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Charitable food as prevention: Food bank leadership perspectives on food banks as agents in population health

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Abstract

Food banks (FBs) and their partner agencies play important food access roles in nearly every US community. While FB missions have historically emphasized hunger alleviation, stakeholders are increasingly expressing interest in leveraging these community assets to promote health. We conducted semi-structured interviews with US FB executives (n=30) to explore their perspectives on the evolving role of FBs in community health, and how these perspectives relate to organizational efforts to distribute healthier foods, including fruits and vegetables (F&V). All but one executive reported actively working to increase F&V distribution; however, fewer executives had implemented nutrition policies. Executives reporting higher F&V distribution more often described health as central to their organization's mission and perceived charitable food program clients as being at high risk for chronic disease. FB leadership recognition of health and hunger as interrelated community issues may have direct implications for FB strategic planning, distribution practices, and policies related to F&V.

Keywords

Food bank; fruit and vegetables; health promotion; health disparities; nutrition policy; food assistance

Introduction

The charitable food system, comprised of food banks (FBs) and the food pantries and other meal programs to which they distribute food, play important food access roles for vulnerable

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populations in nearly every community in the US (Feeding America, 2018; Mabli, Jones, & Kaufman, 2013). While the charitable food system was originally developed for the warehousing and distribution of shelf-stable food to families with emergency needs, FBs and their partner organizations increasingly serve families on a routine basis (Weinfield et al., 2014). An estimated 84% of households accessing these community-based organizations are food insecure, defined as the limited or uncertain availability of nutritionally adequate foods (Weinfield et al., 2014). Food insecurity is associated with greater odds for chronic disease, including diabetes, hypertension, and obesity (Dinour, Bergen, & Yeh, 2007; Laraia, 2013; Seligman, Laraia, & Kushel, 2010; Weinfield et al., 2014), which all require healthy food access for their prevention and management. For example, fruits and vegetables (F&V) are an important component of healthy diets (United States Department of Agriculture, 2017), and higher levels of F&V consumption are protective against cancer, coronary heart disease, stroke, and hypertension (Van Duyn & Pivonka, 2000), yet persons living in food insecure households are less likely to consume F&V compared to their food secure counterparts (Tingay et al., 2003).

Although the missions of charitable food programs have historically emphasized meeting immediate basic needs (i.e. hunger alleviation), there has been growing interest over the past decade among public health planners and policy makers in the use of these community assets for community-based health promotion programs (Campbell et al., 2015; Dave, Thompson, Svendsen-Sanchez, McNeill, & Jibaja-Weiss, 2017; Seligman et al., 2015). However, FBs vary widely in their healthy food distribution practices, particularly perishable foods such as fresh F&Vs and low-fat dairy (Akobundu, Cohen, Laus, Schulte, & Soussloff, 2004; Irwin, Ng, Rush, Nguyen, & He, 2007; Simmet, Depa, Tinnemann, & Stroebel-Benschop, 2017). While national FB network nutrition guidelines have been proposed, no universal standard exists (Campbell, Ross, & Webb, 2013; Shimada, Ross, Campbell, & Webb, 2013). However, the Feeding America national office, which provides technical and other forms of support to over 200 member FB organizations across the US, has established a goal that 50% of the food distributed by Feeding America-affiliated FBs be fresh F&Vs by 2025 (Feeding America, 2017). Likewise, national studies indicate that partner programs and charitable food clients increasingly desire healthier foods (Weinfield et al., 2014). Collectively, these data indicate an endorsement across multiple community stakeholders for an expanded role of FBs to encompass nutrition and health.

FB executive leaders represent key decision makers within the charitable food system and play an important role in developing, implementing, and enforcing organizational policies. While past research indicates that many FB executives support improving the nutritional quality of FB inventory, some may be ambivalent (Campbell et al., 2013; Shimada et al., 2013). Executive leaders shape organizational practices, policy, and culture through their own beliefs, values, and attitudes (Batras, Duff, & Smith, 2016), and within the non-profit setting, these characteristics may be of even greater consequence on organizational culture than for-profit corporations (Teegarden, Hinden, & Sturm, 2010). For example, one previous case study described the impact of an FB executive's values of customer service and systems improvement, which led to gains in staff and volunteer productivity in the areas of food safety, number of clients served, and hours of operation (Teegarden et al., 2010). Thus, FB executive perceptions on the relationships between hunger and health, and the resulting

implications for food banking, may similarly provide insights into how FB-initiated health promotion policies and programs are formed, implemented, and institutionalized (Robinson, Driedger, Elliott, & Eyles, 2006).

