HHS Public Access

Concept Mapping:

Priority Community Strategies to Create Changes to Support Active Living

Laura K. Brennan, PhD, MPH, **Ross C. Brownson, PhD**, **Cheryl Kelly, PhD, MPH**, **Melissa K. Ivey, MPH**, and **Laura C. Leviton, PhD**

Transtria LLC (Brennan), Prevention Research Center in St. Louis (Brownson), the Department of Surgery and Alvin J. Siteman Cancer Center (Brownson), Washington University in St. Louis, St. Louis, Missouri; the Department of Health Sciences (Kelly), Beth-el College of Nursing and Health Sciences, University of Colorado, Colorado Springs, Colorado; the Division of Public Health (Ivey), Georgia Department of Community Health, Atlanta, Georgia; Robert Wood Johnson Foundation (Leviton), Princeton, New Jersey

Abstract

Background—From 2003 to 2008, 25 cross-sector, multidisciplinary community partnerships funded through the Active Living by Design (ALbD) national program designed, planned, and implemented policy and environmental changes, with complementary programs and promotions. This paper describes the use of concept-mapping methods to gain insights into promising active living intervention strategies based on the collective experience of community representatives implementing ALbD initiatives.

Methods—Using Concept Systems software, community representatives (*n*=43) anonymously generated actions and changes in their communities to support active living (183 original statements, 79 condensed statements). Next, respondents (*n*=26, from 23 partnerships) sorted the 79 statements into self-created categories, or active living intervention approaches. Respondents then rated statements based on their perceptions of the most important strategies for creating community changes (*n*=25, from 22 partnerships) and increasing community rates of physical activity (*n*=23, from 20 partnerships). Cluster analysis and multidimensional scaling were used to describe data patterns.

Results—ALbD community partnerships identified three active living intervention approaches with the greatest perceived importance to create community change and increase population levels of physical activity: changes to the built and natural environment, partnership and collaboration efforts, and land-use and transportation policies. The relative importance of intervention approaches varied according to subgroups of partnerships working with different populations.

Conclusions—Decision makers, practitioners, and community residents can incorporate what has been learned from the 25 community partnerships to prioritize active living policy, physical project, promotional, and programmatic strategies for work in different populations and settings.

Introduction

Community-based participatory methods for evaluation seek to understand complex interactions of social, political, economic, environmental, and health conditions in communities.[1–4] These approaches involve community representatives and evaluators in the evaluation methods;[5] help to establish trusting relationships to increase understanding and insight;[6] foster co-learning and capacity-building among all partners;[7] and create greater balance between knowledge generation and intervention for the mutual benefit of all partners.[8] In line with these approaches, the mixed-methods evaluation of the Active Living by Design (ALbD) national program[9] was designed to encourage community representation and participation in several data collection, analysis, and validation activities.[10] One of these methods, concept mapping, was intended to identify promising strategies to support active living based on the collective experience and wisdom of decision makers, practitioners, and community residents.

In November 2003, the Robert Wood Johnson Foundation awarded grants to 25 communities across the U.S. as part of the ALbD's Community Action Model, which provided five strategies to influence community change (5Ps): preparation, promotions, programs, policy influences, and physical projects.[11] The 5Ps represented an integrated, comprehensive approach to increasing physical activity through cross-sector, multidisciplinary partnerships working across many settings and populations. Best practices from many of these communities have been reported in a previous supplement.[12]

The approaches took place in an array of local settings (e.g., counties, metropolitan areas, municipalities, neighborhoods) with heterogeneous populations who had experienced a variety of historical, social, and economic conditions. For many lower-income and racial and ethnic minority populations, these conditions often translated into pervasive health disparities and inequities. Likewise, the community partnerships frequently worked simultaneously on planning, implementation, enforcement, and sustainability activities with varied local resources and capacities (e.g., personnel, expertise, space, equipment).

To evaluate these efforts, concept mapping provided an opportunity for community representatives to participate in the generation, analysis, and interpretation of promising strategies to support active living. With roots in cognitive anthropology, concept-mapping methods built on applied qualitative research methods, including free lists, pile sorts, multidimensional scaling, and cluster analysis.[13,14] Developed by Concept Systems,[15] concept-mapping software allowed geographically dispersed individuals from the 25 ALbD community partnerships to collectively participate in efforts to understand priority community changes (short-term policy or environmental changes) to support and encourage population levels of physical activity (long-term health behavior and lifestyle changes). Through a web-based application, this technique provides a visual representation of the complex relationships among a range of participant ideas.[16] It also provides participants

with the opportunity to identify ideas and participate in the interpretation of group perceptions.[17]

Investigators selected concept mapping given its participatory process and methods. These methods were used to develop group-level definitions of promising active living strategies and insights about the efforts across the 25 communities.[18,19] For example, concept mapping has been used to create a physical activity policy research agenda, define individual behaviors, identify facilitators and barriers to engaging in particular behaviors, and develop a national logic model to define program methods.[20–24]

The community-derived conceptual framework from the concept-mapping process was intended to: (1) identify the range of active living intervention strategies implemented by the ALbD community partnerships; (2) illustrate patterns of implementation across sites; (3) determine the relative importance of strategies; (4) assess subgroup differences for partnerships working in varied populations and settings; and (5) prioritize strategies to support active living.

Methods

Investigators used a mixed-methods approach to the overall ALbD evaluation, combining qualitative and quantitative methods to validate evaluation findings through cross-examination of community reports and field observations.[25,26] Triangulation of the data across multiple methods permitted the use of qualitative data to create a picture or story to explain or highlight gaps in the quantitative findings.[27,28] The multiple methods, the associated strengths and challenges of these methods, and the evaluation findings have been reported elsewhere.[10,29]

For this paper, concept mapping was designed to capture the communities' perspectives on the most important actions that occurred across the 25 communities for creating changes in the community to support active living and increasing community physical activity levels. Concept mapping includes six overall steps: (1) preparation; (2) brainstorming; (3) structuring of statements; (4) representation of the statements; (5) interpretation; and (6) utilization.[19]

During the preparation phase, the evaluation team identified and invited participants, including the Project Director or Coordinator and active partners from each of the 25 community partnerships. Two priority evaluation questions emerged. (1) What were the facilitators of creating change in environments and policies? "Creating changes in the community to support active living" served as an indicator of the perceived effectiveness of the actions for creating policy, environmental, programmatic, and promotional changes. (2) What policy and environmental changes led to increases in community rates of physical activity? "Increasing community rates of physical activity" functioned as an indicator of the perceived effectiveness of the actions to increase population levels of physical activity. From these evaluation questions, the evaluation team developed the focus prompt, or the leading statement designed to elicit responses to these questions. The focus prompt for this

project was: "one specific action or change that occurred in your community to support active living is..."

Statement Generation

For brainstorming, participants anonymously generated responses to the focus prompt through a secure website using Concept Systems software.[15] Because of the anonymous submission of ideas, an exact response rate and an average number of responses submitted per respondent were not calculated. Responses, or statements, generated through the brainstorming process were reviewed and distilled (e.g., condensed duplicate ideas, enhanced wording to improve clarity and representativeness).[19]

Statement Sorting and Ratings

Structuring the statements consisted of sorting and rating through Concept Systems software. All participants were asked to sort, or group, the statements into themes by creating their own categories based on similarity of the ideas. The instructions stated that each statement belonged in only one category, and the sorting process should result in more than one category but fewer categories than the total number of statements. Participants were also asked to rate the statements on importance to "creating changes in the community to support active living" and "increasing overall physical activity rates in the community."

In combination, these two dimensions (i.e., creating community change and increasing physical activity) helped to determine the relative impact of the different actions and, in turn, to identify priorities using these criteria. The scales ranged from 1 (least important) to 10 (most important). For the sorting and rating activities, individual participants' responses were kept confidential, with the responses linked only to the community and descriptive information about the population and setting for each community.

