

Using Leadership to Improve Community-based Obesity Interventions

Emily Koby, BA

ABSTRACT

Obesity is an enormous health problem facing America in the 21st century. Despite great efforts, health educators have made little progress in meeting the goals laid out in Healthy People 2010. A more contextual, community-based approach is necessary to change the physical and social environment in which people live, work and play. Studies show that residents of neighborhoods that lack pedestrian-friendly features and have high crime rates are less likely to be physically active, an important point for health educators to take into account when designing interventions. Whereas professional health educators have done little in this area, exemplary grassroots efforts like Safe Routes To School and Walking School Bus demonstrate the efficacy of such approaches. Leadership from health educators is needed, specifically in designing and implementing interventions that target the intersections of the built environment, crime and physical activity. The leadership theories of Daniel Goldman and John P. Kotter are especially useful when using coalition building and the Community Readiness Model as strategies for interventions.

Florida Public Health Review, 2009; 6, 8-13.

Introduction

America is quickly becoming a nation of overweight and the obese persons, much to the dismay of public health professionals, and specifically, public health educators. The causes (sedentariness and poor diet) are clear, and yet attempts to slim America down have met only modest success. Much of the work has been focused on behavior change at the individual level of the socio-ecological model. Recently, both anthropologists and health educators have been moving to interventions at the community and policy levels. It is becoming increasingly clear that food habits and activity levels are best understood in their social context. Neighborhoods and communities are excellent places to stage interventions for this very reason, but they vary in their readiness to embrace change. The Community Readiness Model is a framework for moving communities towards behavior change and clearly explicates the importance of leadership. Another method to create community-based change is to development of coalitions that can provide a direct interface between various community organizations and public health professionals. Both methods underscore the need for leadership both within the profession of public health and within communities themselves to create positive change towards healthier lifestyles.

Background and Significance

America is facing an obesity epidemic, with a full 34% of adults over age 20 considered to be obese according to statistics from the CDC (Centers for

Disease Control and Prevention, 2008a). Among children, 32% are overweight and 16% are obese (Ogden, Carroll, & Flegal, 2008). These numbers are expected to rise; in fact one recent study used the National Health and Nutrition Examination Study data and found that if current trends continue, 100% American adults will be obese by 2048, and that the percentage of overweight children will reach 30% by 2030 and 50% by 2050 (Wang, Beydoun, Liang, Caballero, & Kumanyika, 2008).

Being overweight or obese has been linked to hypertension, Type 2 diabetes, stroke, coronary heart disease, osteoporosis, gallbladder diseases, sleep apnea, as well as breast, colon and endometrial cancers. In addition to health problems for the individual, there are societal costs as well, including direct costs like increased health care spending, as well as indirect costs like lost productivity, missed work and potential income never earned because of premature death (Centers for Disease Control and Prevention, 2008b). Health professionals have acknowledged that this is a huge public health problem and have pledged in *Healthy People 2010* to reduce adult obesity rates from 32% to 15%, and obesity among children ages 6-17 from 11% to 5% (U.S. Department of Health and Human Services, 2000).

The end of this decade is quickly approaching and yet we are nowhere near the goals set by *Healthy People 2010*. Clearly we, as public health educators, are not reaching our priority population. We have been too focused on individual behavior change programs and have failed to see the big picture.

Community-level approaches are needed to change the social and environmental contexts in which people live, work and play. Leadership is a critical element to this transition, from both health educators and residents of the communities and neighborhoods selected for interventions. As a student poised to become a health educator, I hope to become a leader on this very topic, changing the way that we approach America's obesity epidemic.

