Prevalence of Physical Activity Policies and Environmental Strategies in Communities and Worksites: The Iowa Community Transformation Grant

Catherine J. Lillehoj, Ph.D.,
Iowa Department of Public Health Des Moines, IA 50319

Jason D. Daniel-Ulloa, Ph.D., and
Postdoctoral Research Scholar Prevention Research Center for Rural Health Community and Behavioral Health College of Public Health University of Iowa Iowa City, IA 52242

Faryle Nothwehr, Ph.D., M.P.H.
Community and Behavioral Health College of Public Health University of Iowa Iowa City, IA 52242

A growing body of research has demonstrated how the physical and social contexts in which people live and work can shape many behaviors with consequent effects on health.[1-7] Physical and social environments can limit or expand the choices and resources available to individuals. Targeted policy and environmental changes have the potential to enhance physical and social environments and make it easier for individuals to make choices that improve their health.[8]

Many health promotion programs have recognized that worksite and community settings provide ideal venues to influence health behaviors, including physical activity.[9-11] Optimal health promotion programs in worksite and community settings should extend beyond educational offerings and include policies and environmental strategies focused on increasing opportunities for physical activity.[10, 12-14] Community and worksite policies and environmental strategies are intended to change behavior in the aggregate rather than at the individual-level thereby having the potential to influence entire cohorts. In a comprehensive review of policies and environmental strategies, specific approaches to enhance physical activity include increasing access (e.g., gym membership, walking trails) and community design approaches (e.g., land use policies supportive of physical activity).[14]

While many individual communities have conducted assessments of their physical activity environments for planning purposes, rarely are such data aggregated and reported in the research literature. Documenting the prevalence of policies and environmental strategies related to physical activity is essential to understanding progress made and challenges yet to be addressed. Data from rural communities are especially needed as research in these areas tends to focus on provision of health care services as opposed to health promotion

Corresponding Author: Catherine J. Lillehoj, Ph.D.; Iowa Department of Public Health, 321 E. 12th St., Des Moines, IA, 50319; Phone: (515) 242-5913; Fax: (515) 281-4913; Catherine.lillehoj@idph.iowa.gov.

activities.[15] This study extends previous research by examining the specific health promotion activities of physical activity policy and environmental strategies in an understudied region of the country, the rural Midwest.

Intended to reduce the prevalence of chronic diseases through environmental and policy changes, the Community Transformation Grant (CTG) is a signature program of the Prevention and Public Health Fund, made possible by the Affordable Care Act (http://www.cdc.gov/nccdphp/dch/programs/communitytransformation/funds/index.htm).[16] The Iowa Department of Public Health (IDPH) received funding in 2011 to enhance the ability of local communities to support prevention and improve the health outcomes of their residents. Consistent with the national initiative, funds were distributed at the local level towards four strategic directions: Tobacco free living, active living and healthy eating, healthy and safe physical environments, and increased use of high impact clinical prevention services. In Iowa, twenty-six counties were selected to receive CTG funding based on expected reach and impact. Fifteen counties were rural and 11 were urban.

The purpose of the present study is to use baseline CTG-gathered data to document the prevalence of physical activity policies and environmental strategies in Iowa communities and worksite settings. The influence of community or worksite setting (i.e., rural-urban) on these prevalence rates is explored.

Methods

A review by the University of Iowa Institutional Review Board determined the CTG project was exempt from the approval and monitoring process.

Study Sample

Data for the current study were obtained from baseline assessments completed by the 26 CTG-funded counties in the state of Iowa. This represents 26% of all counties statewide. The 26 county sub-group exhibits high chronic disease risk and burden, as well as the potential for reach to disparate populations.[17] The primary disparate populations targeted in the Iowa CTG initiative include: Iowans living in rural areas, those with disabilities, and those of lower socioeconomic status. Sixty-nine percent of the counties have either higher than average unemployment for the state or household income below the Iowa median (i.e., $52,229). The counties represent nearly 60% of all Iowans living in poverty, 74% of Iowa's Non-white population, and 62% of Iowans with severe disabilities or at great risk of disability.[17]

Counties were classified according to The White House Office of Management and Budget (OMB) classification scheme as rural or urban.[18] The OMB definition designates counties as Metropolitan, Micropolitan, or Neither. A Metropolitan area contains a core urban area of 50,000 or more population, and a Micropolitan area contains an urban core of at least 10,000 (but less than 50,000) population. Counties that do not include a Metropolitan area were considered rural.