Concept Map

For representation of the statements, the evaluation team performed cluster analysis and multidimensional scaling to allow for visual illustration of the sorted data across all participants in a spatially oriented map of the statements, or concept map.[15] This analysis partitioned the respondents' ideas into clusters from the multidimensional scaling and located the clusters in contiguous areas of the map. Items similarly categorized by participants appeared closer together on the map than items not frequently sorted together. To identify the clusters for the final concept map, the evaluation team used a systematic process taking into consideration the range of statements or ideas represented, the purpose and intended uses of the concept map, and the coherence, or explicit relationships among clusters, with relatively larger and smaller groupings.[17,19] In the concept maps, each cluster was named based on the cluster labels provided by participants and the set of participants' statements within each cluster.

Subgroup Comparisons

"Pattern matching," or "ladder graphs," displayed the data with two vertical axes representing the relative rankings of the clusters by different subgroups of ALbD community partnerships. This entailed a series of graphs comparing responses of

participants from subgroups of communities with varying sociodemographic characteristics (e.g., race/ethnicity, income, geography), and responses related to creating community change versus increasing physical activity rating scales. Correlation coefficients reflected the degree of correspondence of the ratings across the subgroups. From the pattern matching, the evaluation team examined the relative importance, or rank, of the clusters for creating community change or increasing physical activity as well as differences by subgroups of community partnerships.

Priority Actions

"Go-Zones" provided a third representation of the data to directly compare importance ratings for the individual statements within the clusters. Go-Zones, or scatterplots of the individual statements represented in the clusters across four quadrants, reflected the mean importance rating for creating community change on the x-axis and the mean importance rating for increasing physical activity on the y-axis. The upper right quadrant depicted the Go-Zone, or the statements rated as highly important on both scales.

Priority Actions by Subpopulation

Interpretation and utilization of the data included review and discussion of practical applications of the findings among representatives of the evaluation team, the ALbD National Program Office, the national Evaluation Advisory Group (see Acknowledgments for this *AJPM* supplement), and the Robert Wood Johnson Foundation. During facilitated review of the data, these representatives generated themes across several categories, including: (1) all community partnerships, (2) community partnerships addressing racial and ethnic minority populations, (3) community partnerships addressing lower-income populations, (4) community partnerships addressing rural populations, and (5) community partnerships addressing children and families. In each category, representatives identified two or three priority themes emerging from the data. Complementary findings from the other evaluation methods are summarized in a companion article[29] in this *AJPM* supplement.

Participants

Project staff or key community partners representing diverse sectors (e.g., government, community, advocacy) and disciplines (e.g., health, planning, parks and recreation) completed the concept-mapping activities. These activities included generating responses or statements for individual community partnership efforts (43 individuals); sorting all statements from all participating community partnerships (26 individuals, 23 community partnerships [92% response rate]); and rating all statements from all participating community partnerships (creating community change scale: 25 individuals, 22 community partnerships [88% response rate]; increasing physical activity scale: 23 individuals, 20 community partnerships [80% response rate]). See Table 1 for additional characteristics of communities participating in these activities.

Respondents' statements generated in the brainstorming activity were anonymous, so it is unclear what proportion of the 25 community partnerships were represented in this activity. Personal identification information was not collected from respondents. Despite efforts to

gain input from decision makers, practitioners, and community residents from each of the community partnerships, the staff and partners were responsible for decisions about who participated in the evaluation activities at the local level. Therefore, respondents primarily represented lead agencies and key partners from professional organizations working in and with the communities, as opposed to community residents.

Results

Statements and Clusters

Participants generated 183 responses to the focus prompt requesting specific actions or changes that occurred in the communities to support active living. Appendix A includes the final total of 79 condensed statements. From the sorting of these statements, the number of clusters, or types of active living intervention approaches, ranged from 5 to 18 with a mean of 9.2 and a median of 8.5 clusters.

Concept Map

The final concept map for all participants included ten clusters, with the smallest cluster (higher coherence) containing four statements and the largest (lower coherence) containing 11 statements (Figure 1). The stress value indicates the goodness of fit of the configuration, with lower stress values having a better fit. Previous analyses of the reliability of concept mapping suggest that the average stress value across 33 projects was 0.285 with a range from 0.155 to 0.352. For this configuration of clusters, the stress value was 0.27, so it was lower than average, suggesting that the clusters in this study have a good fit.

Clusters, representing active living intervention approaches, were named as follows: (1) partnership and collaboration; (2) preparation: assessment and capacity-building; (3) campaigns, promotions, and publicity; (4) bike programs; (5) physical activity programs; (6) access and support; (7) changes to the built and natural environment; (8) land-use and transportation policy; (9) sustainability: advocacy and policy; and (10) sustainability: resources and institutionalization. Figure 1 depicts how the 79 statements relate in a spatial representation to these ten clusters, or intervention approaches, with statements that were most often sorted together placed closer together on the map. The layers of the clusters represent bridging values (Appendix A), with fewer layers indicating higher agreement across participants with respect to the statements in a cluster.

Pattern Matching

Pattern matching compared importance ratings for the ten active living intervention approaches, or clusters from the concept map, for creating community change and increasing physical activity. Comparisons were made across all community partnerships and for groups representing various subpopulations. Overall, the range of importance ratings was narrow (i.e., typically between 5.0 and 8.0) and no differences emerged (Table 2). Collectively, the intervention approaches tended to receive higher mean ratings for creating community change (range: 5.84 to 8.08) than for increasing physical activity (range: 5.60 to 7.63). Given the small sample size, priorities based on the relative importance ratings, or the

rank of the active living intervention approaches, were summarized to stimulate discussions for interpretation and utilization of these data.

Overall, the community partnerships ranked changes to the built and natural environment, partnership and collaboration, and land use and transportation as the top three active living intervention approaches, or clusters, to create community change and to increase physical activity, and campaigns, promotions, and publicity as the lowest priority. Similarly, sustainability: resources and institutionalization was ranked relatively higher for creating community change and increasing physical activity. However, community partnerships tended to rank advocacy and policy efforts and capacity-building efforts (i.e., sustainability: advocacy and policy and preparation: assessment and capacity-building) higher for creating community change while programmatic efforts (i.e., bike programs and physical activity programs) were ranked higher for increasing physical activity.

Figure 2 illustrates the ranking patterns across subgroups of community partnerships for the importance of the active living intervention approaches for creating community change (red line) and increasing physical activity (blue line). For instance, community partnerships working with children and families, racial and ethnic minority populations, lower-income populations, and rural populations uniformly ranked changes to the built and natural environment highest for creating community change and increasing physical activity. Alternatively, community partnerships working with lower-income populations (rectangles) and racial and ethnic minority populations (diamonds) ranked land use and transportation second or third for creating community change and increasing physical activity, while those working with rural populations provided the lowest rank on this approach for creating community change and increasing physical activity. Those working with children and families ranked land use and transportation higher for creating community change and lower for increasing physical activity.

Go-Zones

The go-zone identified which actions, or statements from brainstorming, were rated as highly important to both increasing physical activity and creating community change. Actions rated as important on both scales indicated the highest-priority activities (Figure 3). Across all community partnerships, 34 of 79 total actions fell in the go-zone.

Many of the activities suggested community-level change efforts. Examples are: passing policies to make bike and pedestrian access a transportation priority; advocating for the inclusion of active living principles into community master plans; advocating for city street design standards that accommodate multimodal users; advocating for improved public transportation; building or maintaining pedestrian, bicyclist, or other recreational facilities; preserving and restoring natural habitats and resources; addressing safety and aesthetics; generating new funding; hosting events to support active living; developing neighborhood maps for safe walking and biking routes; and assessing walkability and bikeability of environments.

