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## Impact of *Weight of the Nation* Community Screenings on Obesity-Related Beliefs

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### Abstract

**Introduction**—HBO's *Weight of the Nation* was a collaborative effort among several national organizations to raise awareness about the complexity of the obesity epidemic and promote action through media and community forums. The primary aim of this study was to assess the short-term effects of *Weight of the Nation* community screenings on obesity-related beliefs, intentions, and policy support.

**Methods**—Five Prevention Research Centers across the U.S. administered surveys at nine *Weight of the Nation* community screenings between September 2012 and May 2013. Adults aged 18 years who completed pre–post surveys were included. The survey assessed demographic information, perceptions of the documentary, efficacy to take action and influence policies that affect obesity, intentions to take actions to support a healthy weight, and positions on policy changes that impact food systems. Data were analyzed in 2015.

**Results**—A convenience sample of 442 individuals completed surveys. The sample was mostly health workers, female, college educated, aged 25–44 years, and racially and ethnically diverse. Significant increases ( $p < 0.001$ ) were observed for perceived self- and collective efficacy that individuals and communities can influence policies and environmental factors that affect obesity, intentions to take actions that contribute to a healthy weight, and support for policies that change the food system.

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#### SUPPLEMENTAL MATERIAL

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**Conclusions**—A broad, nationwide effort, such as *Weight of the Nation*, that combines media with opportunities to bring community members together for discussion, may play a role in influencing beliefs, intentions, and policy support regarding obesity prevention.

## INTRODUCTION

The prevalence of obesity among children and adults in the U.S. more than doubled between the 1960s and 2004.<sup>1</sup> Currently, approximately one in three adults and one in six children aged 2–19 years are considered obese.<sup>2</sup> The physiologic, psychosocial, and economic consequences of obesity have substantial implications for the health and well-being of individuals and the population at large.<sup>3</sup> The increased burden to individuals and society reinforces the importance of advancing obesity prevention efforts. Such efforts will require both individual and collective approaches to support changes that impact the places where people “live, work, play, and learn.”<sup>4</sup>

Communication and media campaigns provide an opportunity to define social problems, reach large audiences, and shape what people think.<sup>5</sup> Campaigns have influenced a range of health behaviors with modest effects on health-related knowledge, beliefs, attitudes, and behavior change.<sup>6–9</sup> HBO, in collaboration with the Institute of Medicine, Centers for Disease Control and Prevention (CDC), NIH, Michael & Susan Dell Foundation, and Kaiser Permanente, created the *Weight of the Nation* documentary to raise awareness about the complexity of the obesity epidemic and promote individual and community action to reduce obesity in the U.S. *Weight of the Nation* included a four-part documentary series, social media campaign, and a nationwide community-based outreach campaign that debuted in May 2012.<sup>10</sup>

*Weight of the Nation* is the first documentary-based campaign to address obesity at a national level in the U.S.<sup>11,12</sup> Media campaigns and documentaries attempt to change behavior by either making logical or emotional appeals directly to individuals that could impact decision making and behavior, or indirectly by setting an agenda for public conversation that can ultimately impact social networks and political processes.<sup>8</sup> However, they differ fundamentally in that mass media campaigns typically offer repeated exposure over time, whereas documentaries offer the opportunity to address challenging topics in a longer, but single-exposure, format.<sup>8,12</sup> As little is known about the ability of documentaries and community screenings to change perceptions about health and social issues, including obesity,<sup>12,13</sup> this project aimed to assess the short-term effects of community screenings and facilitated discussions of the *Weight of the Nation* documentary on self- and collective efficacy, intentions, and support for policy changes. It was hypothesized that individuals who participated in a community screening of *Weight of the Nation* would experience increases in self- and collective efficacy to influence obesity-related factors, intentions to take action in the next 6 weeks, and support for obesity-related policy changes.

## METHODS

### Study Design

Screening kits were developed to help communities organize screenings of *Weight of the Nation* and facilitate group discussions about potential multilevel approaches to combat the obesity epidemic. To promote screenings, CDC's Prevention Research Centers (PRCs), a network of community and academic partnerships that conduct community-based public health research to address chronic disease prevention,<sup>14</sup> worked with community partners to evaluate locally hosted screenings and discussions. This real-world initiative provided an opportunity for a collaborative research effort across the PRC network to evaluate the impact of such events. A pilot study was conducted to assess changes in self- and collective efficacy, intentions, and support for policy changes after participating in a *Weight of the Nation* documentary community screening and discussion.

