Place matters: Mitigating obesity with the person-in-environment approach

Kellie O’Dare Wilson, PhD

Department of Social Work, University of West Florida, Pensacola, Florida, USA

ABSTRACT
Research demonstrates that environmental and community-level variables contribute to obesity. Many of these variables are outside of personal volitional control, such as the characteristics of the places in which people live. Social work’s unique person-in-environment (PIE) approach is an ideal perspective from which to address obesity. This study employs the PIE perspective to examine sprawl, one environmental-level factor. We employed secondary data analysis to examine the effect of sprawl on obesity while controlling for covariates. Region of residence and sprawl significantly predicted obesity, net of covariates. Given that obesity varies among communities, social workers can respond with PIE-oriented solutions.

ARTICLE HISTORY
Received 8 July 2015
Accepted 8 October 2015

KEYWORDS
Obesity; obesity and place; overweight; person-in-environment; sprawl

Introduction

“Obesity is common, serious and costly,” and persists as a primary public health issue in the United States (Centers for Disease Control and Prevention [CDC], 2014, p. 1; Bassett & Perl, 2004; Fink et al., 2014). Consider the prevalence of overweight and obesity in the context of other debilitating public health conditions. Approximately 27% of the U.S. adult population currently lives with some form of cardiovascular disease (85.6 million), 20% experience mental illness (62.7 million), 17% deal with substance abuse issues (41.6 million), 5% (14.4 million) live with one of the top 10 frequently diagnosed cancers, and <1% (1.2 million) are living with HIV/AIDS (American Cancer Society, 2014; American Heart Association, 2015; Centers for Disease Control and Prevention, 2015; National Institute on Drug Abuse, 2014; United States Department of Health and Human Services, n.d.). However, an overwhelming 69% of all American adults (165.7 million) are considered overweight or obese, of which 35% were considered obese (84 million) and 6.6% considered morbidly obese (5.5 million) (Ogden, Carroll, Kit, & Flegal, 2014; Sturm & Hattori, 2013). Despite an extensive interdisciplinary body of literature investigating obesity causes, consequences, and treatment approaches, as well as the
implementation of high-profile federal-, state-, and local-level intervention programs, obesity incidence and prevalence in the general population continues to rise, with jumps in childhood obesity and extreme obesity of particular concern (Finkelstein et al., 2012; Sturm & Hattori, 2013). Projections indicate if current trends continue, almost every American will be overweight by 2050, with nearly half considered obese (Hill, Rand, Nowak, & Christakis, 2010).

**Purpose and significance**

While social workers have long incorporated an ecological approach to addressing problems in living, historically, overweight and obesity have not been considered a social work issue. A review of the social work literature revealed a paucity of obesity studies, with exception to some related topics such as eating disorders, differential diagnosis of persons with obesity, sparse work in the area of childhood obesity, and some recent work examining obesity as an issue of social justice (Delgado, 2013; Eliadis, 2006; Melcher & Bostwick, 1998; O’Dare, 2011). The purposes of this research study are to (1) bring attention to obesity as a relevant social work issue, specifically within with minority, poor, and otherwise under-resourced communities, (2) explore the role of “place” predictors of obesity, specifically environmental sprawl, and (3) harness social works’ unique person-in-environment perspective to influence practice and policy recommendations and to guide future research in the area.