Several of the activities were related to partnership and collaboration. These included: partnering with the public and private sectors, schools, community organizations, or

community residents; having committed, passionate, and energetic partners with similar goals; providing leadership and expertise; and increasing sustainability through partnership. Finally, some activities suggested school-level change efforts, including: improving pedestrian and bike accessibility in schools; implementing school programs (e.g., Walking School Bus, Safe Routes to School); working with teachers and staff at local schools to garner support for programs and physical projects to support active living; and installing bike racks and/or providing bike locks at neighborhood schools.

Interpretation and Utilization

Key findings identified by representatives of the evaluation team, the ALbD National Program Office, the national Evaluation Advisory Group, and the Robert Wood Johnson Foundation are elaborated in the next section.

Discussion

Overall, ALbD community partnerships identified three active living intervention approaches as most important to achieving the goals of creating community change and increasing physical activity. The highest priority is changes to the built and natural environment, including strategies to create opportunities for active living through:

- increasing access to parks, community trails, and other recreational facilities;

- addressing pedestrian/ bicyclist safety and aesthetic features (e.g., striped crosswalks, traffic signals); and,

- preserving natural habitats and resources; among others.

The second priority is partnership and collaboration efforts, including strategies to: organize, convene, and mobilize a variety of partners from government agencies, community-based organizations, and neighborhoods (e.g., parks and recreation, transportation, planning, schools, businesses, economic development, community organizing, advocacy, neighborhood watch groups) to form and realize a unified vision of active living for their community. These partnerships may be formal or informal (e.g., Mayor's Advisory Committee, grassroots advocacy efforts), large networks or small groups, and more- or less-structured entities.

The third priority is land-use and transportation policies. These include strategies to incorporate active living principles into community design, planning, and development through the creation of community planning tools (e.g., Complete Streets plans, Pedestrian or Bicycle Master Plans, public transportation system plans) and local or regional policies (e.g., urban growth or containment policies, school-site design standards, street design standards).

Policy and environmental intervention strategies were ranked highest for creating community change and increasing physical activity when compared to programmatic and promotional strategies. At the same time, programmatic strategies received somewhat higher rankings for increasing physical activity than for creating community change. These findings suggest the importance of multicomponent interventions, incorporating policy and

environmental strategies to create community changes to support active living supplemented by programmatic and promotional strategies to augment physical activity among community residents.

Across strategies and populations, several of the original statements from participants signified the importance of community engagement and mobilization, even though this did not emerge from the sorting and rating activities. Many of these statements suggested the perceived value of having community residents engaged in the process, such as: having a person from the community who is passionate about the community and hosting a community forum to ask community residents and organizations to identify opportunities for and obstacles to active living. Some of these statements identified the perceived value of mobilizing community residents to action, such as: establishing a teen leaders club and having individuals who are representative of the community design and implement programs. More investigation is needed to understand the nature of meaningful community participation in this work, ranging from more passive engagement in activities designed and implemented by nonresidents to active mobilization of community residents for decision-making and implementation.[30]

Community partnerships working with racial and ethnic minority populations ranked bike programs and physical activity programs relatively higher for increasing physical activity compared to other partnerships. More evaluation is needed to understand how bike and physical activity programs work in different racial and ethnic populations and why these programs emerged as higher priorities than other strategies.[31] Additionally, community partnerships working with racial and ethnic minority populations ranked partnership and collaboration the lowest among all the other community partnerships for increasing physical activity. This likely indicates the need for community-driven, inclusive partnership and collaboration models to increase community participation, decision-making, and involvement in the change process.[32,33]

Community partnerships working with lower-income populations ranked changes to the built and natural environment as well as land-use and transportation policies among their highest priorities. This finding is consistent with other evidence suggesting that interventions focused on improvements to environments and transportation systems in lower-income areas may be more likely to reduce inactivity among economically disadvantaged populations.[34,35] Despite a great deal of consistency across subpopulations in the ranking of approaches for creating community change, the land-use and transportation policy approach was ranked relatively lower by community partnerships working in rural populations.

Similarly, those working with rural populations ranked land-use and transportation policies lower for increasing physical activity. While several studies have examined community design, street design, and transportation interventions in urban and suburban settings,[36] relatively little is known about land-use and transportation policy in rural communities. Community partnerships working with rural populations also ranked bike programs relatively lower with respect to increasing physical activity. For example, if land-use (e.g., destinations in biking distance) and transportation infrastructure (e.g., bike lanes or trails) to

support biking in rural communities is not present, this may influence the perceived effectiveness of bike programs in these communities.

Community partnerships working with rural populations ranked sustainability strategies through advocacy and policy change as well as preparation through assessment and capacity-building relatively higher with respect to increasing physical activity. Some of the dimensions of these approaches are included in Appendix A. These community partnerships tended to have a lot of variation (e.g., reservation, "bedroom community," township), so inferences across these rural populations may be limited. The underlying mechanisms for increasing sustainability and building capacity are not well understood, and more research and evaluation efforts are needed to explore potential leverage points for increasing physical activity in rural populations.[37]

Community partnerships working with children and families also ranked land-use and transportation policies somewhat lower for increasing physical activity. At the same time, these community partnerships ranked changes to the built and natural environment first. The connection between macro-scale policies for land use and transportation, as compared to micro-scale environments in support of biking and other physically active behaviors for children (e.g., trails, parks, playgrounds), may not have direct application in this population.[38] For example, parents are not likely to allow their children to ride bikes on bike lanes in streets; therefore, street design guidelines requiring bike lanes (a transportation policy) may not be perceived as a high priority.

In addition, community partnerships working with children and families ranked bike programs second highest and physical activity programs second lowest for increasing physical activity. Further review of the original statements for physical activity programs (Appendix A) showed a mix of walking and worksite programs targeting adults as well as programs outside of school to target youth. One plausible explanation is that community partnerships working with children and families may have interpreted these physical activity programs as adult programs. The current evidence base on youth physical activity programs is primarily focused on school and healthcare settings. Further investigation is required to understand the value of physical activity programs for children and families in community settings.

The campaigns, promotions, and publicity approach was ranked least important to creating community change and increasing physical activity across community partnerships. This is consistent with evidence suggesting promotional strategies focus on more short-term or intermediate outcomes (e.g., knowledge, awareness) as opposed to longer-term impacts and outcomes, such as community changes and increases in physical activity.[39] Yet, more recent evidence suggests that social marketing campaigns that include community participatory planning activities and policy and environmental approaches can increase physical activity.[40–42] While the community partnerships ranked campaigns and promotions last for these outcomes, more evidence is needed to disentangle the effects on physical activity behavior attributable to various strategies in multicomponent interventions.

Limitations

Despite the benefits of this relatively participatory process and the high response rate (92% of community partnerships) for the rating and sorting activities, there were several limitations to the approach. The process was very intensive, requiring several hours of participation for brainstorming, sorting of 79 statements, and rating of those statements for their impact on creating community change and increasing physical activity. Given the time-intensive nature of participation, paid staff and core partners preferred to perform the concept-mapping activities independently of other community representatives.

The community partnerships did not want these activities to interfere with the intervention efforts underway. Therefore, the sample size ranged from 20 to 43 community partnership representatives for different activities, leading to insufficient power for statistical interpretations. As a result, the data presented were used to generate recommendations and evaluation questions, not conclusions, as is typical in qualitative research and evaluation.

Because ALbD grantees were selected based on their capacity to implement active living interventions, the respondents may not be representative of the range of communities or partners that may benefit from these integrated, systemic approaches to change. Two community partnerships chose not to participate and, in most community partnerships, staff and key partners were the only participants, leaving out community residents. Moreover, several community partnerships experienced staff turnover, sometimes more than once in the 5-year funding period. Therefore, some individuals participating in the concept-mapping process may not have been involved long enough to be aware of the range of different approaches implemented. Likewise, personal characteristics of the individual participants were not collected, limiting the ability to determine the influence of these personal characteristics on overall ratings (e.g., representativeness of the sociodemographic characteristics of the communities).