The PRC network, 32 centers, was e-mailed about administering surveys at local screenings. Five centers (15.6% response rate) across the Northeast, Southeast, Midwest, and Southwest agreed to administer the survey. Participating centers included the UMass Worcester PRC, the New York University–City University of New York PRC, the University of South Carolina PRC, the PRC in St. Louis, and the University of New Mexico PRC. These centers helped evaluate a total of nine screenings in a variety of community settings between September 2012 and May 2013. Community settings included classrooms, medical centers, movie theaters, and research centers. The screenings consisted of viewing a portion of the documentary and a facilitated discussion about how communities can prevent and control obesity. Because these community events were planned locally, sites selected which portion(s) of the four-part documentary—Consequences, Choices, Children in Crisis, and Challenges—or 12 shorts to screen and discuss. Each part of the documentary has a running time of approximately 70 minutes, and the shorts last 20–30 minutes. Three of the screenings in this study featured the Challenges segment, three featured the Poverty and Obesity video short, and three featured clips from each of the four segments. The sample included adults aged 18 years who attended one of the nine screenings and completed a pre–post survey. The number of people attending screenings ranged from eight to 280, with a median of 34. The IRB for human subjects at the University of North Carolina, Chapel Hill, gave this study an exempt status owing to the anonymous nature of the survey and its non-sensitive content.

### Measures

Participants completed a self-reported survey before and immediately after the screening and discussion of the *Weight of the Nation* documentary. A 70-item survey was developed for this study (Appendix, available online) with input from participating PRCs. The pre–post items on the survey assessed constructs important to the enactment of health behavior.<sup>15,16</sup> One item assessed self-efficacy for achieving a healthy weight (*I believe I can achieve or maintain a healthy weight*) and two items ( $\alpha=0.86$ ) assessed self-efficacy for influencing community-level changes on obesity (*I believe I can influence policies that affect obesity* and *I believe I can influence factors in the environment that affect obesity*). Two items ( $\alpha=0.88$ ) assessed collective efficacy for influencing community-level changes on obesity (*I*

*believe my community can influence policies that affect obesity and I believe my community can influence factors in the environment that affect obesity*). A 5-point scale was provided for participants to rate their efficacy, from 1 (*not at all confident*) to 5 (*extremely confident*). The survey also included one item to assess intentions for achieving a healthy weight (*I intend to take action toward achieving or maintaining a healthy weight for myself*) and two items ( $\alpha=0.91$ ) for intention to influence community action on obesity (*I intend to take action to influence policies that promote healthy weight* and *I intend to take action toward making my community an environment that promotes healthy weight*). A 5-point scale was provided for participants to rate their intentions, from 1 (*extremely unlikely*) to 5 (*extremely likely*). The survey also asked individuals to rate their support or opposition to three policy changes that impact the food supply (*restricting advertising of high-fat and high-sugar foods to children, increasing the price of less healthy foods, and changing government farm subsidies to encourage fruit and vegetable production*). Participants were able to rank their opinion on a 5-point scale, from 1 (*strongly oppose*) to 5 (*strongly support*). After viewing the documentary and participating in a facilitated discussion, participants answered items regarding perceptions about the credibility and impact of the documentary and discussion as well as perceptions about the effectiveness of the documentary to prompt change at individual, community, and policy levels, using a 5-point scale ranging from 1 (*negative*) to 5 (*positive*). Finally, demographic information was collected from participants.

### Statistical Analysis

Demographic characteristics of individuals and their perceptions of the documentary were summarized with descriptive statistics including proportions for categorical data and means and SEs for continuous data. Paired-sample *t*-tests were used to compare the pre- and post-test changes (before versus after participating in the screening) for self- and collective efficacy, behavioral intentions, and support for policies that may affect obesity. ANOVAs with Tukey post hoc comparisons were performed to compare the pre- and post-test changes across BMI categories. Cronbach's  $\alpha$  was used to assess internal consistency of items in the measure. Data were analyzed in 2015 using SAS, version 9.3.