Factors Relating to the Problem

Obesity is caused, in a purely scientific sense, by an energy imbalance in which a person chronically consumes more energy through food than is burned off through physical movement during the course of a day. Thus, obesity has two distinct components for health educators to tackle, the first being diet. Although there are many proposed mechanisms that lead to chronic caloric overconsumption, a few are generally accepted. These include the consumption of energy-dense, micronutrient poor food (i.e., fast food); heavy marketing of fast food and other energy dense foods; and consumption of soda, juice and other sweetened drinks (Swinburn, Caterson, Seidell, & James, 2004). Another issue, less commonly cited, is that people have a tendency to underestimate the calories in their food and overweight people are especially prone to this bias (Wansink & Chandon, 2006). Finally, a growing cultural emphasis on convenience can be seen in food habits, as people juggle increasingly busy schedules and choose foods that are quick and easy (Ulijasek, 2007). Essentially, people in modern America are choosing their time over their health.

The other half of the equation for health educators to address is physical activity. The decline of physical activity over several decades is clearly related to the shift from blue-collar to white-collar work (i.e., from physically demanding jobs to sedentary office work), as well as an increased dependence on cars for transportation (French, Jeffery, & Story, 2001). Americans are not compensating for this by exercising more outside of work either. One survey found that 40% of adults do not exercise in any way during their leisure time, an increase since 2000 (Barnes, 2007). Much of the blame goes to television and video games for replacing other, more physically demanding activities. The Americans Time Use survey found that indeed, Americans 15 years of age and older spend, on average, only seventeen minutes a day being physically active but spend 2.6 hours per day watching TV and another 19 minutes per day on the computer (U.S. Department of Labor, 2008).

Whereas Americans may be watching more TV than in previous eras, it is overly simplistic to say that

it is completely to blame. The easiest and most affordable place to exercise is right in one's own neighborhood, but features like the presence or absence of sidewalks, lighting and crime can have a big impact on whether people feel comfortable exercising around their home. The importance of neighborhood characteristics has been recognized of late with a great deal of research about the "walkability" of neighborhoods. The suburban neighborhoods that are so prevalent in the United States are not considered "walkable" or pedestrian friendly for a number of reasons, including low street connectivity, low population density and large distances between homes and businesses, which forces people to use cars rather than non-motorized transportation to do their shopping (Saelens, Sallis, Black, & Chen, 2003).

The link between environment and obesity rates has been proven in a number of studies. One such study linked urban sprawl and obesity risk by using data from the 2000 Behavioral Risk Factor Surveillance Survey for data on individual behavior and the 2000 U.S. Census to obtain urban sprawl measurements (Lopez, 2004). Another study looked at two neighborhoods in San Diego, California that that differing levels of walkability found that after adjusting for demographic factors, residents of the more walkable neighborhood reported 70 more minutes a week of physical activity a week. Moreover, 60% of the residents of the less walkable neighborhood were overweight compared to only 35% of more walkable neighborhoods (Saelens, et al., 2003). A similar study in King's County, Washington found that a 5% increase in walkability was found to increase physically active transportation by almost one-third, and was also associated with a lower BMI (although only by a quarter of a point) (Frank, Anderson, & Schmid, 2004). Finally, an Atlanta-based study found that land that was "mixed" (used for both residential and commercial purposes) it was associated with a decrease in obesity. The authors calculated that if purely residential land was shifted to the 90th percentile of current mixed land in Atlanta, the probability of obesity in residents would drop 35% (Frank, et al., 2006).

It should be noted however, that reducing urban sprawl alone would not entice people to start exercising more. Frank et al (2007) points out that there may be a bias in walkability studies, as people interested in walking for transportation are likely to do so, but people who prefer to use vehicles for transportation will not walk for errands regardless of what their neighborhood is like. This dilemma may suggest that neighborhood design is a hopeless avenue for obesity prevention. However, to promote neighborhood exercise and walking for

transportation, health educators need to ensure that the infrastructure is in place for people to adopt the new activities that we advocate.