With respect to the methods, the development of the focus prompt is a critical step in the process that affects the quality of the rest of the steps in concept mapping. The focus prompt helped to elicit active living strategies for this project, but all of the respondents already had a common language and conception of active living. The rating scales for importance to creating community change and increasing physical activity ranged from 1 to 10, yet variability in responses was relatively small. Participants' responses typically varied within 3–4 points, limiting interpretation of meaningful differences between ratings of the clusters. Finally, disentangling the strategies and their independent effects may diminish understanding of the collective or synergistic impacts of these comprehensive partnerships and associated initiatives.

Conclusion

From these findings, decision makers, practitioners, and community residents can build on what has been learned from the experience of 25 community partnerships working across a variety of disciplines, populations, and settings to increase physical activity through active living intervention approaches. While common priority strategies were identified across all ALbD community partnerships, the priorities also varied for community partnerships

working with various subpopulations (e.g., racial and ethnic minority populations, lower-income populations, rural populations). Further investigation is needed to understand the relevance of differing strategies for various communities as well as the appropriate mix of strategies to affect community changes to support active living and to increase population levels of physical activity.

Acknowledgments

Appendix A

Appendix A

Statements by cluster in ascending order by bridging values[a]

Cluster 1: Partnership and collaboration	
Statement (#)	**Bridging value[a]**
Adding partners to increase sustainability of project activities (6)	0.00
Partnering with community organizations (for example, grassroots organizations, neighborhood associations, nonprofit organizations; 56)	0.00
Partnering with academic institutions (universities and colleges; 5)	0.01
Having multiple committed partners working together to identify many active living strategies (2)	0.01
Having a partnership of organizations contributing their collective experience, energy, and expertise and having similar missions or goals (12)	0.02
Partnering with the public sector (for example, the health department, department of transportation, city parks and recreation, police; 24)	0.04
Partnering with the private sector (for example, businesses, banks; 36)	0.04
Providing leadership in developing collaborations across groups and organizations (20)	0.12
Neighborhoods that previously did not work together now have a unified vision and are working together (53)	0.16
Bringing together community individuals, groups, and organizations not likely to meet and exchanging ideas or offering help to each other (44)	0.16
Partnering with schools (for example, elementary, middle, high schools; 39)	0.17
Count: 11 Variance: 0.00 SD: 0.07 Minimum: 0.00 Maximum: 0.17 Average: 0.07 Median: 0.04	

Cluster 2: Preparation: assessment and capacity-building	
Statement (#)	**Bridging value**
Getting physicians to discuss the importance of physical activity with patients and write prescriptions for activity when appropriate (35)	0.54
Encouraging community residents to form active groups (for example, friends of the trail group; 9)	0.61
Establishing a teen leaders club (77)	0.63
Conducting audits of the environment with community members and organizations (15)	0.81
Conducting an inventory of existing physical activity programs for different populations (for example, children and youth, senior adults, low-income populations, racial/ethnic minority populations, employees; 57)	0.82
Assessing the walkability and bikeability (including accessibility and safety) of the environment through audits, surveys, or other direct observation methods (68)	0.83

Cluster 2: Preparation: assessment and capacity-building	
Statement (#)	**Bridging value**
Assessing environmental factors that influence employees' opportunities for physical activity during the workday (for example, bike racks, walking environment; 69)	1.00
Count: 7 Variance: 0.02 SD: 0.15 Minimum: 0.54 Maximum: 1.00 Average: 0.75 Median: 0.81	

Cluster 3: Campaigns, promotions, and publicity	
Statement (#)	**Bridging value**
Designing and distributing a brochure describing the health benefits and desired amount of physical activity as well as places and programs to be physically active (78)	0.15
Promoting community recreation opportunities (43)	0.18
Providing a monthly list of existing free programs (27)	0.18
Designing a social marketing campaign to encourage active living specific to different populations (for example, age, income, race/ethnicity; 49)	0.20
Receiving recognition for active living successes (for example, the Bike Friendly Community "Honorable Mention," model community, media attention; 60)	0.28
Developing a Point of Choice Campaign encouraging people to take the stairs rather than the elevator (22)	0.31
Conducting large demonstrations to illustrate benefits or barriers to active living (for example, a "Crosswalk Action" with a person wearing a chicken suit to draw attention to the need for better designs and driver behavior) (62)	0.33
Being cited in the press as an unsafe community for biking (52)	0.36
Developing neighborhood maps that highlight safe routes for walking and biking (13)	0.38
Creating a youth newsletter (8)	0.38
Count: 10 Variance: 0.01 SD: 0.08 Minimum: 0.15 Maximum: 0.38 Average: 0.27 Median: 0.30	

Cluster 4: Bike programs	
Statement (#)	**Bridging value**
Creating a bike exchange and bike education program (for example, bike safety, bike repair) for youth and adults (66)	0.43
Rehabilitating confiscated bikes (for example, remodeling, adding locks and lights) from police department, giving to those who need them for transportation and providing safety training (41)	0.48
Starting "company bikes" programs in worksites (1)	0.66
Implementing school programs using local trails, walking and biking to school, or having recess (for example, Walking School Bus, safe routes to school, Take10!) (64)	0.67
Count: 4 Variance: 0.01 SD: 0.11 Minimum: 0.43 Maximum: 0.67 Average: 0.56 Median: 0.57	

Cluster 5: Physical activity programs	
Statement (#)	**Bridging value**
Implementing a comprehensive walking program including detailed walking maps, pedometers, coupons to local businesses and promotion of local organizations and activities (76)	0.30
Hosting events to support active living (for example, Bike, Walk, and Wheel Week; Bike Summit; Walkable Communities Workshop; family event; trail fair; new park or trail) (26)	0.32
Initiating an outdoor physical activity program during the winter among children and their families (65)	0.36
Creating walking programs or clubs for different populations (40)	0.36
Identifying different types of activities for the community (for example, golf, hip hop dance lessons) (19)	0.44
Creating programs outside of school for youth (for example, dance classes, golf league) (54)	0.51
Creating high-profile worksite programs to encourage walking and biking (for example, the Mayor's Fitness Challenge to encourage physical activity during the work day, Bike/Walk to work day) (14)	0.54

Cluster 5: Physical activity programs

Statement (#)	Bridging value
Providing small stipends to community groups who in turn provided youth and senior physical activity programming (3)	0.80
Count: 8 Variance: 0.02 SD: 0.15 Minimum: 0.30 Maximum: 0.80 Average: 0.45 Median: 0.40	

Cluster 6: Access and support

Statement (#)	Bridging value
Including pedestrian and bike paths on public transit maps (4)	0.47
Increasing biking and walking opportunities by opening boulevards to walking and biking on Sundays (25)	0.65
Installing bike racks and/or providing bike locks at neighborhood schools (16)	0.68
Establishing school wellness policies (42)	0.72
Creating employer policies that reimburse employees for gym memberships (59)	0.86
Count: 5 Variance: 0.02 SD: 0.12 Minimum: 0.47 Maximum: 0.86 Average: 0.68 Median: 0.68	

Cluster 7: Changes to the built and natural environment

Statement (#)	Bridging value
Adding pedestrian safety and aesthetic features (for example, widened sidewalks, crosswalks, signage, guard rails) (61)	0.24
Building recreational facilities (for example, parks, playgrounds, trails, scenic byways, golf courses, ice skating trails) (72)	0.26
Adding bike lanes or signage to new and existing streets (67)	0.26
Transforming abandoned rail lines into community trails (i.e., Rails to Trails) (74)	0.28
Maintaining pedestrian and bicyclist facilities (for example, trails, sidewalks, bike lanes) (23)	0.28
Preserving and restoring natural habitats and resources (75)	0.29
Transforming brownfields, abandoned lots, or parking lots into parks, community centers, or community gardens (37)	0.42
Improving pedestrian and bike accessibility in schools (63)	0.50
Count: 8 Variance: 0.01 SD: 0.09 Minimum: 0.24 Maximum: 0.50 Average: 0.32 Median: 0.28	