Earlier studies of FB executive perspectives on improving the nutritional quality of charitable food concluded that while many voiced their support of nutrition-related initiatives, few had implemented any formal nutrition policies (Campbell et al., 2013; Handforth, Hennink, & Schwartz, 2013). One study conducted in 2010 that drew from a national sample of FB directors concluded more research was needed on the relationships between policies and the nutritional quality of food distributed, as well as on the leaders within the nutrition-based FB movement to help inform best practices across the US (Handforth et al., 2013). Since this time, various white papers, reports, and national conferences have focused on the topic of nutrition-focused food banking (Campbell et al., 2015). Thus, gaining current insight into how FB executives perceive and execute their organization's evolving role in community health is important for further advancing local and national FB policy change efforts to address food insecurity-related nutrition disparities.

The "Foodbanking Research to Enhance the Spread of Healthy Foods" (FRESH-Foods) Study was designed to identify nutrition-related opportunities, challenges, and programmatic priorities of US FBs, as well as to elucidate national executive leadership perspectives on the role of food banking in population health. It was conducted within the nation's largest charitable feeding network, which is comprised of approximately 200 FBs that collectively supply low- and no cost foods to over 60,000 food pantries and meal programs for redistribution to clients (Weinfield et al., 2014). Here, we describe the FRESH-Foods study's findings on how FB executives view the role of their organizations as agents in community health, including their perceptions about the health needs of charitable food clients and the degree to which FBs can expand their mission in response to these needs. We additionally explore how these leaders have responded to their community's health needs through nutrition-related policies and practices, including those related to F&V distribution. As a secondary aim, we explore the degree to which these leadership perspectives, policies, and practices relate to F&V distribution at the organizational level.

Methods

Sampling Methods

This qualitative study used maximum-variation sampling to ensure a diverse representation of FBs across the Feeding America national network. At the time of sampling, we identified 199 FBs in the network. We first classified these FBs by the amount of fresh F&V currently distributed (measured by percentage of overall fresh produce pounds out of all food pounds). This measure was selected as a proxy marker for the overall healthfulness of FB inventory because it was the common metric available for all FBs. At the time of sampling, produce distributed by most FBs in the network comprised roughly one-quarter of total food pounds or less. Therefore, after dividing FBs into three equal tertiles, "high F&V distribution" was defined as ≥28% of total food pounds, "intermediate" as 17–27%, and "low" as <17%. Since community resources and regional availability of F&V may influence a FB's ability to expand nutrition and health-related initiatives, we additionally stratified FBs by these

characteristics according to tertiles for both of these factors. The final sample included 192 FBs with complete data for all three sampling criteria. See Table 1 for an illustration of the FB classification strategy that was used to inform the study's sampling strategy.

After assigning each of the 192 FBs into "high," "intermediate," and "low" tertiles based on the three sampling criteria, we then randomly selected one FB from within each of the 27 resulting cells. We then chose three additional FBs from larger states with wide variability in F&V availability to ensure representation of the produce availability in the state as a whole. Our final sample size of 30 exceeded the minimum recommendation for number of interviews for exploring common perspectives and major themes on a particular issue, which was the primary aim of our analysis (Guest, Bunce, & Johnson, 2006). The University of California San Francisco Committee on Human Research and the University of Oklahoma Health Sciences Center Institutional Review Board approved this study.

Participant recruitment

Executive leaders are commonly used as key informants in FB research (Handforth et al., 2013). We therefore contacted the Executive Director (ED) or Chief Executive Officer (CEO) of each selected FB via e-mail to request participation in a semi-structured interview. We contacted 49 executive leaders to achieve our target representative sample size of 30 participants (61% response rate), representing 15.6% of all FBs included in our sampling design. If an ED or CEO did not agree to participate, failed to respond to e-mails, or cancelled after scheduling an interview, we contacted the ED/CEO of the next FB on a randomly ordered list within the same cell to recruit the target representative sample size. Of those EDs/CEOs who were selected, but declined to participate or cancelled an interview, seven represented low-, six represented intermediate-, and six represented high-F&V distributing FBs. All participants were over the age of 18.