Similarly, we cannot ask people to exercise in neighborhoods that are perceived as unsafe and expect programs to work. A study conducted in Travis County, Texas found that people were three times as likely to be inactive if they lived in a neighborhood that was perceived to be unsafe compared to those who said their neighborhood was “extremely safe”. Even those who said their neighborhood was “slightly safe” or “quite safe” were twice as likely to be inactive compared to those who live in an “extremely safe” one (Centers for Disease Control and Prevention, 2004). Another study in Texas found a link between crime levels and elementary school-aged kids spending time indoors rather than playing outside. The study found that 4th grade boys were more likely to play computer games and girls to watch television in communities where there were higher than average rates of burglary and larceny. Higher per capita sex offenders were linked to both computer and video games among fourth grade boys, but were negatively associated with computer games for girls. The authors link indoor activities with parental fears about their children’s safety outdoors, and suggest that the laws that require notification about sex offenders in neighborhoods are perhaps giving parents the impression that there is more danger than there really is from sex offenders (Brown, Perez, Mirchandani, Hoelscher, & Kelder, 2008).

Similarly, another study found that fewer children are walking to school as parents become increasingly concerned about dangers posed by crime, poor pedestrian facilities, traffic and long travel distances. Specifically looking at populations of poor, Hispanic children, the study found that although these students tended to live closer to schools, they were exposed to greater danger from traffic and crime. The authors point out that improving unsafe and decaying pedestrian facilities is critical for low-income neighborhoods, as safety issues compromise the potential health benefits of walking for exercise (Zhu & Lee, 2008).

It is not only children who are impacted by neighborhood safety. A national study found that after controlling for a host of socio-demographic factors (like age, income, education, ethnicity and marital status) and lifestyle factors (smoking, depression, and television time), women with small children were more likely to be obese if they perceived their neighborhood to be unsafe. The authors admit that while this study does not prove a causal link between obesity and neighborhood safety, it does provide evidence. Psychosocial stress and

discrimination are speculated to be mediating factors (Burdette, Wadden, & Whitaker, 2006).

Burdette and Hill (2008) make the case that psychosocial stress contributes to obesity. They go beyond crime to examine the link between general neighborhood disorder and obesity. In neighborhoods where residents “report problems with crime, vandalism, graffiti, people hanging out on the streets, drug use, public intoxication, run-down and abandoned buildings, trouble with neighbors, and other incivilities associated with the breakdown of social control”, they experience greater feelings of threat and danger that accompanies social breakdown (Burdette & Hill, 2008, p. 39). This increased stress promotes obesity by encouraging poor eating habits through dependence on comfort foods and irregular exercise due to feelings of hopelessness and lack of motivation (Burdette & Hill, 2008).

Clearly, physical activity levels are linked to both the physical environment through walkability and the social environment through perceptions of crime rates and personal safety. As important as these issues are for health educators to consider when designing interventions to promote physical activity, not much has been published on programs designed to improve walkability or to help residents reduce crime as part of a larger physical activity intervention. This phenomenon is probably due to how recent most of the literature is on these issues – most of my sources were published in 2006 or later.

Despite this lack of programs that focus squarely on the issues raised here, there are a few programs for children that take safety into consideration while promoting physical activity. The Safe Routes To School (SRTS) program was conceived to reduce traffic congestions and pollution while simultaneously promoting physical activity for school children by promoting walking and biking to school. The program is meant to be tailored for each school by a community coalition but is based on five key elements: educating parents, neighbors and drivers in general about pedestrian safety; creating excitement within schools about walking or biking to school; enforcing pedestrian safety laws through both formal law enforcement and community members informally enforcing laws; and engineering (making physical spaces safer for walking and biking). Although the program is aimed at children, the benefits spill over to adults as well (Safe Routes To School, 2006).