Cluster 8: Land use and transportation

Statement (#)	Bridging value
Creating policies and incentives for developers, designers, architects, and engineers to encourage active living (for example, bicycle parking, showers, lockers) (58)	0.28
Passing a policy or amendment to make bike and pedestrian access a state, regional, or local transportation priority (45)	0.30
Changing zoning to focus on transit-oriented development (7)	0.30
Changing School Zone policies to make more schools and streets eligible for school zones (33)	0.32
Developing a regional land-use and transportation conceptual plan to guide urbanization of rural area (28)	0.34
Advocating for city street design standards that accommodate multimodal users (for example, bike lanes, sidewalks, crosswalks, signals) (55)	0.38
Advocating for the inclusion of active living principles into Master Plan documents (for example, City or County Master Plans, Transportation Master Plans) (50)	0.38
Advocating for improved public transportation (for example, light rail transit, buses, trams) (17)	0.40
Lobbying for the renovation of parks (21)	0.49
Count: 9 Variance: 0.00 SD: 0.06 Minimum: 0.28 Maximum: 0.49 Average: 0.35 Median: 0.34	

Cluster 9: Sustainability: advocacy and policy	
Statement (#)	**Bridging value**
Having a person from the community who is passionate about the community (32)	0.31
Hosting a community forum to ask community members and organizations to identify opportunities for and obstacles to active living (29)	0.52
Strategic planning to establish organizational independence and sustainability (73)	0.52
Participating on different committees at the regional, state or local level to advocate for active living (for example, land use, transportation, parks and recreation) (70)	0.55
Establishing an active living advisory committee (for example, to the mayor, town council, city) (38)	0.56
Providing testimony to support local initiatives (51)	0.58
Translating active living principles from your community to other communities (10)	0.59
Gaining interest from Congressional representatives to use federal funding for physical projects (18)	0.63
Establishing and funding a pedestrian and bike coordinator (state, regional, local) (71)	0.65
Engaging community members and organizations in community design and planning (for example, a charette for residential or commercial development, parks, trails, green space) (47)	0.66
Count: 10 Variance: 0.01 SD: 0.10 Minimum: 0.31 Maximum: 0.66 Average: 0.56 Median: 0.57	

Cluster 10: Sustainability: resources and institutionalization	
Statement (#)	**Bridging value**
Generating additional funding to support the active living partnership and its efforts (79)	0.46
Having individuals representative of the community (for example, lower-income, racial or ethnic minority groups, women, teens) design and implement programs (31)	0.51
Working with teachers and staff at local schools to garner support for programs and physical projects to support active living (for example, community gardens) (11)	0.53
Obtaining sponsorship, incentives or discounts from the private sector (for example, discounts at local businesses, symposiums sponsored by local clinics, items to bike commuters during bike week) (34)	0.54
Collaborating with existing programs to encourage physical activity and healthy eating (48)	0.59
Forming a multi-employer wellness committee (30)	0.68
Hosting fundraising events (46)	0.77
Count: 7 Variance: 0.01 SD: 0.10 Minimum: 0.46 Maximum: 0.77 Average: 0.58 Median: 0.54	

*Bridging values: statements with lower bridging values are "closer" to the meaning of the cluster in the concept map than statements with higher bridging values; statements with higher bridging values serve as a bridge between different areas on the map.

References

1. Krieger J, Allen C, Cheadle A, et al. Using community-based participatory research to address social determinants of health: lessons learned from Seattle Partners for Healthy Communities. Health Education and Behavior. 2002; 29(3):361–382. [PubMed: 12038744]

2. Lantz P, Viruell-Fuentes E, Israel B, Softley D, Guzman R. Can communities and academia work together on public health research? Evaluation results from a community-based participatory research partnership in Detroit. Journal of Urban Health. 2001; 78(3):495–507. [PubMed: 11564852]

3. Metzler M, Higgins D, Beeker C, et al. Addressing urban health in Detroit, New York City and Seattle through community-based participatory research partnerships. Am J Public Health. 2003; 93(5):803–811. [PubMed: 12721148]

4. Schulz A, Parker E, Israel B, Allen A, DeCarlo M, Lockett M. Addressing social determinants of health through community-based participatory research: The East Side Village Health Worker Partnership. Health Education and Behavior. 2002; 29(3):326–341. [PubMed: 12038742]

5. Minkler, M.; Wallerstein, N. Community Based Participatory Research for Health. Jossey-Bass; San Francisco: 2003.

6. Lincoln, YS.; Guba, EG. Naturalistic Inquiry. Sage Publications, Inc.; Beverly Hills, CA: 1985. Establishing Trustworthiness..

7. Israel, B.; Eng, E.; Schulz, A.; Parker, E., editors. Methods in Community-Based Participatory Research for Health. John Wiley & Sons; San Francisco: 2005.

8. Wallerstein N. Power between evaluator and community: Research relationships within New Mexico's healthier communities. Social Science and Medicine. 1999; 49(1):39–53. [PubMed: 10414839]

9. Active Living by Design. 2011. www.activelivingbydesign.org

10. Brownson R, Brennan L, Evenson K, Leviton L. Lessons from a mixed-methods approach to evaluating Active Living by Design. Am J Prev Med. 2012; 43(4):XXX–XXX.

11. Bors P, Dessauer M, Bell R, Wilkerson R, Lee J, Strunk S. The Active Living by Design national program: community initiatives and lessons learned. Am J Prev Med. 2009; 37(6 Suppl 2):S313–321. [PubMed: 19944930]

12. Brennan L, Linton L, Strunk S, Schilling J, Leviton L. Active Living by Design. Best Practices from the Field (entire issue). Am J Prev Med. 2009; 37(6 Suppl 2)

13. D'Andrade, R. The Development of Cognitive Anthropology. Cambridge University Press; Cambridge, UK: 1995.

14. Weller, S.; Romney, A. Qualitative Research Methods Series. Vol. 10. Sage University Press; Newbury Park, CA: 1988. Systematic Data Collection..

15. Concept Systems. 2011. www.conceptsystems.com/index.php

16. Trochim W, Kane M. Concept mapping: an introduction to structured conceptualization in health care. Int J Qual Health Care. Jun; 2005 17(3):187–191. [PubMed: 15872026]

17. Southern DM, Batterham RW, Appleby NJ, Young D, Dunt D, Guibert R. The concept mapping method. An alternative to focus group inquiry in general practice. Aust Fam Physician. Jan; 1999 28(Suppl 1):S35–40. [PubMed: 9988927]

18. Riger S. Measuring subjectivities: concept mapping as a feminist research method: examining the community response to rape. Psychol Women Q. 1999; 23(1):91–94.

19. Trochim W. An introduction to concept mapping for planning and evaluation. Eval Program Plann. 1989; 12(1):1–16.

20. Anderson LA, Gwaltney MK, Sundra DL, et al. Using concept mapping to develop a logic model for the Prevention Research Centers Program. Prev Chronic Dis. Jan.2006 3(1):A06. [PubMed: 16356359]

21. Brownson RC, Kelly CM, Eyler AA, et al. Environmental and policy approaches for promoting physical activity in the U.S.: a research agenda. J Phys Act Health. Jul; 2008 5(4):488–503. [PubMed: 18648115]

22. Kelly C, Baker E, Brownson R, Schootman M. Translating research into practice: Using concept mapping to determine locally-relevant intervention strategies to increase physical activity. Evaluation and Program Planning. 2007; 30:282–293. [PubMed: 17689333]

23. Ries A, Voorhees C, Gittelsohn J, Roche K, Astone N. Adolescents' Perceptions of Environmental Influences on Physical Activity. Am J Health Behav. 2008; 32(1):26–39. [PubMed: 18021031]

24. Trochim WM, Milstein B, Wood BJ, Jackson S, Pressler V. Setting objectives for community and systems change: an application of concept mapping for planning a statewide health improvement initiative. Health Promot Pract. Jan; 2004 5(1):8–19. discussion 10. [PubMed: 14965431]

25. Johnson R, Onwuegbuzie A. Mixed Methods Research: A Research Paradigm Whose Time Has Come. Educational Researcher. 2004; 33(7):14–26.