Data Collection and Measures

Community Health Assessment and Group Evaluation Tool—The Centers for Disease Control and Prevention (CDC) Healthy Communities Program developed the Community Health Assessment and Group Evaluation (CHANGE) tool as a way to assess and document policy and environmental changes in communities. The tool is available at: www.cdc.gov/healthycommunitiesprogram/tools/change.htm.[19] This tool, used by CTG-funded communities, provides a community with a picture of the policy and environmental change strategies currently in place and helps identify areas for improvement. The CHANGE tool promotes collaboration among a community team or coalition and local stakeholders in order to prioritize community needs. Stakeholders could be business leaders, school administrators, members of non-profit organizations, elected leaders, or anyone else in the community in a position to understand a particular issue or to address identified pathways for change.

The Iowa Department of Public Health provided training sessions on how to complete the CHANGE online data collection forms. County Public Health (CPH) along with community coalition representatives received two trainings providing information on community design changes that facilitate walking and biking. The training emphasized that the CHANGE tool is not intended to grade communities or worksites, but rather to assist them in identifying priority areas where improvements could be made. In addition, a webinar on the CHANGE tool was presented, plus all CTG CPH had access to the CHANGE tool instructional document on the CDC Website. On-going technical assistance was provided on the CHANGE tool through regional meetings.

The CHANGE tool is comprised of five sectors. One sector is an assessment of the Community-At-Large (CAL) that examines policies and environmental factors overall. Another sector is designed to examine worksite policies and environmental strategies. The remaining three sectors are: Tobacco, Chronic Disease Management, and Leadership. An additional segment includes demographic questions. Demographic questions for the CAL were provided by CPH CTG staff and for the worksites by a worksite spokesperson. Counties were asked to complete one CAL assessment and at least three local worksite assessments. CPH representatives and local coalitions selected worksites based on perceived interest and readiness for change. For the CAL assessment, CPH representatives could opt to focus on an entire county or a community within the county. For the purposes of this study, data were obtained from the physical activity module of each CAL and worksite sector assessments.

The CAL and worksite assessments were examined separately because each included different setting-specific strategies for encouraging physical activity. The assessment forms posed questions related to whether a <u>policy</u> was in place to address a particular strategy, as well as whether <u>environmental</u> changes had actually been made with regard to this strategy. Fourteen strategies were included in the CAL assessment. One example of these strategies is: To what extent does the community require sidewalks to be built for all developments (e.g., housing, schools, commercial)? Thirteen strategies were included in the worksite assessment. One example of these strategies is: Promote stairwell use (e.g., make stairs

appealing, post motivational signs near stairs to encourage physical activity). To indicate the extent to which a <u>policy</u> was in place for a particular strategy in *either* setting, the online form presented a five-point Likert-type scale; possible responses were "Not identified as a problem" (1), "Problem identification/gaining agenda status" (2), "Policy formulation and adoption" (3), "Policy implementation" (4), and "Policy evaluation and enforcement" (5). Respondents could also select "Not applicable" (99) if the specific policy was not relevant to the setting. To indicate the extent to which <u>environmental</u> change had been made with regard to a strategy, the form presented a five-point Likert scale with responses including: 1 ("Elements not in place"), 2 ("Few elements in place"), 3 ("Some elements in place"), 4 ("Most elements are in place"), to 5 ("All elements in place"). Respondents could also select "Not applicable" (99) if the specific environmental strategy was not relevant for the setting.

Demographic Information—For the CAL CHANGE tool, demographic information was collected on the percent of residents who had graduated from high school, percent of residents living in poverty, percent of residents who were employed, and median household income. For the worksite CHANGE tool, demographic information included type of worksite, total number of employees, and public or private sector.

Rural-Urban—County status (*N=26*) was classified according to the OMB classification scheme described earlier. Using this definition, approximately 17% of the Iowa population lived in rural areas while 74% of the land area was contained in rural counties.

Race/Ethnicity—For standardization purposes, race/ethnicity data were obtained at the county level from the American Community Survey (ACS).[20] Because the overwhelming majority of county residents were White (i.e., 89.8%), the race/ethnicity category was dichotomized (1=White, 0=Other).