**Impact on minority and poor populations**

Overweight and obesity disproportionately affects the vulnerable populations fundamental to the mission of social work, including minorities, those who are poor, powerless, and underserved. For example, in 2012 (the most recent year for which full data are available) the rate of adult overweight and obesity in the Black population was 76.3% and Latino population was 77.1%, compared to 68.5% of adult Whites (Ogden et al., 2014.) Weight status is also inversely correlated with income and education; households headed by individuals with lower levels of education tend to have more obese family members, and poverty also increases the odds of obesity (Kim & Leigh, 2010; Ogden et al., 2014). Furthermore, racial disparities in obesity are still observed net of poverty status. In 2008, the obesity rate in Mississippi for Blacks with an annual income below $15,000 was 48.8% compared with 37.2% for Whites in the same income group (Mississippi Department of Health, 2009). In addition to being “common, serious, and costly,” the obesity issue is germane for social work because persons of overweight and obese status are subjected to stigma, bias, discrimination, and negative
stereotyping, and are generally viewed more negatively than those who are not (CDC, 2014, p. 1; Larkin & Pines, 1979; Puhl & Brownell, 2001). Persons of overweight and obese stature are subjected to cruel humor, fat jokes, and fat shaming, all of which is still acceptable and commonplace in popular culture. Obese women, in particular, are highly stigmatized and devalued in the United States, and are more likely to be accepting of and internalize negative stereotypes (Puhl, Andreyeva, & Brownell, 2008).

**Place matters**

Obesity is more prevalent in poor, under-resourced communities regardless of racial composition and has hit areas including the Mississippi Delta and Appalachian regions particularly hard. This area represents nearly all of the states experiencing obesity rates above 30%, including Louisiana (34.7%), Mississippi (34.6%), Arkansas (34.5%), West Virginia (33.8%), Alabama (33%), Oklahoma (32.2%), South Carolina (31.6%), Indiana (31.4%), Kentucky (31.3%), Michigan (31.1%), Tennessee (31.1%), Iowa (30.4%), and Ohio (30.1%) (Centers for Disease Control and Prevention, 2014). These areas are also characterized by poverty, high rates of unemployment, disparities in access to health care, and other widespread social and economic problems. For instance, in addition to experiencing the highest obesity rates, in 2012 Louisiana and Mississippi also experienced the highest rates of poverty (21.2% and 22%, respectively, compared with the national average of 15%), high rates of unemployment (Mississippi at 9.2% compared to the national average of 8.1%) and high rates of uninsured persons (18.3% and 15.3%, respectively) (United States Census Bureau, 2013).

Nutrition and physical activity recommendations for adults include plentiful servings of fresh fruits and vegetables daily and several hours per week of vigorous physical activity. However, these recommendations assume that individuals have reasonable access to and can afford to purchase fresh fruits and vegetables, and also the availability of safe neighborhoods or discretionary income for gym memberships in which to participate in vigorous activity. Residents of low-income, minority, and rural neighborhoods often have poor access to healthful food resources, including less availability to retailers offering healthy items, yet plentiful fast-food and convenience store locations (Larson, Story, & Nelson, 2009). Given that differential access to healthful, nutritious foods and safe places for physical activity are issues of social justice, social workers are called to respond.

A proliferation of recent studies have focused on factors related to how the places in which people live influence obesity (Caspi, Sorensen, Subramanian, & Kawachi, 2012; Feng, Glass, Curriero, Stewart, & Schwartz, 2010; Walker, Keane, & Burke, 2010). For example, an inverse correlation exists between distance to a supermarket and obesity; the farther one must travel to a
retailer, the more obesity is likely. The availability of supermarkets in neighborhoods comprised primarily of poor and minority residents is significantly less than neighborhoods with predominately White residents. Fast-food restaurants, corner stores, and liquor stores (all which do not routinely stock healthy items) are more heavily concentrated in lower-income neighborhoods (Blanchard & Lyson, 2002; Giang, Karpyn, Laurison, Hillier, & Perry, 2008; Jetter & Cassady, 2006; Larson et al., 2009). Families in poorer neighborhoods also experience financial barriers to accessing healthy foods, for example the average price for healthy items at convenience retailers is higher than at supermarkets (Chung & Myers, 1999; Hendrickson, Smith, & Eikenberry, 2006; Kaufman, 1998). In some areas, poor families would need to spend up to 70% of their total food budget on fresh fruit and vegetables alone in order to meet dietary guidelines (Cassady, Jetter, & Culp, 2007).