Interview procedure

M.S.W. or H.K.S. conducted the semi-structured interviews between April 2015 and January 2017. These interviews were primarily conducted in person at conferences ($n = 27$). For those participants who were unable to participate in person, the remaining interviews ($n = 3$) were conducted by phone since telephone interviews can be an acceptable alternative for face-to-face interviews (Rahman, 2015). Interviews averaged approximately one hour (36–82 minutes) and were recorded using an encrypted audio recorder to allow for verbatim transcription. Participant compensation was a \$100 gift card. We obtained written informed consent for all in-person interviews and verbal consent for all telephone interviews.

Question path

The FRESH-Foods study used a question path consisting of 28 open-ended main questions and 19 additional clarifying probes that were first tested and refined after a pilot interview with one ED/CEO, in accordance with the general guidelines of field-testing semi-structured interview question paths prior to beginning data collection (Kallio, Pietilä, Johnson, & Kangasniemi, 2016). The items from this question path that are relevant to the aims of this article include six main questions and five clarifying probes that aimed to elicit: 1)

leadership perspectives on FBs as agents in community health, and 2) policy approaches for increasing healthy food inventory (Table 2).

Data analysis

We deductively developed a codebook, based on expected themes from the past literature, author personal experience, and content from the semi-structured question path. For these analyses, we specifically reviewed interviews for salient themes relevant to our research questions, and that were consistent with our semi-structured interview questions, including an executive's length of food banking experience, perceptions about community health needs, health as a component of food banking mission, F&V distribution goals, and nutrition policies. We additionally compared responses from leaders of FBs according to F&V distribution levels to characterize any distinguishing patterns in themes by organizational type. To minimize the risk for bias, two members of this study's co-research team (manuscript co-authors M.S.W. and K.C.W.) conducted independent transcript-based content analysis based on *a priori* themes in the codebook using qualitative analysis software (Atlas.ti 7.5.16, Scientific Software Development, Berlin, Germany) (Atlas.ti, 2016). One of the coders (K.C.W.) was not present during any of the interviews, which helped to further prevent bias. This was followed by a second round of analysis to develop and assign codes for emergent themes. For codes used in this sub-analysis, we used the online Coding Analysis Toolkit (Shulman, n.d.) to assess inter-coder reliability; the percent agreement for all codes (85.3%) met the minimum requirement of 85% (MacQueen, McLellan-Lemal, Bartholow, Milstein, & Guest, 2008). Discrepancies were resolved through mutual consensus. The results from the final analyses were shared and discussed with peers in the national food banking community to further support the credibility of our findings.

During each interview, participants confirmed current levels of F&V distribution. We re-categorized the interview for analysis if the current F&V distribution levels were different from those at the time of sampling, resulting in reclassification of 7 of the 30 interviews. In order to explore similarities and differences across the groups, frequencies for themes were calculated based on the number of participants from each of the three F&V distribution groups who mentioned a particular theme or attitude (Namey, Guest, Thairu, & Johnson, 2008). Descriptive statistics (mean, standard deviation, range) for years of executive experience, ranges for reported percentage of F&V distributed, and goals for F&V distribution were calculated using Excel (Microsoft, 2010, Redmond, WA) (Microsoft, 2010).

Results

On average, executives had more than a decade of food banking experience ($M=13.4$ years, $SD=8.2$), with a range of 1 to 28 years and represented FBs operating in each region of the United States, including Western ($n=6$), Midwestern ($n=10$), Northeastern ($n=3$), and Southern ($n=11$) area FBs. Results are organized according to salient themes related to leadership perspectives, followed by those for nutrition policies, and concluding with a summary of any notable differences identified in our analyses between organizations with high/intermediate vs. low F&V distribution.

Leadership perspectives on FBs as agents in community health

Executives were asked about their perception of chronic disease burden in their local community and whether their FB was in a position to contribute to client or community health as opposed to an exclusive mission of hunger alleviation. All executives thought that chronic conditions, namely obesity, diabetes, and heart disease, were problems that affected clients in their communities to some degree, with most, but not all, accurately acknowledging that populations accessing charitable food programs experience higher rates of chronic disease. The near universal finding of this study was a shared endorsement across the vast majority of executives that FBs have some role to play in nutrition education and health promotion. In general, this theme was exemplified by executives feeling a responsibility to better align their food inventory with the health needs of charitable food program clients, often reflected by new strategic initiatives to support fresh F&V distribution.