26. Teddlie, C.; Tashakkori, A. Foundations of Mixed Methods Research: Integrating Quantititative and Qualitative Approaches in the Social and Behavioral Sciences. Sage Publications, Inc.; Thousand Oaks: 2009.

27. Rossi, P.; Lipsey, M.; Freeman, H. Evaluation: A Systematic Approach. 7th Edition. Sage Publications, Inc.; Thousand Oaks: 2004.

28. Ulin, P.; Robinson, E.; Tolley, E. Qualitative Methods in Public Health: A Field Guide for Applied Research. Jossey-Bass; San Francisco: 2005.

29. Brennan L, Brownson R, Hovmand P. Evaluation of Active Living by Design: implementation patterns across communities. Am J Prev Med. 2012; 43(4):XXX–XXX.

30. Butterfoss F. Process evaluation for community participation. Annu. Rev. Public Health. 2006; 27:323–340. [PubMed: 16533120]

31. Lee S. Physical activity among minority populations: what health promotion practitioners should know--a commentary. Health Promot Pract. 2005; 6(4):447–452. [PubMed: 16210687]

32. Levine D, Becker D, Bone L, et al. A partnership with minority populations: a community model of effectiveness research. Ethn Dis. 1992; 2(3):296–305. [PubMed: 1467764]

33. Schulz A, Kannan S, Dvonch J, et al. Social and physical environments and disparities in risk for cardiovascular disease: the healthy environments partnership conceptual model. Environ Health Perspect. 2005; 113(12):1817–1825. [PubMed: 16330371]

34. Aytur S, Rodriguez D, Evenson K, Catellier D, Rosamond W. Promoting active community environments through land use and transportation planning. Am J Health Promot. 2007; 21(4): 397–407. [PubMed: 17465186]

35. Lee C. Environment and active living: the roles of health risk and economic factors. Am J Health Promot. 2007; 21(4):293–304. [PubMed: 17465174]

36. Heath GW, Brownson RC, Kruger J, et al. The effectiveness of urban design and land use and transport policies and practices to increase physical activity: a systematic review. J Phys Act Health. 2006; 3(Suppl 1):S55–S76.

37. Yousefian A, Ziller E, Swartz J, Hartley D. Active living for rural youth: addressing physical inactivity in rural communities. J Public Health Manag Pract. 2009; 15(3):223–231. [PubMed: 19363402]

38. Grow H, Saelens B, Kerr J, Durant N, Norman G, Sallis J. Where are youth active? Roles of proximity, active transport, and built environment. Med Sci Sports Exerc. 2008; 40(12):2071–2079. [PubMed: 18981942]

39. Kahn EB, Ramsay LT, Brownson RC, et al. The effectiveness of interventions to increase physical activity: A systematic review. Am J Prev Med. 2002; 22(4S):63–101.

40. Reger B, Cooper L, Booth-Butterfield S, et al. Wheeling Walks: a community campaign using paid media to encourage walking among sedentary older adults. Prev Med. 2002; 35(3):285–292. [PubMed: 12202072]

41. Reger-Nash B, Bauman A, Booth-Butterfield S, et al. Wheeling walks: evaluation of a media-based community intervention. Fam Community Health. 2005; 28(1):64–78. [PubMed: 15625507]

42. Reger-Nash B, Bauman A, Cooper L, et al. WV walks: replication with expanded reach. J Phys Act Health. 2008; 5(1):19–27. [PubMed: 18209251]
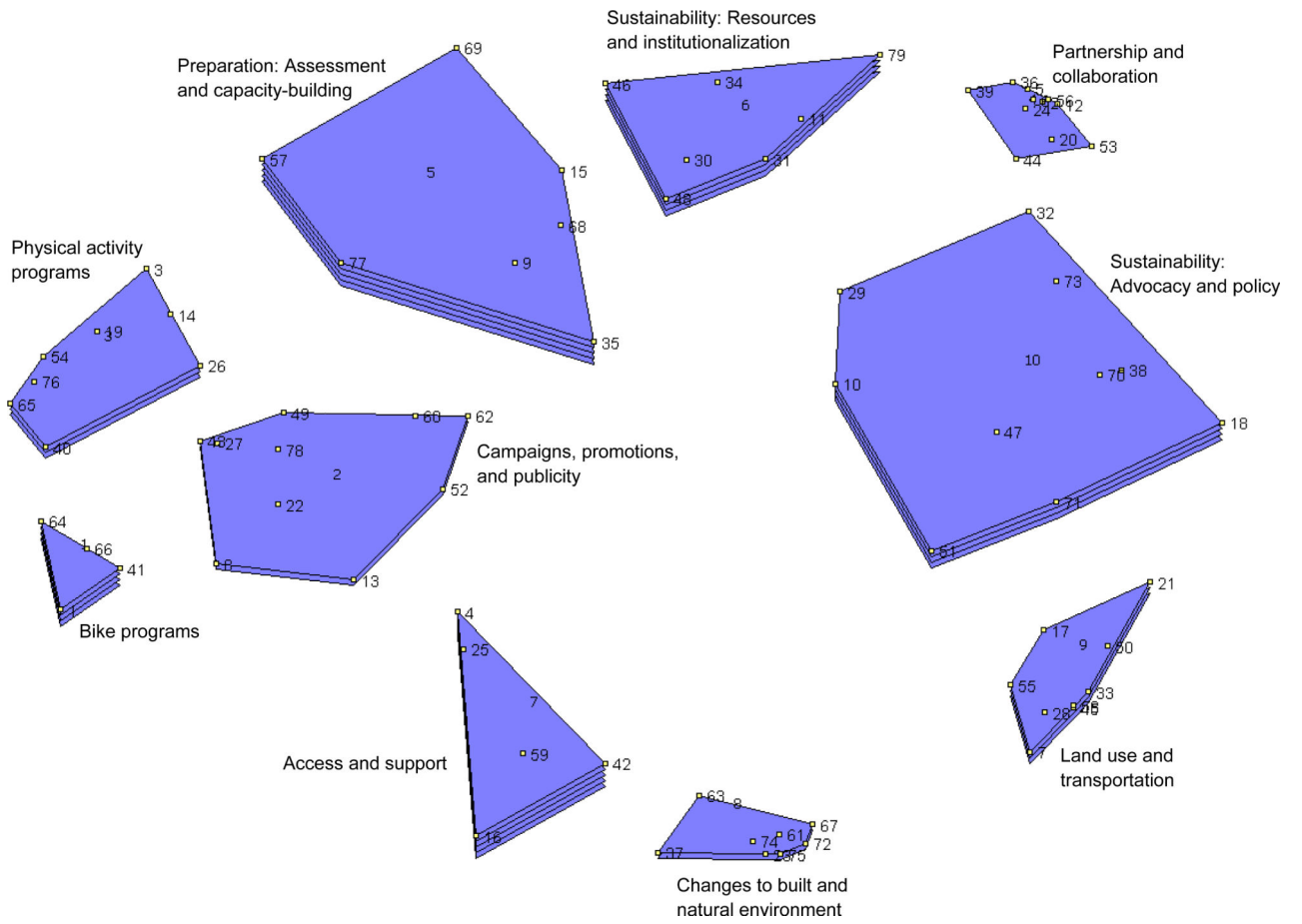
Figure 1.
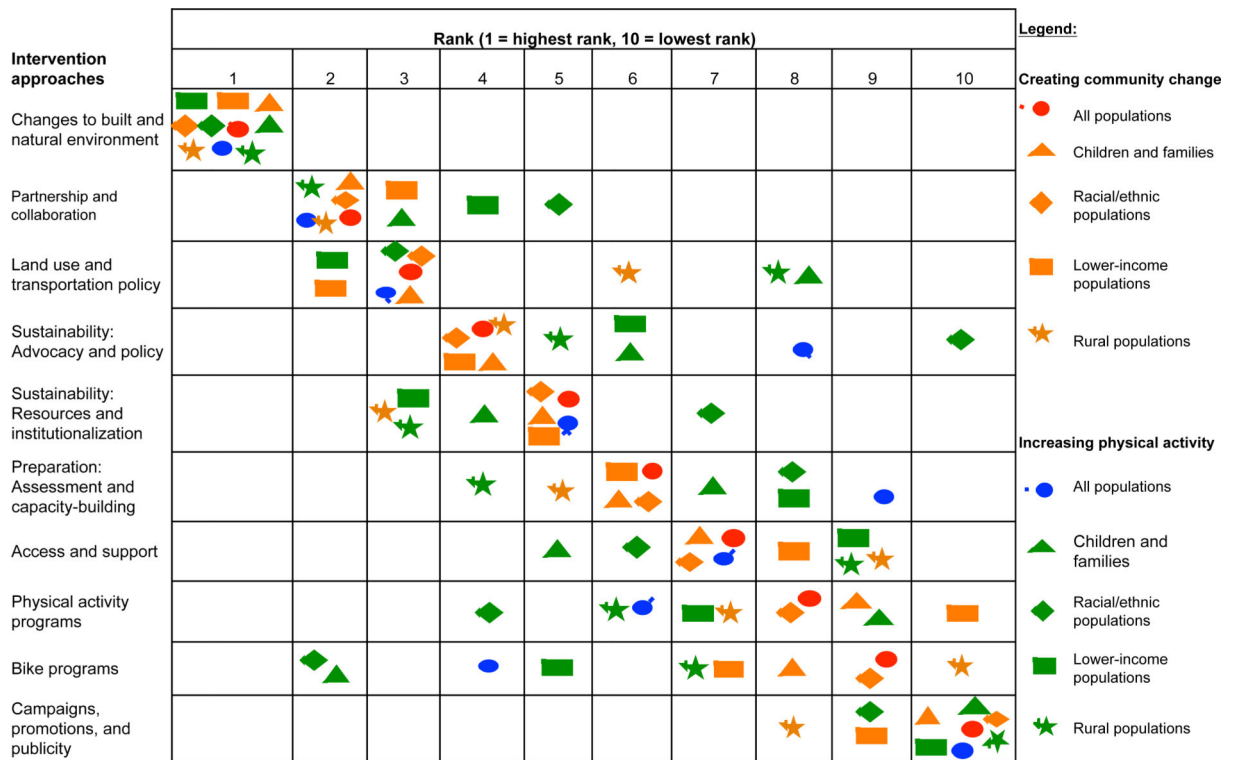Concept map (26 participants, 23 community partnerships)