**Sprawl**

While prior studies have laid a strong foundation in demonstrating that factors in the environment can influence obesity, the studies often examine single dimensions of place, such as miles from home to grocery store, store density, or price. These single dimension measures may not capture the complexities of how place influences obesity. For example, informed by density-based research, in 2008 lawmakers enacted an ordinance in a poor Los Angeles neighborhood prohibiting new fast-food restaurants from opening. However, the law did not reduce fast-food consumption nor obesity rates in the neighborhoods, and conversely obesity rates in the area continued to rise (Lewis et al., 2005; Sturm & Hattori, 2015).

One previously underexplored measure of environment-level contributors to obesity is sprawl. Sprawl is defined as a measure of an area’s accessibility to resources (McCann & Ewing, 2003). The construct of sprawl incorporates more complex components of an area’s overall accessibility, as opposed to relying primarily single factors such as proximity or density (Ewing, Schmid, Killingsworth, Zlot, & Raudenbush, 2003). For example, while measures of sprawl capture proximity and density, they also include measures of walkability, street network connectivity and safety, presence or lack of community centers, and neighborhood mix of jobs, homes, and service types—all factors that, when considered together, may explain why place strongly influences risk for obesity (McCann & Ewing, 2003). Areas with high sprawl also experience a lack of distinct, thriving activity centers, such as strong downtowns or town centers where local farmers markets, food cooperatives, and community supported agriculture programs might develop (Ewing et al., 2003; Herman, Harrison, Afifi, & Jenks, 2008).
Research study

Data sources

The study utilized a cross-section of the 2009 Behavioral Risk Factor Surveillance System (BRFSS) merged with Ewing’s County Sprawl Index in order to examine the influence of sprawl on obesity. The BRFSS is a cross-sectional, population-based system of surveys used by the Centers for Disease Control and Prevention (CDC) that collects confidential information on health-related behaviors and conditions. Utilizing disproportionate stratified random sampling based on landline telephone density, the BRFSS collects monthly surveys in all 50 states via random-digit dial telephone surveys (CDC, 2006).

To measure sprawl, we used Ewing’s Sprawl Scale, a comprehensive, multidimensional measure of sprawl used for assessing characteristics that help or hinder access to resources in environments. This measure incorporates 22 variables representing different aspects of development patterns thought to characterize sprawl across four factors: (1) residential density; (2) neighborhood mix of homes, jobs, and services; (3) strength of activity centers and downtowns, and (4) accessibility of the street network. This measure has been well-validated in the literature to measure the impact of environmental sprawl on physical activity environments (Cho, Chen, Yen, & Eastwood, 2006; Doyle, Kelly-Schwartz, Schlossberg, & Stockard, 2006; Ewing, Brownson, & Berrigan, 2006; Ewing, Meakins, Hamidi, & Nelson, 2014; Kelly-Schwartz, Stockard, Doyle, & Schlossberg, 2004; Plantinga & Bernell, 2007; Sturm & Cohen, 2004).

Sample

Ewing’s sprawl scale includes scores for 83 of the largest metropolitan regions in the United States, including nearly 82% of the U.S. population (Ewing et al., 2006, 2003). From the 2009 BRFSS survey respondents we restricted the study sample to respondents who also had a corresponding Ewing sprawl score (n = 148,361). The study sample further excluded a small number of individuals who were pregnant, and those who did not respond to the dependent or any of the independent variables, resulting in an analytic sample of n = 122,265.