Policy approaches for healthy food inventory

When asked about their produce distribution goals, executive responses ranged widely from 10–80% of total food pounds. Many (n = 11) executives mentioned wanting to at least double their current distribution, and all but one executive wanted to increase F&V distribution above their FB's current distribution level. This one executive reported the highest current distribution of fresh F&V (52% of total pounds) in the sample and did not want to further increase distribution, stating this current level of distribution is consistent with MyPlate guidelines of 50%.

In general, executives described multiple organizational practices and policy approaches related to healthy food inventory sourcing, including only purchasing healthy foods (n = 7), actively encouraging healthy donations (n = 4), establishing formal internal goals for level of healthy inventory (n = 4), having unhealthy food donation refusal guidelines (n = 5), and not paying transport for unhealthy donated foods (n = 3). A summary of these identified policies with definitions and illustrative quotes is presented in Table 3.

Although many acknowledged nutrition policies as important for promoting health and distributing nutritious foods, one-third of our sample (n=10) reported having no official nutrition guidelines. Among those reporting no established, formal nutrition policies, two major barriers were typically cited: an overall lack of food donations/inventory and fear of offending or jeopardizing relationships with national or local community donors.

“I don't think that they [FB Board of Directors] would be interested in being a FB that turns down food. I think, we like to say we accept everything. It's because we just don't have that much food coming into the FB. It would be hard for us to say that we're turning down food when we really just don't ... We struggle just to keep our shelves full.”

– ED/CEO of a FB with low F&V distribution, low F&V availability, and low resources

A related barrier reported by some executives was a lack of enthusiasm from the national organization to implement national donor policies.

“We had our Feeding America audit this year and we were told that we must pick up from all of the preferred [retail food donors]... all those that they have partnerships with, to which we said, ‘Well, the only thing we’re getting from [large grocery store chain] is garbage. We’re getting cakes, it’s six days old, or whatever, that’s coming from the bakeries. All things that we don’t want to be distributing.’”

– ED/CEO of a FB with high F&V distribution, high F&V availability, and low resources

A less-frequently cited reason for not establishing nutrition policy was related to leadership values of all foods being healthy in moderation.

“I have no intentions of fighting for that [guidelines or standards of practice on the nutritional quality of foods that the FB will accept]. I like the concept that Feeding America puts forth that all food has a place and [I] tie it specifically this week to Halloween candy. We did order candy because we knew Halloween was coming up and we knew that just because you’re a hungry family doesn’t mean your kids can’t have candy for Halloween. I agree with the concept that moderation is important.”

– ED/CEO of a FB with intermediate F&V distribution, low F&V availability, and low resources

Characteristics of FBs with high and low F&V distribution

While the initial sampling strategy evenly selected FBs across three levels of produce distribution, at the time of the interviews we found that many FBs initially classified as low and intermediate distributors had recently increased their distribution to a higher level. Among the six FBs with recent gains in F&V distribution that resulted in reclassification, the regional availability of F&V was proportionately higher (n=3, high availability; n=2, intermediate availability; n=1, low availability), as were resources (n=3, high resources; n=1, intermediate resources; n=2, low resources). Only one FB decreased F&V distribution since original categorization. This FB had low F&V availability and intermediate resources. The final reported levels of fresh F&V distribution in the interview sample ranged from 30–52% of total pounds for FBs with high distribution (n = 16), 18–26% for FBs with intermediate distribution (n = 6), and 3–14% for FBs with low distribution (n = 8). In our analyses, we identified many similarities between the perspectives of executive leaders from high and intermediate-distributing FBs as compared to those of leaders from low-distributing FBs. We therefore combined summaries of FBs with high and intermediate F&V distribution, followed by a summary of FBs with low F&V distribution.

High and intermediate F&V distributors

Executives of FBs with high F&V distribution typically provided detailed responses when asked about the health needs of the communities served by their FB, often citing research findings and disease prevalence estimates. These leaders primarily described chronic disease disparities as being greater among food insecure and charitable feeding program client populations than in the general population.