Unemployment—County-level rates of unemployment were obtained from the ACS.[20]

High School Graduation—County-level rates of high school graduation were obtained from the ACS.[20]

Data Analysis

After data collection was completed, the electronic file or the hard copy was sent to the Iowa Department of Public Health where hard copy data was entered into an electronic file. Subsequently, data were cleaned and entered into a data analytic format.

Data from the CHANGE tool assessments were entered into and analyzed in Stata 2012.[21] For the CAL assessments, data were first organized by calculating means and standard deviations for continuous variables (i.e., policies, environmental strategies). Second, the percentages of non-applicable (*NA*) responses were examined for each assessed strategy. Third, demographic differences between rural and urban counties were explored using t-tests for continuous variables and Chi-square for other variables. Rates for poverty, high school graduation, unemployment, and race/ethnicity for each county were assessed and compared based on urban or rural location.[20] Means and standard deviations were calculated for each CAL item by rural and urban county. Rural-urban differences in CAL scores were examined

with a statistical correction for multiple comparisons. However, no significant differences were found.

For the worksite assessments, the data were first organized using the same methods as the CAL. Three to five worksite assessments were conducted in each county. Percentages were calculated for all demographic variables, plus means and distributions for the policy and environmental strategies as appropriate. Variations between rural and urban assessments were analyzed to account for potential clustering effects among worksites and also used a correction factor to account for testing multiple differences. However, no significant differences were found. Means and standard deviations were calculated by rural and urban county for each worksite CHANGE tool item.

Results

Basic Community Descriptors

Across all counties the rate of unemployment was 3.9% and the poverty rate was 14.4%. The majority of residents (89.8%) were white and the rate of high school graduation was 89.1%. There were no differences between urban and rural counties in unemployment, poverty, high school graduation rate, or race/ethnicity.

Among the 79 worksites assessed, 31% were governmental entities (e.g., County Roads Department) and 21% were health care facilities. The remaining worksites included retail, banking, food service, and faith-based institutions. There were no statistically significant differences in the type of worksite or number of employees by urban or rural setting.

Community Physical Activity Assessment

The CAL assessment included 14 strategies related to promoting physical activity. All but one had two or fewer *NA* responses across the counties. Thirteen respondents reported *NA* for the policy item assessing *Provide access to public transportation within walking distance*.

Table 1 displays the means and standard deviations for the 14 items on the CAL physical activity strategy assessment. Results are presented separately for rural, urban and all counties combined, and results display the extent to which policies are in place as well as the extent of environmental changes. On a scale of 1 ("Not identified as a problem") to 5 ("Policy evaluation and enforcement"), mean policy scores ranged from 2.1 to 4.0. Overall, the lowest score was for the policy *Require bike facilities* (i.e., mean 2.1) and the highest score for the policy stating that *Sidewalks comply with Americans with Disabilities Act (ADA)* (i.e., mean 4.0). Mean environmental strategy scores ranged from 2.2 (i.e., *Adopt complete streets plan*) to 4.2 (i.e., *Maintain parks*).

Worksite Physical Activity Assessment

Detailed means and standard deviations for the 13 items on the worksite physical activity strategy assessment are depicted in Table 2. Again, results are presented separately for rural, urban and all counties combined, and results display the extent to which policies are in place as well as the extent of environmental changes. Mean scores for policies ranged from 1.4

(i.e., *Promote stairwell use, Encourage non-motorized commuting, Implement activity breaks*) to 2.5 (i.e., *Subsidize gym membership*). Mean scores for the <u>environmental</u> strategies ranged from a low of 1.9 (i.e., *Implement activity breaks*) to a high of 3.4 (i.e., *Provide safe area outside for physical activity*).

Examination of Rural-urban Status in the CALs

Community type (i.e., rural or urban) was not significantly associated with the assessment score for any physical activity policy or environmental strategy.

The strategy *Access to public transportation within walking distance* had a high rate of non-applicable responses for both the policy and environment assessment (N=11; 42%). Fifty percent (N=8) of the rural counties and 27% (N=3) of the urban counties reported *NA* for this strategy; but the difference between these groups was not statistically significant.

Examination of Rural-urban Status in Worksites

Worksite setting (i.e., rural or urban) was not significantly associated with any physical activity policy or environmental strategy scores.

Discussion

This study extends previous research by examining the baseline prevalence rate of physical activity policies and environmental strategies in an understudied region of the country, the rural Midwest. The study also explored rural-urban differences on the status of physical activity policies and environmental strategies. Results suggested that rural-urban differences were negligible.