Variables and measures

Dependent: Body Mass Index

Weight status is the dependent variable and was measured by a calculation of body mass index (BMI) collected by the BRFSS. The BRFSS calculates the continuous BMI variable based on responses from self-report height and
weight items. Two primary measurement threats exist when relying on self-reported data to calculate a BMI as a risk factor. The first is reliability of self-reported height and weights, given these may be perceived as sensitive personal health information. While some research has discovered a systematic tendency for people who overweight and obese to underreport their body size, the amount underreported typically is not large enough to produce a significant change in BMI calculation. In one study, men were found to underreport their weight by 7.6 pounds and women by 5.8 (Bolton-Smith, Woodward, Tunstall-Pedoe, & Morrison, 2000). For example, if a 5’ 4” woman reported her weight to be 180 pounds when her actual weight was 195 pounds (underestimating by 15 pounds), her BMI would still be in the obese category at either measurement. In addition, population-based studies with large sample sizes begin to approach the true population parameters as sample sizes increase. Therefore, BMI measures calculated from self-reported height and weight data are “valid for identifying relationships in epidemiological studies,” even though it is not known if the estimates in self reported height and weight data have changed over time (CDC, 2010; Spencer, Appleby, Daveya, & Keya, 2002, p. 561). While researchers have created an algorithm to adjust for variables prone to misreporting such as height and weight, these corrections are not used in the BRFSS (Nyholm et al., 2007).

Second, some researchers question as to whether BMI is the most accurate measure of body fatness. However, the test has performed well in studies comparing its accuracy to other more expensive body fat testing methods, such as underwater weighing (Mei et al., 2002). Further research has confirmed a strong correlation between BMI and proportion of body fat (Prentice & Jebb, 2001). BMI classifications have been shown to accurately estimate body fatness for most people, with the exception of persons with extreme height or muscle mass (Berke & Morden, 2000). Given that BMI is reliable and valid for the greater part of the population and relatively simple to assess via anonymous survey methodology, it is appropriate for use in population-based studies. In this study, individuals with a BMI score of greater than 25 are considered overweight, and those with scores above 30 are considered obese.

**Independent variable: Sprawl**

As a continuous measure, sprawl scores range from a low of 14.2 to a high of 177.8, with a mean score of 100. Lower scores indicate higher sprawl, characterized by fewer community focal points, little mixing of homes with business areas, low residential density, and poor street networks and connectivity (Ewing et al., 2003). Higher scores indicate less sprawl. While sprawl is a continuous variable, the score is not a standardized ratio-level variable meaning that an area with a sprawl score of 100 is not twice as sprawling as a score of 50.
Covariates
Previous research on obesity has demonstrated that race, education, and income may affect obesity risk (Ogden et al., 2014). The BRFSS routinely collects respondent information on each of these variables. Race is a categorical variable including the categories “White,” “Black or African American,” “Asian,” “Native Hawaiian or Pacific Islander,” “American Indian or Alaska Native,” and “Other.” Education is also a categorical variable and included “Never attended,” “Grades 1 through 8 (Elementary),” “Grades 9 through 11 (Some high school),” “Grade 12 or GED (High school graduate),” “College 1 year to 3 years (Some college or technical school),” and “College 4 years or more (College graduate).” Income is a categorical variable, and included “$75,000 or more,” “$50,000 to $74,999,” “$35,000 to $49,999,” “$25,000 to $34,999,” “$20,000 to $24,999,” “$15,000 to $19,999,” “$10,000 to $14,999,” and “Less than $9,999.” In addition, previous research has demonstrated that number of fruits and vegetables (FFV) consumed daily and level of physical activity influence BMI, so these variables were also included in the models (Caspi, Sorensen, Subramanian, & Kawachi, 2012). FFV is a continuous number from number ranging from 0–9 and physical activity is a dichotomous variable indicating whether the individual either “met” or “did not meet” daily activity requirements. Finally, to further control for geographic variation in obesity prevalence, we created a regional variable for inclusion in the model. We assigned each case in the sample to a corresponding region as established by the U.S. Census.

Results
Descriptive results
Over one-third (36.9%) of respondents in this sample had BMI scores equal to or greater than 25 indicating they were overweight, and 26.1% had BMI scores equal to or greater than 30 (obese), for a combined total of 63% of respondents who were either overweight or obese, consistent with national trends. In addition, of those considered obese, over one-third had BMI’s in the extremely obese categories, reflective of the shift in the population toward severe obesity.

