University of Louisville

ThinkIR: The University of Louisville's Institutional Repository

Electronic Theses and Dissertations

5-2019

The shape study : the survey of health and the perceived environment study.

Colette Patrice Davis

University of Louisville

Follow this and additional works at: <https://ir.library.louisville.edu/etd>

Part of the [Community Health Commons](#), [Environmental Studies Commons](#), [Epidemiology Commons](#), [Public Health Education and Promotion Commons](#), and the [Urban Studies and Planning Commons](#)

Recommended Citation

Davis, Colette Patrice, "The shape study : the survey of health and the perceived environment study." (2019). *Electronic Theses and Dissertations*. Paper 3215.

<https://doi.org/10.18297/etd/3215>

This Doctoral Dissertation is brought to you for free and open access by ThinkIR: The University of Louisville's Institutional Repository. It has been accepted for inclusion in Electronic Theses and Dissertations by an authorized administrator of ThinkIR: The University of Louisville's Institutional Repository. This title appears here courtesy of the author, who has retained all other copyrights. For more information, please contact thinkir@louisville.edu.

THE SHAPE STUDY: THE SURVEY OF HEALTH AND THE PERCEIVED
ENVIRONMENT STUDY

By

Colette Patrice Davis

MSPH, Meharry Medical College, 2014

MS, Mississippi College, 2010

BS, Mississippi State University, 2009

A Dissertation

Submitted to the Faculty of the
School of Public Health and Information Sciences
of the University of Louisville
in Partial Fulfillment of the Requirements
for the Degree of

Doctor of Philosophy in Public Health Sciences

Department of Epidemiology and Population Health
University of Louisville
Louisville, Kentucky

May 2019

THE SHAPE STUDY: THE SURVEY OF HEALTH AND PERCEIVED
ENVIRONMENT STUDY

By

MSPH, Meharry Medical College, 2014
MS, Mississippi College, 2010
BS, Mississippi State University, 2009

Dissertation Approved on

March 29, 2019

by the following Dissertation Committee

Dr. Richard Baumgartner, PhD

Dr. Kathy B. Baumgartner, PhD

Dr. Stephanie Boone, PhD

Dr. Kristina Zierold, PhD

Dr. Chau-Kuang Chen, EdD

ACKNOWLEDGEMENTS

Forgetting what lies behind and straining towards the future, I've pressed towards the mark for the prize of the high calling of becoming Dr. Colette Patrice Davis! (Philippians 3:13-14). Thank You Jesus! If I had 10,000 tongues, I couldn't praise You and Thank You enough! Through life's many lessons, I've learned that it is not about the destination, but the journey. Along my doctoral journey, I have encountered amazing mentors, supervisors, and friends who have been a part of my professional and personal life.

First, I would like to express my gratitude to my chair, Dr. Richard Baumgartner. You were the first person to encourage me to collect primary data. You believed in me every step of this journey. You believed in me before I believed in myself. Thank you for your wisdom and unconventional humor. The standard you have set for me will continuously guide me through my career. Dr. Kathy Baumgartner, you are "a force to be reckoned with"; thank you for your wisdom and authenticity. I appreciate all of your input and advice. This process would not have been the same without you. Dr. Stephanie Boone, my principal investigator, you have been my "ride or die" throughout this process. You were a part of every phase of this dissertation. I met you five years ago during your post-doctoral fellowship, now you are an assistant professor – I'm so proud of your journey. You are greatly appreciated. Dr. Kristina Zierold, thank you for being a part of my journey; your work ethic is an inspiration. Dr. Chau-Kuang Chen, you were the first

professor to tell me that I was smart enough to become a doctor. Thank you for your generosity and kindness. Thank you for being a part of my academic career.

I would like to thank every member of the SHAPE team – Robin Newlon, Dr. Chisom Odoh, Dr. Diana Kuo Stodja, Dr. Billie Castle, Victory Osezua, Kelsey Burton, Chelsea Buron, Salwa Rashid, and Wanda Long - for your dedication and support. I would like to thank my supervisor, Paul Mckinney, MD. You have supported me for three years, thank you for your kindness and mentorship. I have been abundantly blessed with amazing friends. Chisom, Diana, and Victory, I will forever miss watching Tru Blood and eating fried chicken and collard greens from Eagles. To my future husband, I have mentioned you in my dissertation – you owe me! Thank you all for being a listening ear- you've changed my definition of friendship. Finally, I would like to thank my family. Mother, Jennette Reece, you are my greatest inspiration. Thank you for your encouragement, support, friendship, fellowship, laughter, and unconditional love.