SRTS is not built on theory or evidence-based, and so is difficult to evaluate. One publication on a program in Marin County, California resulted in a 64% increase in children walking to school. Its efficacy is best evidenced in its proliferation from its origins in Denmark in the 1970s to all fifty states by 2007 (Davison, Werder, & Lawson, 2008; Safe

Routes To School, 2006). A similarly conceived program called Walking School Bus takes a more grassroots approach. Parents take turns walking children to school, meeting up at “bus stops” around neighborhoods. Again, there is very little in the way of formal evaluation, but the research suggests that while parents saw great value in the program, sustainability was an issue due to lack of organization and the infrastructure of the communities themselves (sidewalks, crosswalks, etc) (Davison, et al., 2008). The lack of evidenced-based practices within these programs are a wide-open opportunity for leaders within health education to step forward and lend their expertise to concerned schools and parents designing these grassroots programs.

Implications for Leadership:

The intersection of safety, the built environment and physical activity is a critical juncture to target in the effort to reduce obesity. Little has been done in this area, highlighting the need for leadership from health educators to create and implement programs. These neighborhood problems are best tackled through community-based interventions like coalition building and Community Readiness Model, but these require leadership from both public health educators and community residents. There are many theories of leadership to draw from when considering the various ways leadership can be implemented, but the formulations by Daniel Goldman (2002) and John P Kotter (1996) provide the most relevance for the success of neighborhood physical activity interventions.

Daniel Goldman (2002) postulated that there are six types of leadership, but only four are relevant to this discussion. He describes coaching leaders as those who listen and provide advice and encouragement. They are best suited to working with a competent team toward future goals. Commanding leaders employ a traditional military style and prove useful in crises situations. Democratic leaders, on the other hand are team players that create consensus and are receptive to team members’ input. Finally, visionary leaders inspire others with an exciting possibility for the future and delineate how others can contribute (R. McDermott, personal communication, September 2008).

In community-based programs that rely on coalitions or other working groups (such as the Safe Routes to School program), the importance of visionary leadership cannot be underestimated. I recently participated in an inaugural coalition meeting in a low-income, resource-deprived community for my graduate assistantship that is much in need of the kinds of interventions I am proposing here. It became abundantly clear that

creating a sense of excitement and confidence is critical to the success of coalitions. Even the “movers and shakers” that were present at the coalition meeting displayed a pessimistic outlook on the proposed project. A person with a clear vision for the future and the charisma to engage others in that vision would have gone a long way to change the mood in the room that day. Moreover, I was told by attendees that once coalitions get started, it is too easy to be bogged down in details and obstacles during group meetings, allowing the group to become focused on discussion rather than action. Again, a person who can offer a consistently clear message about the direction of the group would help keep the group moving towards its goals.

Democratic leadership is also important to coalitions and to partnerships between health educational professionals and lay people. It is vitally important to work in partnership with communities when designing and implementing community-based programs. Democratic leadership has an egalitarian quality about it that is lacking in commanding and coaching leadership styles. The latter two seem to set up a power differential between the leader and the group that would be disastrous for any kind of community-based program. The idea is to lend skills and expertise to better ensure success, not impose an intervention on a community.

In addition to coalitions, another commonly used community level theory is Community Readiness Model. Similar to the changes of stage construct of the Transtheoretical Model, Community Readiness Model is based on the premise that communities, like individuals, are at different stages of readiness to adopt various health behaviors. Health educators can employ strategies to move communities towards readiness to adopt and maintain a health behavior (Edwards, Jumper-Thurman, Plested, Oetting, & Swanson, 2000). These strategies are not unlike the “eight-stage process of creating major change” devised by John P. Kotter (1996) (R. McDermott, personal communication, September 2008).