“In our community...more than 60% of the clients that we serve have hypertension...approximately 34% of the clients we serve have diabetes. Even if

we hadn't been on this journey already, looking at that, I don't think we have a choice. The people we serve are so sick. They are sick with diseases that either can be alleviated somewhat or can be prevented by the food that we distribute.”

– ED/CEO of a FB with high F&V distribution, low F&V availability, and high resources

Executives of FBs with high F&V distribution most often described health as a central component of their organizational mission, with frequent characterizations of disease being inseparable from the issue of hunger. Stemming from these perceptions, addressing community health needs was typically described as being a responsibility of the FB and an indicator of good community resource stewardship. Among the few in this subsample who described their FBs mission as primarily focused on hunger alleviation, health was still acknowledged as a complementary component. Like executives of high-distributing FBs, most executives of intermediate-distributing FBs generally saw health promotion as central to their mission, with few stating hunger alleviation was their organization's primary purpose.

“Our responsibility is to nourish not just feed. If we're just feeding, we don't care about the nutritional quality. If you look at missions of FBs all around the country, you're going to find nourish in there somewhere. Always you're going to find nourish. For us to be able to nourish our clients, there's a heavy component of fruits and vegetables. I think we bear a very high responsibility for that.”

– ED/CEO of a FB with high F&V distribution (previously categorized as intermediate distribution), intermediate F&V availability, and high resources

Produce distribution goals ranged between 40% and 80% among executives of FBs with high F&V distribution, with leaders of FBs with intermediate F&V distribution reporting similar, though slightly lower goals, ranging between 25% and 75% of total food pounds. When describing their FB's policy approaches for improving the nutritional quality of food inventory, no specific policy approach was salient across the sample of FBs with higher F&V distribution. However, the use of setting internal goals for healthy inventory and unhealthy food donation refusal guidelines were most commonly described among executives of high F&V distributing FBs. Internal goals for healthy inventory often centered around promoting the stocking of healthier foods, with a special focus on F&V, whole grains, and lean meats, while unhealthy food donation refusal guidelines often focused on not accepting certain foods (e.g. candy, desserts, soda, and snacks) (Table 3). These executives frequently described strategic planning efforts that focus on making a health impact in their local communities.

“We have made this, in our new strategic plan, create a whole food as medicine initiative where we're trying to encourage, distribute, and push fresh produce and other healthy foods.”

– ED/CEO of a FB with high F&V distribution, low F&V availability, and intermediate resources

Low F&V distributors

When asked about the health needs of their client population, very few executives provided explicit disease prevalence estimates for their communities, with most stating they did not have enough data to confidently quantify charitable food program client health needs.

“[In answer to the question about the burden of chronic disease in their clients] I would love some data on that [...]. I know we have many of the poorest...counties. I just feel like it’s probably pretty high...I don’t have that data.”

– ED/CEO of FB with low F&V distribution, low F&V availability, and low resources

Executives of these FBs also tended to provide vague or brief descriptions about their FB’s strategies for addressing population health. Some shared complacent views about their FB’s ability to have a major impact on community health through the foods it distributes, with half of this sample expressing a traditional food banking mission of hunger alleviation.

“Even if we only distributed fresh product, I don’t know that that would be enough to actually tip the scale. Can we make an impact? Yes. Is it a significant impact? Not in the general community, I don’t think so.”

–ED/CEO of a FB with low F&V distribution, low F&V availability, and high resources

“I see everybody in the hunger relief community here [...] having the same goals, and that is to just feed the hungry.”

– ED/CEO of a FB with low F&V distribution, low F&V availability, and high resources

However, several executives from low F&V distributing FBs voiced a strong commitment to providing charitable food program clients with access to nutritious foods, despite operating in communities with lower local F&V availability and limited resources.

“‘What would you put on your table? What are you serving your family?’ If you wouldn’t serve your family snack foods and sugary drinks and the things that we’re all trying to avoid on a regular basis then why would you expect that to be something that would be good for the families that we’re serving? It’s a matter of dignity.”

– ED/CEO of a FB with low F&V distribution, intermediate F&V availability, and intermediate resources

While F&V distribution goals included very low levels for some executives in this sample (as low as 10% of total food pounds), the majority of leaders from low F&V distributing FBs reported they wanted to “double” their current distribution of fresh produce in the future. However, when asked about formal nutrition policies, only one executive described formal implementation of internal goal setting for healthy food inventory.