## RESULTS

A total of 596 individuals attended a *Weight of the Nation* documentary screening, and a sample of 442 individuals (74.2% response rate) completed surveys before and after the event. Table 1 details the characteristics of the group. The geographically diverse convenience sample of adults largely consisted of women (80.1%) and college-educated individuals (76.9%) who volunteer or work in a health-related field (80.5%) but spend <50% of their time working on obesity-related issues (79.5%). The sample had racial and ethnic diversity, with a majority reporting white (55%) followed by Hispanic or Latino (22.9%). A majority of individuals in the sample had a normal BMI (54.3%) and perceived themselves to be in good, very good, or excellent health (86.2%).

Table 2 presents participants' perceptions of the *Weight of the Nation* documentary and subsequent discussion. Overall, participants had a very positive reaction to the documentary

and discussion. The mean ratings on a 5-point scale, with 5 indicating very positive, were consistently >4. This indicates participants perceived the documentary as trustworthy, accurate, intellectually stimulating, convincing, and fair, among others. They also felt the documentary would be effective in getting people to take action to achieve or maintain a healthy weight, make one's community an environment that promotes healthy weight, and influence policies that may promote healthy weight. All of the organizations and individuals affiliated with and highlighted in the documentary were thought to positively impact its credibility. However, participants particularly felt that production by the Institute of Medicine and association with CDC and NIH enhanced credibility. They also rated testimonials from individuals struggling with obesity, data and statistics, expert input, and perspectives from other community members as positive attributes of the documentary that enhanced its credibility. Conversations that took place after viewing the documentary were rated as constructive.

Changes in self- and collective efficacy, intentions, and support for policy changes regarding individual and community-oriented actions related to obesity were examined (Table 3). Participants reported modest increases in self-efficacy (mean change, +0.23; 95% CI=0.17, 0.30;  $p<0.001$ ) and intentions (mean change, +0.19; 95% CI=0.12, 0.25;  $p<0.001$ ) to achieve a healthy weight. They reported slightly larger increases in self-efficacy (mean change, +0.33; 95% CI=0.25, 0.41;  $p<0.001$ ) and intentions (mean change, +0.35; 95% CI=0.28, 0.42;  $p<0.001$ ) to influence community-level changes on obesity. They also reported an increase in collective efficacy to influence community-level changes on obesity (mean change, +0.25; 95% CI=0.18, 0.33;  $p<0.001$ ). Lastly, participants reported increased support for policies that restrict advertising of less healthy foods to children (mean change, +0.18; 95% CI=0.10, 0.26;  $p<0.001$ ); increasing the prices of less healthy foods (mean change, +0.37; 95% CI=0.29, 0.45;  $p<0.001$ ); and changing government subsidies to encourage fruit and vegetable production (mean change, +0.24; 95% CI=0.17, 0.31;  $p<0.001$ ). When changes were examined by BMI category, the only statistically significant difference noted ( $p<0.05$ ) was change in self-efficacy to achieve a healthy weight (Appendix Table 1, available online). Underweight individuals reported greater increases than normal-weight individuals (mean change, +0.53; 95% CI=0.35, 0.71;  $p<0.05$ ) and obese individuals reported greater increases than normal-weight and overweight individuals (mean change, +0.57; 95% CI=0.47, 0.67;  $p<0.05$ ).

## DISCUSSION

This study aimed to assess the short-term effects of the *Weight of the Nation* documentary on self-efficacy, collective efficacy, intentions, and support for policies that affect obesity. This sample of adults, who mostly work or volunteer in the health field and were identified by PRCs through screenings hosted by local community partners, had positive impressions regarding the documentary's presentation of the obesity epidemic in the U.S. They also had a positive impression of the credibility of those who contributed to its development and the conversations that expanded on the content of the documentary. They believed the documentary would be effective in promoting individual and community action to promote healthy weight. However, it is interesting to note that items related to influencing **policies and factors** that affect obesity consistently scored lower than those addressing actions an

**individual** can take to achieve or maintain a healthy weight, perhaps reflecting the very real challenges in changing policies that affect obesity. Additionally, small but statistically significant increases were noted in levels of confidence that individuals can achieve a healthy weight and that individuals and communities can influence policies and environmental factors that affect obesity. There was also some positive movement in the likelihood of taking actions in the next 6 weeks to achieve a healthy weight, contribute to community changes that influence obesity, and support policies that modify the food environment.