Kotter’s first stage “establish a sense of urgency” is very similar to the strategies employed during the first three stages of Community Readiness Model: “no awareness”, “denial” and “vague awareness” in that they both rely on an initiation educational/informational stage to raise awareness of the need for change. “Create a guiding coalition” is Kotter’s second step, and while Community Readiness Model does not explicitly create a coalition, it does require that health educators meet with community leaders and try to gain their support during “Preplanning”. Next, “develop a vision and strategy” and “communicate changed visions” is also mirrored in Community Readiness Model’s stages of

“preplanning” and “preparation”, where focus groups, public forums and analyses of existing programs all help to define strategy and various methods are used to publicly broadcast the program and its changes. Kotter’s fifth step, “empower broad-based action,” is enacted in the “preparation” and “initiation” stages of the readiness models by enlisting local, influential leaders to speak on behalf of the program, training for professionals and paraprofessionals, and hosting a kick-off event. Next, Kotter believes leaders should “generate short term wins”, aligning perfectly with the “stabilization” stage in Readiness model in which supporters and volunteers are recognized for their efforts and evaluation processes begin. Both “consolidate gains and produce new changes” and “confirmation/expansion” both involve expanding and enhancing the change. The final stages “anchor new approaches in culture” and “professionalization” involve solidifying gains and using them as a foundation for future work (Edwards, et al., 2000; R. McDermott, personal communication, September 2008).

Although not a perfect match, the close alignment between Kotter’s process of change model and Community Readiness Model is evidence that health educators act as leaders when working on community level interventions. By attempting to create change, we are asking communities and individuals to trust our judgment, knowledge, and skill, just as they would trust any leader. Important to note, however, that health educators are not the only leaders emphasized in Community Readiness Model, as the community leaders have an important role in moving the community towards readiness for behavior change. Such partnerships are the foundation of community level interventions and are the only hope for tackling the macro-level issues like the infrastructure of neighborhoods, crime rates and their impact of physical activity. Although health educators cannot single-handedly create sidewalks and crosswalks and increase police patrols, we can inspire and assist communities in lobbying for those kinds of improvements as a critical step in making physical activity both easier and safer, a critical step in reducing obesity in America.

Table 1. Theoretical Alignment of Kotter’s Process of Change Model and the Community Readiness Model

8 stage process of creating major change	Community Readiness Model
1. Establish a sense of urgency	1. No awareness 2. Denial 3. Vague Awareness
2. Create a guiding coalition	4. Preplanning
3. Develop vision and strategy	4. Preplanning 5. Preparation
4. Communicate the changed vision	4. Preplanning 5. Preparation
5. Empower broad-based action	5. Preparation 6. Initiation
6. Generate short-term wins	7. Stabilization
7. Consolidate gains and produce more changes	8. Confirmation/ Expansion
8. Anchor new approaches in the culture	9. Professionalization

References

- Barnes, P. (2007). Physical activity among adults: United States, 2000 and 2005 Retrieved November 3,2008., from <http://www.cdc.gov/nchs/products/pubs/pubd/hestats/physicalactivity/physicalactivity.htm>
- Brown, H.S.I., Perez, A., Mirchandani, G.G., Hoelscher, D.M., & Kelder, S.H. (2008). Crime rates and sedentary behavior among 4th grade Texas school children. *International Journal of Behavioral Nutrition and Physical Activity*, 5(28), 27-34.
- Burdette, A.M., & Hill, T.D. (2008). An examination of processes linking perceived neighborhood disorder and obesity. *Social Science and Medicine*, 67, 38-46.
- Burdette, H.L., Wadden, T.A., & Whitaker, R.C. (2006). Neighborhood safety, collective efficacy and obesity in women with young children. *Obesity*, 14(3), 518-525.
- Centers for Disease Control and Prevention (2004). Perceptions of neighborhood characteristics of leisure-time physical inactivity - Austin/Travis

County, Texas, 2004. *Morbidity and Mortality Weekly Report*, 54(37), 926-928.

Centers for Disease Control and Prevention (2008a, December 4, 2007). Increase in obesity levels among adults; but levels still high Retrieved November 11, 2007., from <http://www.healthypeople.gov/Document/tableofcontents.htm>

Centers for Disease Control and Prevention (2008b). Overweight and obesity Retrieved November 11, 2008., from <http://www.cdc.gov/nccd/php/dnpa/Obesity/>

Davison, K.K., Werder, J.L., & Lawson, C.T. (2008). Children's active commuting to school: Current knowledge and future directions. *Preventing Chronic Disease*, 5(3), A100-A111.

