

## **Importance of Early Child Obesity Prevention Research**

Obesity is one of our most pressing public health concerns, and existing disparities in rates are continuing to increase. Moreover, these disparities are evident at very young ages, during critical windows of physical and behavioral development. My research trajectory described below has allowed me to realize my true passion for obesity prevention in early childhood, particularly viewed through a lens of health equity. *My mission is to leverage my unique combination of community-based research experience utilizing physical activity and diet approaches and awareness of policy impacts to address disparities in childhood obesity and to improve health for underserved communities.* Community-based research methods are well suited to obesity prevention initiatives because they actively engage individuals within their broader environment in interventions to promote health.

My graduate research with Dr. Ken Wilund at the University of Illinois focused on exercise and diet approaches to reduce comorbidities and improve quality of life for dialysis patients. The excellent mentoring I received allowed me to successfully obtain independent funding (American Heart Association Predoctoral Fellowship, American College of Sports Medicine Doctoral Research Award, multiple internal awards) and to publish data relevant to the understudied area of lifestyle interventions for dialysis patients. I subsequently completed a dietetic internship at the University of Houston and was awarded the highly competitive Mirzayan Science & Technology Policy Fellowship through the National Academies, which significantly impacted my research strategies by increasing my awareness of how well-designed research can inform high-level policy decisions.

My work with extremely sick adults compelled me to examine approaches to impact health much earlier in life. To initiate this research transition, I completed a postdoctoral fellowship at the University of Wisconsin with Dr. Alex Adams, a recognized leader in obesity prevention in underserved communities. My research program broadly addressed childhood obesity in American Indian (AI) communities, where rates are disproportionately high. I was a key team member of the Healthy Children, Strong Families study, a randomized controlled trial to promote health in AI families with young children through an obesity prevention intervention targeting physical activity, diet, sleep, and stress. In addition to my interaction with the five urban and rural tribal communities involved with the Healthy Children project, I was active in the large cross-campus team examining collective impact and community organizing approaches to obesity prevention in two underserved Wisconsin counties.

I also collaborated on the multidisciplinary Public Health Information Exchange (PHINEX) team at UW to investigate multiple determinants of community health using electronic health records linked with census reports, behavioral data, and community descriptions. I directed a study of the relationship between economic hardship and childhood obesity in Wisconsin communities and an assessment of obesity risk for AI children included in the PHINEX dataset. My final major postdoctoral research project incorporated my strong interest in examining policy approaches to improve child health. I served as lead academic partner for the Active Early 2.0 intervention to test curriculum and policy approaches designed to increase physical activity in early child care settings, with a particular focus on underserved areas. In collaboration with our community partner, the Supporting Families Together Association, I directed data analysis and conducted exit interviews to inform more widespread implementation of the Active Early protocol throughout the state.

### **Current and Future Research Activities**

I continue to be highly collaborative with the Healthy Children, Strong Families research team, including potential expansion into new communities with whom I am building relationships. We recently submitted a renewal for the R01 that funded Healthy Children, Strong Families 2 to support a project that would broaden the scope of the original randomized controlled trial to address larger community-level risk factors related to health promotion and obesity prevention. I would serve as a co-investigator on this effort.

I also continue to expand my work into early care and education (ECE) settings. Opportunities for physical activity and access to a high-quality diet have been identified as important components of health promotion strategies. The primary activity and food gatekeepers for young children are caregivers, which include family members and providers of early child care and education. Evidence suggests preschoolers may be more receptive to diet and activity-related behavior change than school-age children. However, unlike the recommendations in place for schools, recommendations regarding diet and activity in ECE settings or interventions targeting these key behavioral domains are currently lacking. To address this gap, I am pursuing a line of inquiry examining the impact of the current physical activity and nutritional environment and practices in ECE settings on child health. I plan to design interventions to improve these environments based on these assessments using a community-based participatory research approach. The Obesity Society, American College of Sports Medicine, Thrasher Foundation, and multiple NIH institutes have funding opportunities tailored to early career investigators; I am currently pursuing multiple avenues of funding to support this work. I envision continued opportunities for student research training in conjunction with this work through site observations, menu assessment, focus group testing, and child health outcome measures.

I also am currently investigating the efficacy of an evidence-informed online peer-competition wellness challenge model to promote health among various populations. While many weight loss-specific diet and exercise programs are currently available, few comprehensive approaches have been developed that consider multiple components of health, including diet, exercise, sleep, stress, hygiene, and social support. There is a critical need to identify strategies to promote overall physical and mental health, particularly among vulnerable populations. I collaboratively developed a comprehensive multi-week health challenge that integrates evidence-based recommendations for health promotion that is designed to change health behaviors by having participants track specific behaviors daily and gain points when certain thresholds for each behavior are met according to a pre-set scoring algorithm. This program was successfully implemented and evaluated in 2017. I am currently working to customize and adapt this health challenge model for college students based on health needs specific to students and established behaviors that have been associated with student success.

My role in diverse research projects combined with the strong mentorship has allowed me to engage with diverse communities and academic partners in meaningful ways and to develop publications to disseminate key research strategies. I have developed proficiency in mixed-methods approaches (e.g., assays, anthropometrics, surveys, interviews, community workgroups) that will facilitate my transition to other multidisciplinary teams as an independent researcher. I understand the collaborative nature and potential challenges of successful community-based work and will partner with other researchers in recognition of the fact that comprehensive strategies to prevent obesity directly benefit other areas of health (e.g., cognitive, behavioral, social).

Factors both within the Department of Kinesiology and across campus suggest this environment would be conducive to the successful continuation of my independent research focusing on early childhood obesity and comprehensive health promotion approaches. Moreover, my interest in and continued exposure to policy issues will allow me to engage public stakeholders and policy makers who directly impact health outcomes for underserved communities, which will enable me to disseminate my research findings more broadly. I intend to apply my disciplinary knowledge, commitment to collaborative partnerships, and passion for child health equity to design research approaches to improve the communities in which these children live.