These results support previously reported findings from a smaller study in a rural community that suggested viewing *Weight of the Nation* increased efficacy and intentions to make changes that could affect obesity.<sup>13</sup> However, results differed in that the current study detected a statistically significant increase in support for each of the policies. Although evaluations of the effects of regional and international obesity-focused mass media campaigns have measured impact on knowledge, attitudes, intentions, and obesity-related behaviors, to the authors' knowledge, this is the first evaluation of the impact of a documentary screening in the U.S. Although the effects of mass media campaigns for obesity are mixed, there is some evidence to support campaigns having short-term effects of increasing knowledge, attitudes, intentions, and behaviors that can reduce obesity.<sup>11,17–20</sup> These results contribute evidence that documentaries screened in a community setting may be a useful source of information and motivation that can impact beliefs.

Previous work indicates that the ways in which messages are framed and the use of narratives may influence support for policy and action for public health and social issues such as obesity.<sup>21,22</sup> The ways messages are framed can impact people's thinking about who is responsible for social issues and how those issues are addressed,<sup>23,24</sup> and narratives may provide a mechanism for changing attitudes by creating opportunities for observational learning, diminishing counterarguments, and promoting empathy, particularly when individual responsibility is highlighted.<sup>23,25</sup> The results of this study suggest the way in which *Weight of the Nation* portrayed experts and testimony from those who struggle with obesity may have achieved a delicate balance between acknowledging personal responsibility and societal contributions that helped increase support for policy and collective solutions.<sup>17,26</sup>

Obesity prevention efforts will require both individual and collective approaches to support widespread change.<sup>4</sup> Documentaries and facilitated discussions may be an effective approach to increase self- and collective efficacy, support for policy changes, and behavioral intentions for taking actions that affect obesity over the short term. However, these results showed people had more confidence in taking action for self than for their community, and they were more confident that their community could influence policies and factors that affect obesity than they could as an individual. Given that policy changes can have more-consistent and wide-reaching effects on behavior than individual approaches,<sup>27</sup> structured discussions that result in tangible community action groups or plans may help enable action for community-level change.

## Limitations

Although PRCs across the country worked with community partners to organize community screenings, these centers are located at either a school of public health or a medical school that has a preventive medicine residency program. Therefore, this may be why this convenience sample produced a fairly homogenous group of college-educated individuals who volunteer or work in health-related fields. Though this limits the generalizability of these results, and perhaps demonstrates a missed opportunity to identify the effects of the documentary and discussion on underserved populations, this does show that a health-educated audience could become newly motivated to take action about the obesity epidemic. Given the nature of the pre–post survey, evidence is limited to self-reported, short-term outcomes regarding attitudes and intentions. It is unknown whether these short-term changes in attitudes and beliefs were sustained or led to behavior change. Additionally, without a control group, it is unclear whether reported changes resulted from the screening or were an artifact of respondent bias, and because of variation in video clips and discussion, it is difficult to pinpoint the effective components of the documentary and screening event. Although viewing the same content and having a control group would have been ideal, the real-world setting of this intervention effort prevented this possibility.

## CONCLUSIONS

The PRC network of CDC facilitated an opportunity to obtain a sample from diverse geographic locations to evaluate a real-world intervention. The evidence suggests *Weight of the Nation* screenings were well received and that they may have had a short-term impact. Opportunities for future research include assessing the impact of health-related documentaries and facilitated discussions on individual behaviors of a more general audience, the ability to facilitate environmental and policy changes, as well as the cost effectiveness and sustainability of such an approach. Finding ways to capitalize on media opportunities that bring groups of people together to promote strategies that reduce obesity may motivate action and improve public health.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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**Table 1**

Characteristics of Survey Respondents From Nationwide PRC-Sponsored Screenings of *Weight of the Nation* (N=442)

Demographic characteristics	n (%)
Age (years)	
18–24	79 (17.9)
25–34	116 (26.2)
35–44	82 (18.6)
45–64	144 (32.6)
65	16 (3.6)
Sex	
Male	85 (19.2)
Female	354 (80.1)
Race/ethnicity	
White	243 (55.0)
Black	43 (9.7)
Hispanic or Latino	101 (22.9)
Asian-Pacific Islander	33 (7.5)
American Indian or Alaska Native	4 (0.9)
Multiracial or other	9 (2.0)
Education	
Less than high school	3 (0.7)
High school graduate/GED	31 (7.0)
Some college	68 (15.4)
College degree	173 (39.1)
Graduate degree	164 (37.1)
BMI	
Underweight	19 (4.3)
Normal weight	240 (54.3)
Overweight	114 (25.8)
Obese	69 (15.6)
Perceived health	
Poor	11 (2.5)
Fair	41 (9.3)
Good	170 (38.6)
Very good or excellent	210 (47.6)
Ever told overweight or at risk of overweight	
Yes	147 (33.3)
No	278 (62.9)
Don't know	8 (1.8)