Edwards, R.W., Jumper-Thurman, P., Pleased, B.A., Oetting, E.R., & Swanson, L. (2000). Community readiness: Research to practice. *Journal of Community Psychology*, 28(3), 291-307.

Frank, L.D., Anderson, M.A., & Schmid, T.L. (2004). Obesity relationships with community design, physical activity, and time spent in cars. *American Journal of Preventative Medicine*, 27(2), 87-96.

Frank, L.D., Saelens, B.E., Powell, K.E., & Chapman, J.E. (2007). Stepping towards causation: Do built environments or neighborhood and travel preferences explain physical activity, driving and obesity? *Social Science and Medicine*, 65, 1898-1914.

Frank, L.D., Sallis, J.F., Conway, T.L., Chapman, J.E., Saelens, B.E., & Bachman, W. (2006). Many pathways from land use to health: Associations between neighborhood walkability and active transportation, body mass index and air quality. *Journal of the American Planning Association*, 72(1), 75-87.

French, S.A., Jeffery, R.W., & Story, M. (2001). Environmental influences on eating and physical activities. *Annual Review of Public Health*, 22, 309-335.

Lopez, R. (2004). Urban sprawl and the risk for being overweight or obese. *American Journal of Public Health*, 94(9), 1574-1579.

Ogden, C.L., Carroll, M.D., & Flegal, K.M. (2008). High body mass index for age among US children and adolescents, 2003-2006. *Journal of the American Medical Association*, 299(20), 2401-2405.

Saelens, B.E., Sallis, J.F., Black, J.B., & Chen, D. (2003). Neighborhood-Based Differences in Physical Activity: An Environmental Scale Evaluation. *American Journal of Public Health*, 93(9), 1552-1558.

Safe Routes To School (2006). Introduction to Safe Routes to School: The health, safety and transportation nexus Retrieved November 15, 2008, 2008., from <http://www.saferoutesinfo.org/guide/>

Florida Public Health Review, 2009; 6:8-13.
<http://health.usf.edu/publichealth/fphr/index.htm>

[introduction/index.cfm](#)

Swinburn, B.A., Caterson, I., Seidell, J.C., & James, W.P.T. (2004). Diet, nutrition and the prevention of excess weight gain and obesity. *Public Health Nutrition*, 7, 123-146.

U.S. Department of Health and Human Services (2000). *Healthy People 2010: Understanding and improving health*. Retrieved November 8, 2008, from <http://www.healthypeople.gov/Document/tableofcontents.htm>

U.S. Department of Labor, B. o. L. S. (2008). Charts from the American Time Use Survey: Leisure time on an average day Retrieved November 14, 2008., from <http://www.bls.gov/tus/charts/leisure.htm>

Ulijasek, S.J. (2007). Obesity: A disorder of convenience. *Obesity Reviews*, 8(Suppl. 1), 183-187.

Wang, Y., Beydoun, M.A., Liang, L., Caballero, B., & Kumanyika, K. (2008). Will all Americans become overweight or obese? Estimating the progression and cost of the US obesity epidemic. *Obesity*, 16(10), 2323-2330.

Wansink, B., & Chandon, P. (2006). Meal size, not body size, explains errors in estimating the calory content of meals. *Annals of Internal Medicine*, 145(5), 326-333.

Zhu, X., & Lee, C. (2008). Walkability and safety around elementary schools: Economic and ethnic disparities. *American Journal of Preventive Medicine*, 34(4), 282-290.

Emily Koby (ekoby@health.usf.edu) is a graduate student at the University of South Florida College of Public Health, dual program in applied anthropology and health education, Tampa, FL. This paper was submitted to the *FPHR* on February 2, 2009, revised and resubmitted, and accepted for publication on April 21, 2009. Copyright 2009 by the *Florida Public Health Review*.