No previous studies could be found investigating rural-urban differences in policies and environmental strategies related to physical activity. For the community-level assessment, the lower scores on policies and environmental strategies were related to complete streets, bicycle use, and street calming. Lower scores might be due to policies and strategies potentially requiring costly and extensive infrastructure and construction improvements. Further, those policies and strategies that scored lower may indicate minimal bicycle use for transportation purposes in CTG communities. Carter and Council[22] note that rural roadways have different characteristics than urban roadways (e.g., vehicle speeds, absence of sidewalks) that force bicycle use to the shoulder or travel lane. Carter and Council elaborate that many of the environmental changes suggested (e.g., adding sidewalks) to remedy the environmental characteristic are costly. Further, bicycle activity is generally lower along the numerous miles of rural roads compared to urban roads.[22]

Some of the higher scoring items on the community-level assessment were *Adopt a land use plan* (i.e., policy), *Maintain parks*, and *Sidewalks ADA compliant*. Higher scores might suggest policies and strategies that communities have engaged in for long periods of time and for which current funding is available. Further, with the predominantly agricultural focus of the entire state, the use of land may have a high policy priority in most communities.

For the worksite physical activity assessment, we found that policy scores ranged from a low on *Promote stairwell use*, *Encourage non-motorized commuting,* and *Implement activity breaks* to a high on *Subsidize gym membership*. Lower scores on policies related to non-motorized commuting are consistent with the finding related to minimal biking for transportation purposes noted above. Although previous studies have documented that environmental strategies serve as effective prompts to increase stairwell use, the strategy may not be relevant for some communities in that the majority of worksites could be located in one story buildings.[23-25] Because building structure was not assessed, it is difficult to know if those worksites that were assessed were multi-level. Future research could explore the influence of building structure on stairwell use.

Scores for the environmental strategy assessment were low on *Implement activity breaks* but high on *Provide safe area outside for physical activity*. It appears that worksites have created areas for employees to engage in physical activity but might benefit from strategies to enhance employee activity breaks.

Across community and worksite assessments, rural-urban differences were not statistically significant. These analyses were likely hampered by the small sample size and should be interpreted with caution. Compared to rural counties, urban counties reported higher scores on policies including those related to biking and land use. Rural scores were noted to trend higher on the environmental strategies including issues such as *Access to public recreation and transportation*. These interesting findings reflect that more environmental strategies are in place related to the use of land and access to transportation in rural CTG counties. Among community residents, public access to recreation facilities and transportation are considered valuable resources.[26] Supplemental strategies should be considered to promote the development of policies and environmental resources in urban CTG counties to support these activities.

Worksites in rural counties reported scores trending higher on polices or environmental strategies to *Provide a locker* and policies to *Provide support for community-wide physical activities*. The enactment of similar policies in urban worksites may lead to outcomes that could be evaluated in future CTG activities. Even though evidence that resources for physical activity policies and environmental strategies in Midwestern worksites may be lacking, the current study found that some policies and environmental systems to encourage these behaviors have been created.[27]

Despite CHANGE tool training, the reliability of the data may have varied from one community or worksite to another, depending on the awareness and understanding of specific policies or environmental strategies by local CTG partners. It is possible that awareness and understanding of policies and strategies could also differ by rural and urban locations. Because community partners may not comprehensively document CHANGE tool policies and strategies, an extensive document review of county-level policies may elicit more factual information. Since the data were collected in real-world settings following training, some inconsistencies in data acquisition across counties may have occurred. Given this limitation, however, the study data have strong external validity as a representation of typical real-world practice.

Because only Iowa communities and worksites were studied, the results cannot be generalized to other states. However, other states with CTG funding may find the results interesting and could compare their own results to these.

