Did the amount of change in newspaper content vary by newspaper type and community type?’. The only significant findings that were detected were among weekly newspapers. Community type, operationalized here as community pluralism, was not significantly associated with changes in local-, state- or national-level newspaper content about breast cancer or mammography.

Discussion

The present study sought to explore the influence of a community-based health promotion campaign on local newspaper media coverage. The health promotion groups were organized by the BCSC to, in part, increase the flow of information about breast cancer and mammography screening within the community. Increased media attention to a particular topic, such as breast cancer, can lead to an increase in the salience of the topic among the public in a process called agenda setting (McCombs and Shaw, 1970). This study focused on the action group’s success in altering the local newspaper’s agenda, as indicated by the amount of coverage each devoted to breast cancer-related topics.

The study used before–after measures of newspaper content in communities that were classified as either control or intervention, depending upon whether or not the communities had received a paid advertising campaign and had volunteer health promotion groups working locally.

Findings showed that, among communities with weekly newspapers, the amount of local stories about breast cancer was significantly associated with community intervention. In other words, weekly newspapers in communities with active groups of local volunteers (‘intervention communities’) had significantly more coverage of breast cancer-related issues than did weekly newspapers in the control communities.

The community health promotion groups may have been successful in altering the weekly newspaper agenda in their communities because (1) their work was preceded by a paid advertising campaign that introduced the breast cancer screening messages into the intervention communities and (2) the campaign identified local community leaders who also served as media contacts in support of the volunteer outreach activities. The leaders were credible spokespersons in their regions because they were also breast cancer survivors, mammography advocates and local physicians.

Additional findings explored whether or not the type of newspaper and the type of community was associated with intervention, which was, in this case, agenda-building efforts on the part of community volunteers. Community volunteers would be expected to have more success in obtaining coverage in weekly newspapers and in newspapers in smaller, less pluralistic communities given the local orientation and less complex power structures in those types of communities (Olien et al., 1968). The findings show that community pluralism and frequency of publication formed a significant interaction that, when controlled, revealed that the majority of the effects were confined to communities with weekly newspapers. Thus, the community health promotion groups had more impact on the content agenda of weekly newspapers than daily newspapers. Findings regarding the community structural pluralism measure showed that community type was not consistently associated with content when controlling for newspaper type. Regardless of the size and diversity of the community, the type of newspaper is the better predictor of significant intervention effects.

Table V. Change in national-level newspaper content about breast cancer, by newspaper type

<table>
<thead>
<tr>
<th></th>
<th>Control communities</th>
<th>Intervention communities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in national-level news (column inches)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>weeklies</td>
<td>−5.33 (75.6), N = 33</td>
<td>−21.9 (89.0), N = 48</td>
</tr>
<tr>
<td>dailies</td>
<td>−34.3 (202), N = 4</td>
<td>−803 (1212), N = 4</td>
</tr>
<tr>
<td>Change in national-level news (no. of stories)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>weeklies</td>
<td>−0.121 (0.60), N = 33</td>
<td>−0.354 (1.06), N = 48</td>
</tr>
<tr>
<td>dailies</td>
<td>−2.0 (0.82), N = 4</td>
<td>−7.0 (7.86), N = 4</td>
</tr>
</tbody>
</table>

All values are mean change scores (SD), representing during intervention levels minus before intervention levels.
The findings also show that local news about breast cancer was increasing in all of the communities, while national news about breast cancer and mammography was declining over the course of the study. In general, it appears that local news increased more among the intervention communities, whereas national news appears to have declined more among the intervention communities. These findings would be consistent with the public arenas model which explains the rise and fall of public issues in terms of a stage metaphor; in this case, the rise of local news about breast cancer pushed the national news off of the ‘stage’ of news coverage (Hilgartner and Bosk, 1988). There is also reason to expect that the secular trends that occurred during the study confounded the results, particularly those involving national-level content (Finnegan et al., 1998). Previous research has shown that the topic of breast cancer and mammography screening was receiving declining national coverage during the time period in which the study took place because of a lack of new scientific discoveries and a lack of high-profile celebrity cases, a pattern that is reflected in the declining levels of state and national news observed here (Corbett and Mori, 1999).

What might be the implications of these results for individuals concerned with building the agenda of local media? As might have been assumed from previous studies, the primary effect of agenda-building activities is on local news and among weekly newspapers. Weekly papers emphasize local news, are frequently short-staffed and are often more willing to accept news ‘subsidies’ than are the more resource-rich metropolitan dailies. An unresolved question is what might individuals with a health promotion agenda hope to achieve when working with daily newspapers in larger, more pluralistic communities? In most cases, the difficulty in building and maintaining news agendas in larger, more pluralistic communities is not, as some interest groups might argue, the result of a media bias against the goals or ideology of the groups themselves. Instead, it is merely a reflection of the diversity and complexity of the community, as well as a reflection of the prominence (or lack of prominence) of the issue itself in the national context.

The agenda-building effects demonstrated in this study are clearly limited. Agenda building in the face of declining national interest in a topic is particularly difficult. Agenda-building efforts under these conditions might more realistically be aimed at reducing the rate of decline in coverage rather than increasing the amount of coverage. The public health significance of halting or slowing the decline of news coverage of a public health issue is the potential impact of media agendas on the policy agendas of elites (Wells et al., 2001). In some cases, public officials use news media coverage as a surrogate indicator of public interest in a topic (Tipton, 1992). By keeping an issue in the news agenda, community organizers and media advocates may find more success in influencing the policy agenda (Finnegan et al., 1989).

Newspaper content is primarily a reflection of organized activity within the community. With any community change campaign, the cooperation of leadership groups is crucial and newspaper content, particularly weekly newspaper content, reflects this cooperation.

Media agenda building is the process of community groups, policy makers, and media interacting to shape media content [(Berkowitz, 1992), p. 87]. The assumption is that agenda building involves introducing new topics to the community. However, it could be argued that waning media interest in a group’s topic is a more common condition. Local media can be expected to devote a token amount of attention to a health promotion group’s topic, but eventually move on to other stories with a more current news ‘peg’. The common challenge for groups seeking to influence content is to convince media gatekeepers of the value of ongoing coverage of enduring and underreported problems related to public health. Agenda building, then, can be conceptualized more fully as including agenda maintenance processes as well as agenda-building processes.

A limitation to be addressed here is the lack of evidence of impact on the target audience of the BCSC. This study set out to provide a process evaluation of the media agenda-building objective within the larger multi-strategy campaign.
Conditions that are likely to affect media agenda building or media advocacy activities include newspaper type, in combination with community type. Media agenda building is only one step in the direction of improving the quality of life of citizens in the community. However, for health issues dependent upon policy change at a local level, media agenda building could be even more significant (Finnegan et al., 1999).

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References


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