Race
Race had a significant effect on overweight and obesity in this sample. The mean BMI score for Whites (m = 27.0) was two points lower than Blacks (m = 29.0), 2.2 points lower for those who were multiracial (m = 28.2), and 2.1 points lower for Hispanics (m = 28.1). In addition, those identifying as non-White comprised a larger proportion of the higher BMI categories. For example, 24% of Whites had BMI scores in the obese categories, 8.5% of
which were in the extreme obese categories. For Hispanics and those identifying as multiracial, the numbers increased to 30.8% obese and 10.3% extremely obese, and 30.3% and 14.4% respectively. For Blacks, these numbers jumped to 37.2% obese and 15.2% extremely obese. Interestingly, those who reported identifying as an “Other” race had a mean BMI score (m = 25.2) lower than all other ethnicities, including Whites, Blacks, Hispanics, and those reporting as multiracial. Similar to their mean BMI scores, those identifying as belonging to “Other” race had lower prevalence of obesity and extreme obesity, 13.2% and 4.2% respectively.

**Education**

College graduates displayed a mean BMI score of 26.6, which is 1.2 points lower than high school graduates (m = 27.8, p < .000) and 1.8 points lower than those who did not graduate high school (m = 28.4, p < .000). While college graduates had significantly lower BMI scores than non-graduates, the mean score of 26.6 is still considered overweight and reflective of the high overall prevalence of overweight in the United States. In addition, those with lower levels of education comprised a larger proportion of the higher BMI categories (BMI > 35). For example, 34% of those who did not graduate high school had BMI scores in the obese categories, 12.3% of which were in the extreme obese categories. For high school graduates, these numbers significantly decreased to 30.2% and 11.4%, respectively, and for college graduates further dropped significantly to 20.2% and 6.5%.

**Income**

Income significantly influenced obesity rates such that people with higher incomes had lower mean BMI scores. For example, those earning more than $75,000 had mean BMI scores (m = 26.7) 1.6 points lower than those earning less than $10,000 annually (m = 28.3). However, no income category had mean scores lower than 25, indicating mean BMI scores for all income categories still fell in the overweight category, reflecting the high overall prevalence of overweight status in the United States. In addition, those reporting lower incomes comprised a significantly higher percentage of the extreme obese categories. For example, while only 6.4% of those earning $75,000 had a BMI score above 35, 11.2% of those earning $25,000–34,000 fell into the extreme obese categories, and 14.4% of those earning less than $10,000 had BMI scores over 35.

**Region**

Region had a significant effect on BMI score. For example, the mean BMI score in the East South Central region was 28.31 and West South Central was 27.61, significantly higher than in the Pacific region (m = 21.15). The Pacific region was the only region with a mean BMI score in the normal (<25)
category. In addition, the Southern regions display significant differences in prevalence of extreme obesity, with the East South Central region experiencing 11.9% of individuals with BMI scores above 35, and the West South Central at 10.6%, as compared to the Pacific region at 8.9% and Mountain region at 8.5%.

**Multivariate analyses**

**Basic models**

The first model examined the relationship of sprawl score on BMI score by using simple linear regression. This model indicates that for each unit increase in sprawl, we expect a -.926 decrease in BMI score holding all other modeled variables constant (keep in mind less sprawling areas have higher sprawl scores): \( \beta = -0.926, t(100943325) = -482.22, p = .000 \). Each one-unit increase in sprawl score predicts a decrease BMI score decrease of nearly one point. While statistically significant, sprawl score did not explain a considerable proportion of variance in BMI scores, \( R^2 = .002, F(1, 100943324) = 232542.04, p = .000 \). The second basic model examined the relationship of region on BMI scores using linear regression. Region of residence was a significant predictor of BMI score \( R^2 = .054 \). All other regions had significantly lower mean BMI scores than the reference group. Standardized coefficients demonstrated living in the Pacific or Mountain regions had the strongest protective effect against obesity. For example, in the Pacific region, BMI scores decreased by \(-1.12\) holding all other variables constant. While statistically significant, region did not explain a considerable proportion of variance in BMI scores, \( R^2 = .054, F(7, 79346704) = 37422.12, p < .000 \).