Discussion

Findings from this study help to shed light on the evolving role of FBs in building healthy food access for the communities and populations they serve. We identified an increasing trend across the study's overall sample that indicates FBs are generally increasing the amount of fresh F&V they distribute, with nearly all executives acknowledging FBs have some role to play in shaping community health. Interestingly, we found that while most FB leaders have implemented one of several different policy approaches for a building healthier food inventory in their FBs, only two major barriers were consistently cited among those who had not yet implemented any nutrition policies.

One important finding was the recent increase in F&V distribution reported by many interview participants within our study sample compared to their FB's distribution levels at the time of original sampling. Many executives described recent national and local efforts to build fresh produce inventory capacity, which likely reflects shifting organizational norms within the charitable food sector to place a greater emphasis on healthy food distribution. Interviews endorsed this potential trend, with the predominance of executives favorably viewing health promotion initiatives as a central or supplementary component of existing FB services. This study also identifies an opportunity for public health stakeholders to capitalize on changing norms within the charitable food sector to explore the potential for new health programming partnerships. Our findings further underscore the need for broader discussions among medical, public health, and charitable feeding sectors about the intersection between food insecurity and health, since some FB leaders in this study reported lacking sufficient knowledge or local data on this issue. To address these knowledge gaps, health departments and hospitals should seek input from local food banks to ensure community health needs assessments (CHNAs) include charitable food populations. These community stakeholders should further seek input from local food banks when developing and implementing community health improvement plans (CHIPs). Together, these strategies can help to foster multi-sector collaborations to more comprehensively address the health needs of charitable food clients (Centers for Disease Control and Prevention, 2015).

Our findings suggest that a FB's distribution of healthier foods, specifically fresh F&Vs, may be partly influenced by the formal and informal nutrition policies implemented by its leadership. These policies may be shaped by leadership perceptions about the mission of food banking and community health needs. This study uniquely contributes to the literature by analyzing how FB executive attitudes toward health-focused food banking may influence F&V distribution practices. In this study, leaders of FBs with higher F&V distribution more often described population health as a central component of their mission, perceived charitable food program clients to be at a higher risk of chronic disease than the general population, and more commonly implemented unhealthful food donation refusal policies, when compared to executives of FBs with lower F&V distribution. Further, these executives more often demonstrated enthusiasm and provided detailed responses when describing their FB's strategic focus on health, possibly indicating greater executive-level engagement in health-related organizational initiatives, which may contribute to successful F&V distribution efforts.

However, we found several leaders of FBs with low F&V distribution who also strongly recognized the health implications of food banking. Yet, these leaders operated organizations in communities with limited access to local resources for improving quality of their food supply, which may make some nutrition policies, such as turning away less healthy food donations, impractical. The current study, like earlier research (Campbell et al., 2013; Handforth et al., 2013; Shimada et al., 2013), found that for some FB executives, a perceived lack of food donor support or fears of offending current donors is a persistent barrier to establishing formal nutrition guideline policies. Some executives in the current study additionally described a fear of pushback from the national organization regarding establishment of nutrition policies that limit what their FB can accept from national food donors. Similar to the evolution of norms at the level of the FB, the Feeding America national organization has also evolved in its approach to nutrition policy since these interviews began (Campbell et al., 2015). Collectively, these findings point to the need for local FBs and the national network to engage with current and potential food donor stakeholders to discuss the rationale behind the need for healthier food product, and to discuss the various policy and partnership approaches for achieving this aim.

Strengths and limitations

A major strength of the present study is the source of its overall sample, which systematically drew from the largest food banking network in the US. Executives representing FBs with different levels of local produce availability, community resources, and produce distribution were interviewed to achieve maximum representation in leadership perspectives. In addition, the use of a semi-structured question path permitted the interviewer to further explore executive perspectives on the various topics explored, which allowed for a deeper insight into the changing norms within food banking culture to include considerations of client health in addition to hunger.