Figure 2.
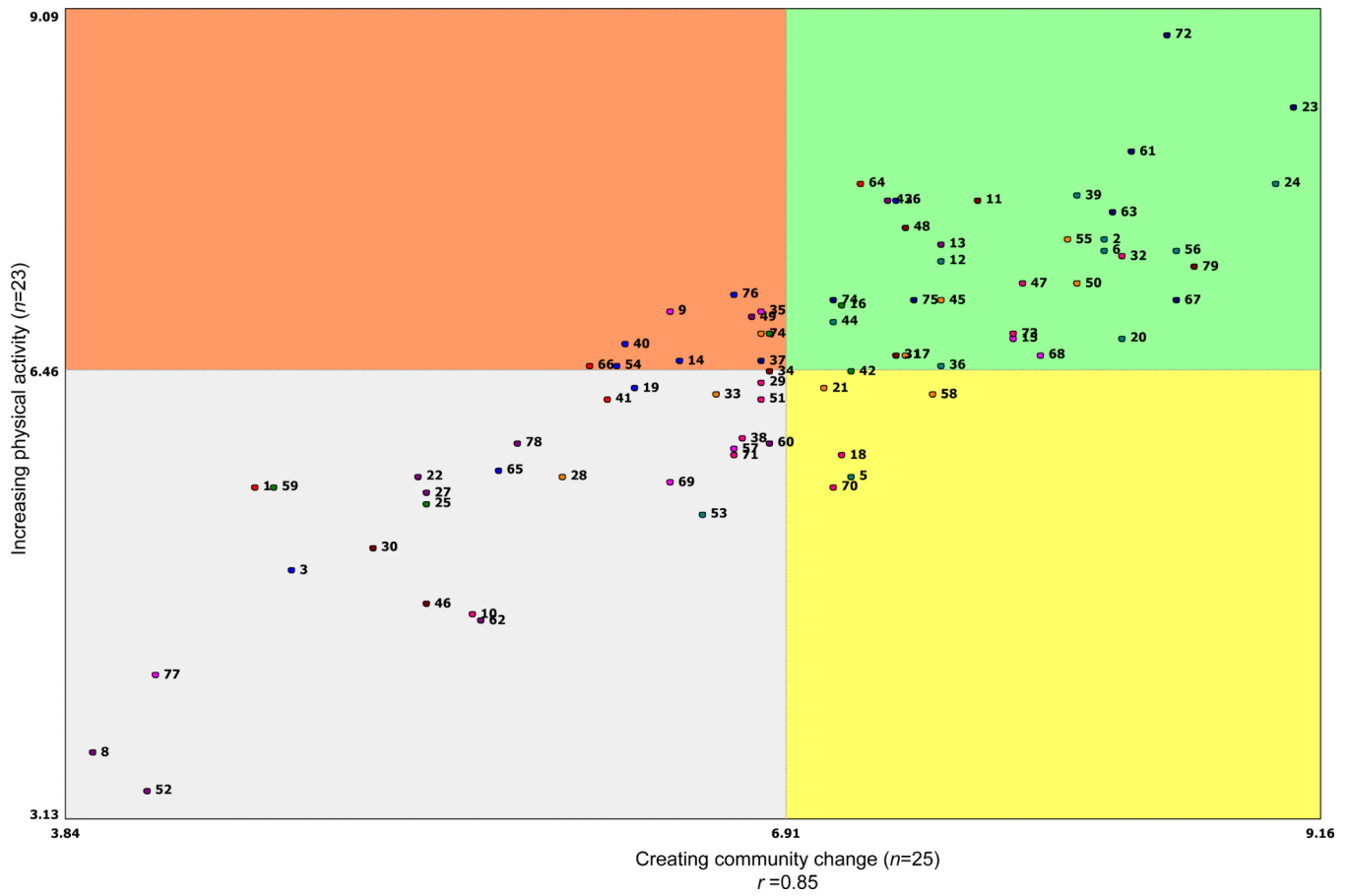Relative Importance Ratings by Subpopulation and Intervention Approach

Figure 3.
Go-zone analysis for creating community change and increasing physical activity.
Note: The numbered points correspond to the statements in Appendix A.