**Full model**

After examining the individual contributions of sprawl and region on BMI, this study examined complete models for predicating BMI including the effects of covariates. BMI score was the dependent variable and sprawl was the predictor variable for the model. The statistically significant full model explained a slightly higher proportion of the variance in BMI compared to considering the contributions of sprawl on BMI individually: \( R^2 = .027, F(22, 34435526) = 51082.50, p = .000 \). Being Black, Multi-Racial, or Hispanic had the greatest negative impact on BMI. These groups had predicted BMI scores 1.42, 1.37, and .57 points higher than Whites, respectively. Also, consistent with earlier analyses in this study, individuals who indicated racial membership in the “Other” category had a lower predicted BMI score than Whites by 1.69 points. Meeting physical activity recommendations and region of residence had the greatest positive influence on BMI scores. Those who meet daily activity requirements had predicted BMI scores 1.22 points lower than
those who did not. Those living in the Pacific region had predicted BMI scores .94 points lower than those in the South. In summary, education level, race, annual income and region of residence have the strongest effect on BMI scores, with region of residence the strongest predictor of BMI score. Table 1 presents the full results of this model.

### Discussion

Obesity rates in this study varied significantly by race, education, and income, such that minorities and those with less education and income experienced higher obesity rates. As previously identified in the literature, low income communities and communities of color often face particularly significant environmental barriers to accessing healthful food options, helping to explain higher rates of obesity. The results of the regional variable examination are congruent with the literature demonstrating that overweight and obesity are particularly prevalent in the southern areas of the United States, including Texas and Oklahoma, the Mississippi Delta, the Appalachian region, Louisiana, Mississippi, Alabama, Georgia, and North Carolina.

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The full regression model we tested reached significance ($R^2 = .027$, $p < .000$) and provides insight into the effects of certain predictors on BMI. For example, being Black, Multi-Racial, or Hispanic has the greatest negative impact on BMI. These groups have predicted BMI scores 1.42, 1.37, and .57 points higher than Whites, respectively. Individuals who indicated racial membership in the “Other” category have a lower predicted BMI score than Whites by 1.69 points. Since the “Other” group had BMI scores lower than even Whites, it may be helpful for future research to examine the specific race/ethnicities included in this category to explore the possibility of protective factors associated with particular group membership. In addition, future research might consider whether members of the “Other” category had lived in the United States for a shorter amount of time and had less exposure to American obesogenic environments.

This study demonstrated that sprawl is a significant predictor of obesity net of covariates. These findings further illustrate the need to examine multiple characteristics of the environment simultaneously, instead of relying on single-dimension measures. Future studies should employ more sophisticated multilevel modeling approaches to examine the simultaneous influence of environmental factors on obesity.

**Limitations**

The results of the BRFSS data analysis indicated significant effects of sprawl, on BMI scores, net of the effects of covariates. However, the predictor variables do not explain a large proportion of variance in BMI scores individually or when considered together. While the multivariate analyses confirmed findings previously established in the literature, additional variables that may help us understand why region is a good predictor of BMI should be identified and explored. In addition, while the results indicate a weak inverse relationship between sprawl and BMI scores the mechanisms through which these relationships occur cannot be answered with these data. Furthermore, future research should address concerns with regard to the method and precision in how obesity is measured, and attempt to examine multiple measures of adiposity beyond BMI, to ensure greater reliability and validity among diverse study participants (Jackson, Ellis, McFarlin, Sailors, & Bray, 2009). While BMI appears to be a valid measure of body fatness for the majority of the population, future research could benefit from exploring the feasibility of utilizing other measures of fatness, such as skinfold or waist circumference measurements, bioelectrical impedance, or BodPod (a highly accurate, yet expensive Air Displacement Plethysmography body composition measurement technique) (Cosmed, 2015; Freedman & Sherry, 2009).
Implications for social work and future research

Social workers’ (1) unique person-in-environment (PIE) perspective, (2) focus on the responsiveness of organizations, communities, and other social institutions to individuals’ needs and (3) our distinctive strengths perspective as opposed to the conventional individual deficit approach, all have the potential to mitigate the effects of sprawl on BMI. Social workers at the micro, mezzo, and macro levels should adopt and advocate for an ecological, culturally competent approach to obesity practice, intervention, and research.