The qualitative nature of this study describes various viewpoints among executive leaders of FBs with high, intermediate, and low levels of F&V distribution. These findings are intended to be hypothesis generating for future studies that may aim to explore the impact of various FB policies and practices on the successful implementation of chronic disease prevention programs, including those designed to reduce F&V disparities among food insecure populations. Additional research is needed to longitudinally study the effects of various policies on healthy food distribution and other chronic disease prevention initiatives among US FBs, as well as to identify effective nutrition policy options for FBs with limited regional availability of healthy foods and FB resources.

Finally, since the data collection spanned almost two years, the original classification assigned to each FB, especially the level of produce distribution, may not have reflected the status of that FB at the time of the interview. We addressed this issue by re-categorizing FBs based on their current reported level of F&V distribution at the time of the interview. However, this re-categorization did skew our final sampling distribution, in which half the executives in our sample represented FBs with high F&V distribution, rather than one-third as originally intended. Thus, our capacity to fully achieve our secondary aim, to explore differences in leadership perspectives according to their respective FB's F&V distribution

levels, was limited. Additionally, using the percentage of F&V distributed out of total food pounds does not reflect the absolute volume of F&V distributed, and since percent F&V distribution is a relative measure, recent percent changes in F&V distribution could be due to changes in other food categories, rather than a direct change in the total pounds of F&Vs distributed. Our final sampling distribution also prohibited us from further exploring the role that other organizational factors, such as resources, may play in an executive's decisions related to nutrition related goal-setting and policy making. These questions warrant further exploration in future research that includes a larger sample size.

Conclusion

This study explored FB leadership attitudes toward the role of food banking in population health. We found FBs with high F&V distribution levels most frequently had leaders who could accurately describe the health disparities affecting charitable food client populations, defined health promotion as a central tenet of their mission, and had implemented nutrition-related policies and practices, such as internal goals for healthful food distribution and refusal guidelines for unhealthful food. As the national food banking system evolves to increasingly consider the health needs of the populations it serves, developers of community health programs should consider the potential implications of these executive attitudes and organizational practices as potential contributors to the success of new healthy food banking initiatives. Public health stakeholders should leverage the changing norm within the charitable feeding sector to collaboratively design and implement health promotion programs for otherwise hard-to-reach populations. To facilitate the expanding role of FBs as community partners in health promotion, additional research is needed to identify which policies are most effective for maximizing healthy food acquisition and distribution, while also ensuring overall food inventory is still adequate to meet basic food needs. FBs that have not yet formally implemented any nutrition policies may benefit from technical assistance to identify which policy approaches are most feasible for their organization, and may also be ideal settings to study the longitudinal effects of the common policies being implemented today.

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Table 1.

Classification strategy for US food banks sampled for the Foodbanking Research to Enhance the Spread of Healthy Foods (FRESH-Foods) study.

	Low (L), Intermediate (I), and High (H) Tertiles																													
I. Fruit and vegetable (F/V) distribution¹	L									I									H											
II. F/V regional availability²	L			I			H			L			I			H			L			I			H					
III. Local community resources³	L	I	H	L	I	H	L	I	H	L	I	H	L	I	H	L	I	H	L	I	H	L	I	H	L	I	H	L	I	H

¹ Amount of produce distributed by a food bank in pounds, expressed as a percent of total food pounds distributed, based upon data collected by Feeding America from affiliate food banks. High distribution was defined as 28–66% of total food pounds distributed, intermediate as 17–27%, and low as 2–16%.

² Based on a state-ranking measure developed by the United States Department of Agriculture (USDA) based upon the acres of land with fruit and vegetables harvested per person in that state. High availability was defined as a state ranking <17, intermediate as ranking 17–34, and low as ranking >34.

³ Based on an aggregate variable compiled by Feeding America to estimate food and fund-based resources within a food bank’s service area based on four different components: available dollars for charity organizations in service area, retail store donation opportunity, produce donation opportunity, and manufacturing food plant donation opportunity, converted to dollar estimates for each. High resources was defined as >\$77 million in combined resources, intermediate as \$25–77 million in combined resources, and low as < \$25 million.

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Table 2.

Select interview questions from the Foodbanking Research to Enhance the Spread of Healthy Foods (FRESH-Foods) study regarding food bank executive leadership perspectives on the role of food banks in community health promotion and fresh fruit and vegetable distribution.

