STRONG CHILDREN'S RESEARCH CENTER

Summer 2012 Research Scholar

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ABSTRACT

Title: *Parks, Recreation Centers and Areas for Play: Effect on Weight Status for Children and Adolescents in Monroe County*

Background: Obesity has multiple contributing risk factors that start at the molecular and genetic level, but continue out of the level of the cell, to the individual level, the family level, the neighborhood level and on upward to city, county, state and federal environments. The prevalence of overweight status and obesity in children and adolescents is on the rise across the United States. This subsequent rise decreases the relative health of the population, drastically increases medical costs, and can lead to crippling or deadly diseases later in life such as cardiovascular disease, stroke, cancer, and diabetes. Many factors have been implicated in the rise of childhood weight and obesity outcomes. Caloric intake and caloric expenditure are the main biological predictors of total body weight, but many other inputs feed into this balancing act of weight control. In addition, many studies have focused on the deterioration of the food and recreation environment as a main cause of this obesity increase as community advocates and policy makers struggle to contain the issue.

Objective: Our team wanted to examine the relationship between possible built environment factors that could promote physical activity and the prevalence of obesity among a cross-sectional sample of individuals aged 2-18 years from Monroe County. To do this, we created a database of parks and recreation centers in Monroe County using publically available databases of possible built environmental factors related to physical activity. We followed up this database with a series of internet searches to confirm location and availability of these sites.

Methods: A database was constructed using a comprehensive data set of physical activity areas and facilities in Monroe County. We then linked this database with another that was previously constructed on the prevalence and distribution of weight status among 2-18 year olds across Monroe County that also included their residences. This linked data was then analyzed using ArcGIS 10 mapping software to Geocode park and recreation areas, as well as normal weight, overweight, and obese individual's residences. After mapping, we created a 0.7 mile radius around each subject's residence to find the amount of recreation areas available to each individual. An A priori decision was made to include age, gender, population density, average household income, and location (urban vs. suburban) variables. This data was then subjected to bivariate analysis. Finally, we used logistic regression models to control for the lack of independence between observations in the same tract, and allow for tract level variables.

Results: Our database of 2-18 year olds had 7,774 subjects (50% were males, 33% lived in the city). We found that the rate of overweight and obese status increases in the population as age increases across Monroe County (MC) ($p<0.01$). This was also found in urban and suburban sub-populations. There was a general decrease in the rate of overweight and obese status as the surrounding number of parks and recreation centers increased across Monroe County ($p<0.01$). Furthermore, as mean income decreased the incidence of overweight and obese status increased for Monroe County ($p<0.01$). In addition, it was found that as population density increased, the incidence of overweight and obesity also increased for MC and suburban populations ($p<0.01$), however no association was found for urban populations (NS). We conducted multivariate logistic regression to test for the association between the number of parks &

recreation centers and the rate of overweight or obesity among children across Monroe County. We found that middle and older aged individuals had a higher risk for being overweight and obese than younger individuals.

Conclusions: We have found that a number of demographic and environmental factors related to physical activity can be related to the prevalence and distribution of overweight and obesity among children and teens in Monroe County. When we examined more closely, we found that factors related to socio-economic status and population density accounted for the associations between weight status and the number of parks and recreation centers within the living radius of children and teens in this sample. Our findings suggest that increasing the number of available parks and recreation centers may provide some protection against overweight and obese statuses. We plan to conduct further analyses to examine the role that access to, and safety of (real or perceived) parks and recreation centers might have in this association. We plan to conduct additional GIS analyses to merge this data with databases we have on the location of food outlets in Monroe County from an overlapping time frame of the other databases. We hope that with this data parents, community advocacy groups, and coalitions can better advocate for plans and policies that more efficiently counteract the obesity epidemic at the regional and state level.