In sum, the results of this study provide a real-world example of the assessment of physical activity policies and environmental strategies in urban and rural settings. Study results demonstrate that policies and environmental strategies at the community-level were lowest for complete streets, street calming, and bicycle use. Lower scores may result from strategies potentially requiring extensive infrastructure and construction improvements that are expensive. Worksite policies and environmental strategies were low on stairwell use promotion and activity breaks. Such evidence suggests that worksites might benefit from guidance on approaches to enhance such activities. Social Cognitive Theory suggests that the environment and health behaviors reciprocally influence one another.[28] Implementing policies and environmental changes demonstrated to support physical activity facilitate engagement in the behavior. Conversely, where there are low levels of physical activity, it may be more difficult to enact supportive policies and environmental changes because perceived demand may be low.[29] Communities and worksites may need to assess interest for policy and environmental changes, plus educate residents and employees in the behavior to increase the perceived demand for change. These dynamics add complexity to the already challenging task of promoting healthy lifestyles. Future studies could compare these results with those of other CTG communities, further explore explanations for the findings through collection of qualitative data, and track changes over time in the prevalence of these nationally targeted physical activity policies and environmental strategies.

Acknowledgments

References

1. Leventhal T, Brooks-Gunn J. The neighborhoods they live in: the effects of neighborhood residence on child and adolescent outcomes. Psychol Bul. 2000; 126(2):309–337. PubMed doi: 10.1037/0033-2909.126.2.309.

2. Yen IH, Syme SL. The social environment and health: A discussion of the epidemiologic literature. Annu Rev Public Health. 1999; 20:287–308. PubMed doi:10.1146/annurev.publhealth.20.1.287. [PubMed: 10352860]

3. McNeill LH, Kreuter MW, Subramanian SV. Social Environment and physical activity: A review of concepts and evidence. Soc Sci Med. 2006; 63(4):1011–1022. PubMed doi:org/10.1016/j.socscimed.2006.03.012. [PubMed: 16650513]

4. Humpel N, Owen N, Leslie E. Environmental factors associated with adults' participation in physical activity. A review. Am. J. Prev. Med. 2002; 22:188–99. [PubMed: 11897464]

5. Saelens BE, Sallis JF, Frank LD. Environmental correlates of walking and cycling: findings from the transportation, urban design, and planning literatures. Ann. Behav. Med. 2003; 25(2):80–91. [PubMed: 12704009]

6. Saelens BE, Handy SL. Built environment correlates of walking: A review. Med Sci Sports Exerc. 2008; 40(7 Suppl):S550. [PubMed: 18562973]

7. Gebel K, Bauman AE, Petticrew M. The physical environment and physical activity: A critical appraisal of review articles. Am. J. Prev. Med. 2007; 32(5):361–369. [PubMed: 17478260]

8. Srinivasan A, O'Fallon LR, Dearry A. Creating Healthy Communities, Healthy Homes, Healthy People: Initiating a Research Agenda on the Built Environment and Public Health. Am J Public Health. 2003; 93(9):1446–1450. doi: 10.2105/AJPH.93.9.1446. [PubMed: 12948961]

9. Conn VS, Hafdahl AR, Cooper PS, Brown LM, Lusk S. Meta-analysis of workplace physical activity interventions. Am J Prev Med. 2009; 37(4):330–339. PubMed doi:org/10.1016/j.amepre.2009.06.008. [PubMed: 19765506]

10. Engbers LH, van Poppel MN, Paw MJC, van Mechelen W. Worksite health promotion programs with environmental changes. Am J Prev Med. 2005; 29(1):61–70. PubMed doi:org/10.1016/j.amepre.2005.03.001. [PubMed: 15958254]

11. Pegus C, Bazzarre TL, Brown JS, Menzin J. Effects of the Heart at Work Program on Awareness of Risk Factors, Self-efficacy, and Health Behaviors. J Occup Environ Med. 2002; 44:228–236. [PubMed: 11911024]

12. Glanz K, Seewald-Klein T. Nutrition at the worksite: An overview. J Nutr Educ Behav. 1986; 15:395–415. PubMed doi:org/10.1016/S0022-3182(86)80084-X.

13. Heath GW, Brownson RC, Kruger J, Miles R, Powell KE, Ramsey LT. Task Force on Community Preventive Services. The effectiveness of urban design and land use and transport policies and practices to increase physical activity: A systematic review. J Phys Act & Hlth. 2006; 3:S55.

14. Brownson RC, Haire-Joshu D, Luke DA. Shaping the context of health: A review of environmental and policy approaches in the prevention of chronic diseases. Annu Rev Public Hlth. 2006; 27:341–370.

15. Nothwehr, F.; Erickson, L.; Schultz, U. Rural Public Health Systems: A View from Iowa.. In: Crosby, R.; Wendel, M.; Vanderpool, R.; Casey, B., editors. Rural Populations and Health: Determinants, Disparities, and Solutions. Jossey; San Francisco, CA: 2012. p. 151-167.