ABSTRACT

THE SHAPE STUDY – THE SURVEY OF THE PERCEIVED ENVIRONMENT STUDY

Colette Patrice Davis

March 29, 2019

Introduction: Few studies have considered how an individual's perception of their built environment may be a risk factor for being overweight or obese. Adolescents may be particularly vulnerable in the context of "impoverished environments", which they may perceive to be difficult, dangerous, resource deficient, and unaesthetic. This study aids in clarifying how the built environment influences the risk of obesity among adolescents residing in a neighborhood in Louisville, KY.

Objective: The overall objective was to conduct a cross-sectional epidemiologic pilot study among adolescents aged 12-17 years residing in West Louisville, Kentucky to evaluate the association between perceptions of their neighborhood environment and overweight/obesity as defined from BMI.

Methods: Focus groups were conducted with 20 male and female participants, aged 12-17 years, from a local youth center. Data collected from the focus groups were used to design a questionnaire that covered socio-behavioral and environmental categories administered to 154 adolescents. Analyses were based on the appropriate statistical test for demographic characteristics (Chi square, Analysis of Variance (ANOVA)). Multivariable logistic regression was performed to evaluate the association between

measures of the built environment (walkability, accessibility, aesthetics, traffic, crime, and perceptions of fear) and overweight/obesity, adjusting for pertinent confounders (physical activity, median household income, neighborhood region, perceptions of weight, weight goals, fruit and veggie scale, parental support scale, parent's weight, and comfortability scale, ethnicity, age, and grade).

Results: Adolescents who were moderately afraid of people in their neighborhood were 2.71 times more likely to be obese than those who were not afraid (p-value=0.21) after adjusting for individual and group-level covariates. Adolescents who were afraid of people in their neighborhood were 68% less likely to be obese than those who were not afraid (p-value=0.05) after adjusting for individual and group-level covariates. Scales for walkability (AOR = .09, p-value =0.09), traffic (AOR = 0.52, p-value=0.30), and crime (AOR = 0.43, p-value= 0.29) were associated with overweight/obesity.

Conclusion: If adolescents experience psychological distress, they may have an elevated perception of physical harm or victimization. Adolescents who experience distress are more likely to engage in obesogenic sedentary behaviors than physical activity.

TABLE OF CONTENTS

I. INTRODUCTION	1
SPECIFIC AIMS	4
II. BACKGROUND.....	7
Obesity	8
Built Environment.....	11
Aspects of the Built Environment.....	13
I. Neighborhood Walkability	13
II. Aesthetics	14
III. Accessibility.....	15
IV. Traffic	18
V. Crime and Neighborhood Safety.....	19
VI. Perception of Fear.....	20
The Ecological Systems Theory	21
Covariates	22
III. METHODS	35
A. Phase 1 Methods	35
1.1 Recruitment methods	35
1.2 Focus Group Procedures	36
1.3 Focus Group Thematic Analysis.....	37
B. Phase 2 Study Methods	37
1.1Recruitment Venues.....	38
1.2 Survey Sampling Approach	38
1.3 Recruitment Method 1– Closed Environment.	39
1.4 Recruitment Method 2– Open Environment.....	40
1.5 Data Storage.....	40
1.6 Summary of Recruitment.....	40
Phase 3 Statistical Analysis Plan	43
1.1. Scales created from SHAPE Variables	43

1.2 Body Mass Index Percentiles.....	44
1.3 Variables from Other Sources.....	45
Statistical Analyses	45
Analysis for Phase 3 Specific Aims.....	47
Demographic Characteristics	47
Adolescents' Perception of their Built Environment and Physical Activity.....	48
Neighborhood Influences on Adolescent's Perception of Built Environment and Physical Activity	49
Perception of Self.....	49
IV. RESULTS – FOCUS GROUP.....	51
I. Perceptions.....	53
II. Revisions	69
IV. RESULTS – PHASE III	87
Results for Specific Aim 1	87
Results for Specific Aim 2.....	96
Results for Specific Aim 3.....	98
Results for Specific Aim 4.....	101
V. DISCUSSION	107
Afraid Scale	107
Perception of Adolescents' Weight	110
Adolescents' Weight Goals.....	111
Perception of Mom and Dad's Weight	111
Limitations to the Study.....	113
Strengths of the Study	116
Future Implications	118
VI. CONCLUSION.....	121
REFERENCES	123
APPENDIX A	136
APPENDIX B	192
APPENDIX C	197
APPENDIX D	224
APPENDIX E	270
APPENDIX F.....	331