Delgado (2013) identifies several areas in which social workers are uniquely qualified to address issues of overweight and obesity: (1) community participation, (2) assets of marginalized communities, (3) program evaluation, (4) social justice, (5) schools, and (6) cultural competence. The concepts of community participation and asset identification are fundamental to the social work profession and a critical first step in developing PIE-oriented approaches to obesity mitigation. For example, research has shown that clients who receive increased nutrition assistance benefits for the purchase of fruits and vegetables at local farmers markets increase their fruit and vegetable consumption (Herman et al., 2008). Macro-level social workers can harness this evidence to advocate for targeted subsidies of government-sponsored programs to promote the consumption of fruits and vegetables. One such program, Florida Fresh Access Bucks (FAB), a partnership between the USDA, local community farmers markets, and not-for-profit social service organizations is successfully increasing healthful food purchases among Supplemental Nutrition Assistance Program (SNAP) beneficiaries by funding programs that allow beneficiaries to used increased benefit levels to purchase health foods at local farmers markets (Florida Organic Growers, 2015). By community organization, grant writing, and resource mobilization, social workers can plan and implement programs such as FAB in their local communizes. In addition, social workers can collaborate with organizations such as Wholesome Wave, a national not-for-profit working locally to enable healthier food choices for members of under-resourced communities, as well as advocating for long-term policy change and community food capacity building (Wholesome Wave, 2014).

Program evaluation and research are critical to implementing effective interventions and advocating for policy change. In fact, the National Association of Social Workers has specifically recommended further social work based research and funding specifically in the area of childhood obesity, stating that “social work researchers are ideally suited to perform this kind of research” (National Association of Social Workers, 2010, p. 1). Social work researchers can continue to pursue more complete measures of
individual obesity within environmental contexts. A systemic or comprehensive PIE measurement of obesity would combine micro-, mezzo-, and macro-level factors of influence and allow for more sophisticated multilevel analysis. Such factors to be included in a comprehensive measure could be individual-level factors (race and ethnicity, education level, income, etc.) and dietary habits above and beyond fruit and vegetable consumption (caloric ratios, number of soft drinks and fast foods consumed), and the impact of food marketing and cultural traditions with contextual factors such as poverty and unemployment rates, rates of nutrition assistance program participation, proximity to supermarkets, density of fast food outlets, and access to transportation, among others. A comprehensive measure of individual obesity within the environment may help us to better understand the most significant factors contributing to and predicting obesity from which more effective prevention and intervention strategies can be developed.

Adopting and promoting a social justice perspective on obesity is critical to addressing the problem, particularly among marginalized and under-resourced communities. As champions of social justice, social workers should strive to ensure that all individuals have equitable access to the rights and opportunities necessary to mitigate obesity, such as adequate medical care, healthy food options, access to safe spaces for physical activity, and accurate health education. Schools are an integral part of communities and can serve as primary settings for intra-disciplinary, family-centered obesity prevention and intervention efforts (Delgado, 2013). Social workers can promote a culture of respect and competence by providing education and evidence-based interventions to facilitate the process of behavioral change, such as providing information to clients on how to shop for and prepare healthier meals while respecting and affirming cultural contexts. Social work with individuals and families should also routinely assess level of access, both proximal and financial, to healthy foods and physical activity opportunities beyond determining eligibility for nutrition assistance programs (O’Dare & Scott, in press). In doing so, social workers can help shift the focus from individual behaviors and deficits and further contextualize obesity as an issue of the person in their environment.

**ORCID**

Kellie O’Dare Wilson http://orcid.org/0000-0002-3550-3930

**References**