16. Centers for Disease Control and Prevention. Community Transformation Grant (CTG) Program Fact Sheet. 2012. http://www.cdc.gov/nccdphp/dch/programs/communitytransformation/

17. Iowa Department of Public Health. Understanding Community Health Needs in Iowa. 2011. http://www.idph.state.ia.us/chnahip/CommunityHealthNeeds.aspx

18. Census Bureau, US. Census urban and rural classification and urban area criteria. 2010. http://www.census.gov/geo/reference/ua/urban-rural-2010.html

19. Centers for Disease Control and Prevention. Community Health Assessment aNd Group Evaluation (CHANGE): Building a Foundation of Knowledge to Prioritize Community Needs. 2012. http://www.cdc.gov/ healthycommunitiesprogram/tools/change.htm

20. U.S. Census Bureau; American Community Survey. Detailed Tables; generated by Jason Daniel-Ulloa; using American FactFinder. 2010. http://factfinder.census.gov/home; August, 2013

21. Stata Statistical Software: Release 12. StataCorp LP; College Station, TX:

22. Carter, DL.; Council, FM. Final report. Submitted to the Federal Highway Adminstration. UNC Highway Safety Research Center; 2006. Factors contributing to pedestrian and bicycle crashes on rural highways.. http://www.hsisinfo.org/pdf/HSIS-Rural-PedBike-Final-Report.pdf

23. Adams MA, Hovell MF, Irvin, Sallis JF, Coleman KJ, Liles S. Promoting stair use by modeling: an experimental application of the Behavioral Ecological Model. Am J Health Promot. November-December. 2006; 21(2):101–109. PubMed doi:org/10.4278/0890-1171-21.2.101. [PubMed: 17152249]

24. Adams J, White M. A systematic approach to the development and evaluation of an intervention promoting stair use. Health Educ J. September. 2002; 61(3):272–286. PubMed doi: 10.1177/001789690206100308.

25. Eves FF, Olander EK, Nicoll G, Puig-Ribera A, Griffin C. Increasing stair climbing in a train station: the effects of contextual variables and visibility. J Env Psychol. June. 2009; 29(2):300–303. PubMed doi.org/10.1016/j.jenvp.2008.10.002.

26. Addy CL, Wilson DK, Kirtland KA, Ainsworth BE, Sharpe P, Kimsey D. Associations of perceived social and physical environmental supports with physical activity and walking behavior. Am J Public Health. 2004; 94(3):440–443. doi:10.2105/AJPH.94.3.440. [PubMed: 14998810]

27. Dodson EA, Lovegreen SL, Elliott MB, Haire-Joshu D, Brownson RC. Worksite policies and environments supporting physical activity in Midwestern communities. Am J Health Promot. 2008; 23(1):51–55. PubMed doi: org/10.4278/ajhp.07031626. [PubMed: 18785375]

28. Bandura A. Health promotion by social cognitive means. Health Educ Behav. 2004; 31(2):143–64. PubMed doi: 10.1177/1090198104263660. [PubMed: 15090118]

29. Glanz, K.; Rimer, B.; Lewis, F., editors. Health behavior and health education: theory, research and practice. 4th ed.. Jossey-Bass Publishers; San Francisco,CA: 2008.

Table 1

Iowa Community Transformation Grant CHANGE Tool Community-level Means and Standard Deviations of Scores for Policy and Environmental Strategies to Increase Physical Activity (N=26)