<b>Demographic characteristics</b>	<b><i>n</i> (%)</b>
Perceived weight status	
Underweight	13 (2.9)
About right	216 (48.9)
Overweight	197 (44.6)
Don't know	8 (1.8)
Paid or volunteer work in health-related field	
Yes	356 (80.5)
No	82 (18.6)
Time spent on obesity-related issues in employment <sup>a</sup>	
None	99 (27.8)
1–49%	184 (51.7)
50–100%	71 (19.9)

<sup>a</sup>Reported only for the 356 individuals who stated they work in a health-related field.

GED, General Educational Development test; PRC, Prevention Research Centers.

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**Table 2**Viewer Perceptions of *Weight of the Nation* Documentary and Group Discussion<sup>a</sup>

Characteristic	M (SE)
General impressions	
Trustworthy	4.63 (0.03)
Accurate	4.54 (0.04)
Fair	4.46 (0.04)
Tells the whole story	4.10 (0.05)
Unbiased	4.09 (0.05)
Intellectually stimulating	4.49 (0.04)
Presents clear information	4.52 (0.04)
Reveals new information	4.24 (0.05)
Memorable	4.42 (0.04)
Convincing	4.47 (0.04)
Perceived effectiveness for getting others to take action to...	
Achieve or maintain a healthy weight	4.02 (0.04)
Make community environments promote healthy weight	3.89 (0.04)
Influence policies that promote a healthy weight	3.84 (0.04)
Perceptions of credibility	
Produced by HBO	3.71 (0.05)
Produced by Institute of Medicine	4.36 (0.04)
Association with Centers for Disease Control and Prevention	4.40 (0.04)
Association with National Institutes of Health	4.36 (0.04)
Partnership with Kaiser Permanente	3.85 (0.05)
Partnership with Michael and Susan Dell Foundation	3.69 (0.04)
Explanations by experts	4.25 (0.04)
Testimonials from those struggling with overweight/obesity	4.33 (0.04)
Perspective offered by other community members	4.25 (0.04)
Presentation of data/statistics	4.31 (0.04)
Perceptions of group discussion <sup>b</sup>	
Constructive conversation	4.14 (0.06)

<sup>a</sup>Based on a 5-point scale, 1 (*very negative*) to 5 (*very positive*).

<sup>b</sup>Reported only for those who provided responses about the discussions ( $n=284$ ).

**Table 3**

Short-term Change in Self-efficacy, Collective Efficacy, Intentions for Action and Support for Policy Changes

Characteristic	Pre Mean (SE)	Post Mean (SE)	Mean Change (95% CI)
Self-efficacy for achieving a healthy weight (individual)	4.07 (0.05)	4.31 (0.04)	<b>0.23 (0.17, 0.30)</b>
Self-efficacy for community-level change on obesity	3.15 (0.05)	3.48 (0.05)	<b>0.33 (0.25, 0.41)</b>
Collective efficacy for community-level change on obesity	3.59 (0.04)	3.84 (0.04)	<b>0.25 (0.18, 0.33)</b>
Intentions for achieving a healthy weight (individual)	4.31 (0.04)	4.49 (0.04)	<b>0.19 (0.12, 0.25)</b>
Intentions for community action on obesity	3.21 (0.05)	3.55 (0.05)	<b>0.35 (0.28, 0.42)</b>
Support for policy changes that may affect obesity			
Restricting advertising of high-fat and high-sugar foods to children	4.33 (0.05)	4.51 (0.04)	<b>0.18 (0.10, 0.26)</b>
Increasing the price of less healthy foods	3.72 (0.06)	4.12 (0.06)	<b>0.37 (0.29, 0.45)</b>
Changing government farm subsidies to encourage fruit and vegetable production	4.41 (0.04)	4.64 (0.03)	<b>0.24 (0.17, 0.31)</b>

*Note:* Boldface indicates statistical significance ( $p < 0.001$ ). Paired *t*-tests were used to test for differences between the pre and post survey responses.