Table 1

Characteristics of participants in the brainstorming activity (*n*=43)

Participant characteristics	Respondents (%)
Type of organization (lead agency)	
Nonprofit organization	69
Local government (e.g., city, county)	27
Foundation	4
Other	4
Focus of the organization (lead agency)	
Community health or wellness/Health promotion	30
Advocacy (e.g., health, environment, ped/bike)	15
City, urban or regional planning	12
Community development/organizing	15
Economic development	8
Transportation	8
Education	4
Housing	4
Other	4
Community partnerships with a focus on children	
General population	62
Children and families	38
Community partnerships with a focus on racial/ethnic populations	
Racial/ethnic populations	65
Other or general populations	35
Community partnerships with a focus on lower-income populations	
Lower-income populations	23
Other or general populations	77
Community partnerships with a focus on geographic communities	
Urban	77
Rural	23

Table 2

Importance ratings from pattern match analyses, M (95% CI)

	Changes to built and natural environment	Partnership and collaboration	Land-use and transportation policy	Sustainability: advocacy and policy	Sustainability: resources and institutionalization	Preparation: assessment and capacity-building	Access and support	Physical activity programs	Bike programs	Campaigns, promotions, and publicity
Creating community change; *n*=25										
Overall rating	8.1 (7.6, 8.6)	7.9 (7.2, 8.6)	7.3 (6.5, 8.1)	7.1 (6.4, 7.8)	6.9 (6.3, 7.8)	6.6 (6.0, 7.3)	6.2 (5.4, 7.1)	6.2 (5.4, 6.9)	6.0 (5.2, 6.8)	5.8 (5.1, 6.6)
Racial/ethnic minority populations										
Racial/ethnic minority (*n*=17)	8.3 (7.7, 8.9)	7.9 (7.0, 8.8)	7.7 (6.9, 8.4)	7.2 (6.3, 8.2)	7.0 (6.1, 7.8)	6.8 (6.0, 7.7)	6.5 (5.5, 7.4)	6.3 (5.3, 7.4)	6.3 (5.4, 7.1)	6.1 (5.1, 7.0)
All other	7.6 (6.5, 8.7)	8.0 (6.7, 9.3)	6.4 (4.2, 8.6)	6.8 (5.4, 8.3)	6.9 (5.7, 8.1)	6.2 (5.0, 7.4)	5.7 (3.4, 8.0)	5.8 (4.7, 7.1)	5.4 (3.4, 7.5)	5.3 (4.1, 6.5)
Lower-income populations										
Lower-income (*n*=6)	8.0 (6.6, 9.5)	7.0 (4.4, 9.5)	7.1 (5.6, 8.7)	6.3 (3.9, 8.8)	6.3 (3.9, 8.7)	6.3 (3.9, 8.6)	5.3 (2.9, 7.8)	5.3 (2.3, 8.4)	5.5 (3.4, 7.6)	5.3 (2.4, 8.3)
All other	8.1 (7.5, 8.6)	8.2 (7.6, 8.8)	7.3 (6.3, 8.3)	7.4 (6.6, 8.1)	7.1 (6.5, 7.7)	6.7 (6.1, 7.4)	6.5 (5.5, 7.5)	6.5 (5.8, 7.1)	6.2 (5.2, 7.1)	6.0 (5.4, 6.6)
Geography										
Rural (*n*= 6)	7.5 (6.0, 8.9)	7.2 (6.0, 8.4)	5.9 (3.1, 8.7)	6.6 (4.9, 8.2)	6.7 (5.1, 8.4)	5.9 (4.4, 7.4)	4.7 (2.1, 7.3)	5.7 (3.9, 7.6)	4.5 (2.3, 6.6)	5.2 (3.6, 6.8)
Urban/suburban	8.3 (7.7, 8.8)	8.1 (7.3, 9.0)	7.7 (7.0, 8.4)	7.3 (6.4, 8.2)	7.0 (6.3, 7.8)	6.9 (6.1, 7.6)	6.7 (5.8, 7.6)	6.3 (5.4, 7.2)	6.5 (5.7, 7.3)	6.0 (5.2, 6.9)
Age										
Children/Families (*n*=10)	7.9 (7.1, 8.7)	7.6 (6.3, 8.8)	7.4 (6.3, 8.5)	7.0 (5.6, 8.5)	6.8 (5.5, 8.1)	6.5 (5.3, 7.8)	6.2 (4.8, 7.7)	5.7 (4.1, 7.3)	6.0 (4.9, 7.1)	5.6 (4.0, 7.1)
All other	8.2 (7.5, 8.9)	8.2 (7.3, 9.0)	7.2 (5.9, 8.4)	7.2 (6.3, 8.1)	7.1 (6.3, 7.8)	6.7 (5.8, 8.5)	6.2 (4.9, 7.5)	6.5 (5.7, 7.4)	6.0 (4.8, 7.2)	6.0 (5.2, 6.8)
Increasing physical activity; *n*=23										
Overall Rating	7.6 (6.9, 8.3)	6.9 (6.1, 7.8)	6.6 (5.6, 7.6)	6.1 (5.3, 7.0)	6.5 (5.7, 7.3)	6.1 (5.2, 7.0)	6.2 (5.3, 7.2)	6.4 (5.5, 7.3)	6.5 (5.6, 7.5)	5.6 (4.8, 6.4)
Racial/ethnic populations										
Racial/ethnic (*n*=15)	7.6 (6.6, 8.7)	6.4 (5.2, 7.6)	6.7 (5.4, 8.0)	5.8 (4.7, 7.0)	6.2 (5.0, 7.4)	5.8 (4.4, 7.2)	6.4 (5.0, 7.8)	6.6 (5.2, 8.0)	6.7 (5.6, 7.9)	5.8 (4.6, 7.0)
All other	7.6 (6.5, 8.7)	7.9 (6.9, 8.9)	6.4 (4.2, 8.5)	6.7 (5.3, 8.1)	7.0 (6.1, 7.9)	6.6 (6.0, 7.3)	5.9 (4.5, 7.2)	6.1 (5.4, 6.7)	6.2 (4.3, 8.0)	5.3 (4.5, 6.0)
Lower-income populations										
Lower Income (*n*=6)	6.7 (4.2, 9.1)	6.0 (3.6, 8.4)	6.3 (3.5, 9.0)	5.5 (2.6, 8.3)	6.1 (3.6, 8.6)	5.1 (1.7, 8.5)	4.9 (1.8, 8.0)	5.2 (1.4, 8.9)	5.8 (3.1, 8.6)	4.9 (1.8, 7.9)
All other	8.0 (7.3, 8.6)	7.3 (6.3, 8.2)	6.7 (5.5, 7.9)	6.4 (5.5, 7.3)	6.6 (5.7, 7.5)	6.4 (5.7, 7.2)	6.7 (5.7, 7.6)	6.9 (6.3, 7.5)	6.8 (5.8, 7.8)	5.9 (5.1, 6.6)

	Changes to built and natural environment	Partnership and collaboration	Land-use and transportation policy	Sustainability: advocacy and policy	Sustainability: resources and institutionalization	Preparation: assessment and capacity-building	Access and support	Physical activity programs	Bike programs	Campaigns, promotions, and publicity
Geography										
Rural (*n*=6)	7.6 (6.4, 8.8)	7.2 (6.5, 8.0)	5.8 (3.2, 8.4)	6.6 (4.9, 8.2)	7.1 (6.1, 8.2)	6.7 (5.5, 7.9)	5.7 (3.8, 7.6)	6.5 (5.1, 7.9)	5.9 (3.2, 8.7)	5.5 (4.1, 6.9)
Urban/suburban	7.6 (6.7, 8.6)	6.8 (5.7, 8.0)	6.9 (5.7, 8.1)	6.0 (4.9, 7.1)	6.2 (5.2, 7.3)	5.9 (4.7, 7.0)	6.4 (5.2, 7.6)	6.4 (5.2, 7.6)	6.8 (5.7, 7.8)	5.6 (4.6, 6.7)
Age										
Children/Families (*n*=8)	7.6 (5.7, 9.4)	7.0 (5.4, 8.6)	6.3 (4.4, 8.1)	6.3 (4.3, 8.3)	6.6 (4.9, 8.4)	6.3 (3.9, 8.7)	6.3 (4.3, 8.4)	6.2 (3.9, 8.5)	7.2 (5.6, 8.7)	5.5 (3.5, 7.5)
All other	7.7 (6.9, 8.4)	6.9 (5.8, 8.1)	6.8 (5.4, 8.2)	6.0 (5.0, 7.1)	6.4 (5.4, 7.4)	6.0 (5.0, 6.9)	6.2 (4.9, 7.4)	6.5 (5.5, 7.5)	6.2 (5.0, 7.5)	5.7 (4.7, 6.6)