Strategies	Policy			Environment		
	Rural	Urban	Total	Rural	Urban	Total
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
To what extent does the community:						
Require sidewalks for new developments	2.9 (1.6)	3.7 (1.4)	3.3 (1.5)	2.9 (1.4)	4.2 (1.0)	3.5 (1.4)
Adopt a land use plan	3.5 (1.6)	4.4 (.9)	3.8 (1.4)	2.2 (1.2)	2.5 (.9)	2.3 (1.1)
Require bike facilities	1.9 (1.4)	2.4 (.9)	2.1 (1.2)	2.2 (1.2)	2.5 (.9)	2.3 (1.1)
Adopt complete streets plan	2.1 (1.4)	2.4 (1.0)	2.2 (1.2)	2.3 (1.4)	2.2 (1.3)	2.2 (1.3)
Maintain walking routes	2.3 (1.3)	2.9 (1.3)	2.6 (1.3)	2.4 (1.5)	2.7 (1.0)	2.5 (1.3)
Maintain biking routes	1.8 (1.1)	2.9 (1.3)	2.2 (1.2)	2.0 (1.1)	2.7 (1.3)	2.3 (1.1)
Maintain parks	3.7 (1.4)	4.1 (1.2)	3.9 (1.2)	4.3 (1.0)	4.0 (1.0)	4.2 (1.3)
Provide access to park	3.1(1.5)	3.0 (1.4)	3.1 (1.4)	3.5 (1.5)	3.2 (.9)	3.3 (1.2)
Institute mixed land use	2.3 (1.6)	2.6 (2.5)	2.5 (1.5)	2.3 (1.7)	2.8 (1.7)	2.5 (1.6)
Sidewalks comply with ADA	3.7 (1.3)	4.5 (.5)	4.0 (1.1)	3.7 (1.4)	4.1 (.7)	3.8 (1.2)
Provide access to public rec facilities	4.1 (1.1)	3.3 (1.4)	3.7 (1.3)	4.1 (1.0)	3.5 (1.1)	3.8 (1.1)
Enhance access to public transportation	3.4 (1.3)	2.6 (1.6)	3.0(1.5)	3.4 (1.0)	2.9 (1.6)	3.1 (1.3)
Provide street traffic calming measures	2.3 (1.4)	2.1 (1.4)	2.2(1.4)	2.5 (1.3)	2.2 (1.2)	2.4(1.3)
Adopt strategies to enhance safety	2.5 (1.3)	2.5 (1.4)	3.2(1.4)	2.9 (1.2)	3.3 (1.1)	3.0(1.2)

Table 2

Iowa Community Transformation Grant CHANGE Tool Worksite-level Means and Standard Deviations of Scores for Policy and Environmental Strategies to Increase Physical Activity (N= 79)

Strategies	Policy			Environment		
	Rural	Urban	Total	Rural	Urban	Total
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
To what extent does the worksite:						
Promote stairwell use	1.5 (.8)	1.3 (.5)	1.4 (.6)	2.7 (1.5)	2.6 (1.3)	2.7 (1.4)
Provide time for physical activity breaks	1.9 (1.2)	1.9 (1.1)	1.9 (1.2)	2.4 (1.4)	2.7 (1.3)	2.6 (1.3)
Encourage non-motorized commuting	1.5 (.7)	1.3 (.6)	1.4 (.6)	2.2 (1.1)	2.0 (1.3)	2.1 (1.2)
Enhance access to public transportation	2.0 (1.5)	1.2 (.4)	1.5 (1.0)	2.8 (1.6)	3.6 (1.6)	3.3 (1.7)
Support clubs/groups for physical activity	2.2 (1.3)	1.5 (.7)	1.8 (1.0)	2.9 (1.4)	2.3 (1.3)	2.6 (1.4)
Provide safe area outside physical activity	2.1 (1.4)	1.7 (1.3)	1.9 (1.3)	3.1 (1.6)	3.5 (1.4)	3.4 (1.5)
Designate a walking path	2.2 (1.3)	1.7 (1.1)	1.9 (1.2)	2.7 (1.4)	3.0 (1.5)	2.9 (1.5)
Provide an onsite fitness center	2.2 (1.5)	1.8 (1.4)	2.0 (1.5)	2.7 (1.7)	2.4 (1.6)	2.5 (1.7)
Provide locker room	2.8 (1.8)	1.9 (1.4)	2.3 (1.6)	3.5 (1.7)	2.5 (1.7)	2.9 (1.7)
Subsidize gym membership	2.4 (1.5)	2.5 (1.5)	2.5 (1.5)	2.7 (1.6)	2.7 (1.7)	2.7 (1.7)
Provide bike parking	2.3 (1.6)	1.7 (1.1)	1.9 (1.4)	3.2 (1.8)	2.7 (1.7)	2.9 (1.8)
Implement activity breaks	1.6 (1.1)	1.4 (.8)	1.4 (1.0)	2.2 (1.4)	1.7 (1.2)	1.9 (1.3)
Provide support for community-wide physical activities	2.5 (1.6)	1.8 (1.2)	2.1 (1.4)	3.1 (1.5)	2.8 (1.5)	2.9 (1.5)