Domain	Semi-structured interview questions
<i>Executive experience</i>	<ul style="list-style-type: none"> • How long have you been in the world of food banking?
<i>Fruit and vegetable distribution practices and goals</i>	<ul style="list-style-type: none"> • Can you briefly describe your food bank's (FB's) current distribution of fresh fruit and vegetables (F&V)? <ul style="list-style-type: none"> – [if not offered] Do you know what percent of your total distribution is fresh F&V? • Under ideal conditions, how much of your FB's distribution would be fresh produce?
<i>Executive leader attitudes and perceptions related to community health-informed food banking and competing priorities related to food banking mission</i>	<ul style="list-style-type: none"> • What is your perception of the burden of chronic disease among clients served by your FB? [If asked: chronic diseases include obesity, diabetes, hypertension, etc.] <ul style="list-style-type: none"> – Do you think as a FB you are in a position to contribute to the health of your clients or community, or do you feel as if your mission is really focused on hunger? – To what extent do you think that by distributing more F&Vs you can make an impact on your clients' or community's health? • What do you think a FB's responsibility should be in facilitating adequate F&V intake among its clients?
<i>Nutrition-related policies</i>	<ul style="list-style-type: none"> • Has your FB ever considered implementing a guideline or adopting a standard practice on the nutritional quality of foods it distributes? <ul style="list-style-type: none"> – [If yes] Were there concerns raised, and if so what were they? – [If guidelines/practice in place] Are there plans to revise the guideline or practice in the future?

Table 3.

Nutrition policies described by food bank executive leaders interviewed as part of the Foodbanking Research to Enhance the Spread of Healthy Foods (FRESH-Foods) study.

Policy	Definition	Illustrative quotes
Only purchase healthy foods	Food bank may accept donations deemed unhealthy, but does not use food bank funds to purchase unhealthy foods	<p><i>“We will not anymore bring in non-nutritious purchased product.”</i></p> <p>– ED/CEO of a food bank with intermediate resources and low F&V availability</p>
Encourage healthy donations	Food bank actively seeks out healthy donations and/or discusses ways for current donors to provide a larger amount or variety of healthy products	<p><i>“We’re going to encourage foods, but we’re not going to live by, ‘We’re only going to take these kinds of foods.’ We’re not going to do that. Are we encouraging ourselves, challenging our food solicitor, challenging our staff to move more fresh fruits and vegetables? Absolutely.”</i></p> <p>– ED/CEO of a food bank with intermediate resources and intermediate F&V availability</p>
Internal goals for level of healthy inventory	Food bank measures the amount or type of healthy inventory and has set an internal goal for the amount of inventory deemed healthy	<p><i>“We follow something called the CHOP Rating System which is a system designed by the Pittsburgh Food Bank. You may be familiar with it. We set an internal goal every year that 80% of what goes out the door is a rank 1 or a 2. Last year we achieved 85 so we’re very, very focused on putting out the most nutritious food that we can because we know the impact it has.”</i></p> <p>– ED/CEO of a food bank with high resources and intermediate F&V availability</p>
Unhealthy donation refusal guidelines	Food bank refuses donations deemed unhealthy, most often a “no candy/no soda/no cakes” policy	<p><i>“We are not going to accept food that does not meet quality food criteria...we said no soda, no candy, no desserts, no snacks...There’s a nervousness, but I think we also believe that if you do the right thing and if you communicate to people why you’re doing that thing, they will respect you. At the end of the day, that’s more important than the money. That’s the position that we took and it has worked out okay. I don’t think we’ve lost money... Any pound of food that comes to our food bank cost us even if it’s donated. We have to pay people to take it off of the truck. We have to pay to introduce it to our inventory. We have to pay to move that food. We are not going to use our dollars to move food that doesn’t address this challenge that our clients have. That’s how we look at it. This is not a value judgment about the food industry.”</i></p> <p>– ED/CEO of a food bank high resources and low F&V availability</p>
No payment for transportation of unhealthy donated foods	Food bank accepts unhealthy donations, but only if delivered to the food bank by the donor- food bank will not go out of its way to pick up unhealthy donations or reimburse the donor for transportation of the product to the food bank	<p><i>“We would never buy [soda]... We wouldn’t pay to transport it either. If a local donor showed up and was willing to deliver us soda and it’s a donor we really like that we want to protect the relationship with, we might take it, but I cannot tell.”</i></p> <p>– ED/CEO of a food bank with intermediate resources and low F&V availability</p>

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