CURRICULUM VITAE.....	351
-----------------------	-----

LIST OF TABLES

Table 1: Demographic Characteristics, Stratified by Overweight/Obese versus Normal Weight, SHAPE Study (n= 145).....	87
Table 2: RISK FACTORS by Overweight/Obese versus Normal Weight, SHAPE Study (n=145).	89
Table 3: RISK FACTORS by REGION OF Neighborhood LOCATION, SHAPE Study (n=153).	92
Table 4. Univariable Odds Ratios for Overweight/Obesity by Demographic and Perception Covariates, SHAPE Study (n=145).	95
Table 5. Multivariable Logistic Regression Model for Associations of Perception of the Built Environment and Physical Activity with Overweight/Obesity, SHAPE Study (n=145).	97
Table 6. Multivariable Logistic Regression Model for Neighborhood Region, Perceptions of Built Environment, Physical Activity (60 minutes) in Relation to Overweight/Obesity, SHAPE Study (n=145).	98
Table 7. Multivariable Logistic Regression Model for Perception of Weight and Association with Overweight/Obesity versus Normal Weight, SHAPE Study (n=145).....	101
Table 8. Final Purposeful Selection Adjusted Logistic Regression Model – Odds Ratio and 95% Confidence Interval for Weight Goals in Association with Overweight/Obesity, SHAPE Study (n=145).	102
Table 9. Multivariable Logistic Regression Model for Perception of Parental Support and its Association to Overweight/Obesity SHAPE Study (n=145).	103
Table 10. Multivariable Logistic Regression Model for Perception of Parental Weight and Association with Overweight/Obesity. SHAPE Study (n=145).....	104
Table B1: Variable Categories, SHAPE Study.....	193
Table C1:Demographic Characteristics, Stratified by Gender, SHAPE Study (n=145).....	198
Table C2: Demographic Characteristics, Stratified by Physical Activity (60 mins per day), SHAPE Study (n=126).	199
Table C3: Demographic Characteristics, Stratified by Physical Activity (20 mins per day), SHAPE Study (n=121).	200

Table C4: Demographic Characteristics, Stratified by Body Mass Index, SHAPE Study (n=145).	201
Table C5: Demographic Characteristics, Stratified by Walkability in the Neighborhood, SHAPE STUDY (n =154).	202
Table C6: Demographic Characteristics, Stratified by Aesthetics in the Neighborhood, SHAPE STUDY (n =153).	203
Table C7: Demographic Characteristics, Stratified by Accessibility in the Neighborhood, SHAPE STUDY (n =153).	204
Table C8: Demographic Characteristics, Stratified by Traffic in the Neighborhood, SHAPE STUDY (n =153).	205
Table C9: Demographic Characteristics, Stratified by Crime in the Neighborhood, SHAPE STUDY (n =153).....	206
Table C10: Demographic Characteristics, Stratified by Afraid of Different Types of People within the Neighborhood, SHAPE STUDY (n =153).	207
Table C11: Demographic Characteristics, Stratified by the Covariate ‘Perceptions of Weight among Adolescents’, SHAPE STUDY (n =153).....	208
Table C12: Demographic Characteristics, Stratified by the Covariate ‘Weight Goals among Adolescents’, SHAPE STUDY (n =153).....	209
Table C13: Demographic Characteristics, Stratified by the Covariate ‘Fruit and Veggie Intake’, SHAPE STUDY (n =139).....	210
Table C14: Demographic Characteristics, Stratified by the Covariate ‘Unhealthy Food’, SHAPE STUDY (n =154).	211
Table C15: Demographic Characteristics, Stratified by the Covariate ‘Meals at Home’, SHAPE STUDY (n =152).	212
Table C17: Demographic Characteristics, Stratified by the Covariate ‘Comfortability Working Out’, SHAPE STUDY (n =154).....	214
Table C18: Demographic Characteristics, Stratified by the Covariate ‘Fun Scale’, SHAPE STUDY (n =148).....	215
Table C19: Demographic Characteristics, Stratified by the Covariate ‘Parental Support’, SHAPE STUDY (n =154).....	216
Table C20: Demographic Characteristics, Stratified by Missing/Present Outcome Variable (Normal weight <i>versus</i> Overweight/Obese), SHAPE Study (n=154).....	217
Table C21: Risk Factors Stratified by Missing/Present Outcome Variable: (Overweight/Obese <i>versus</i> Normal Weight), SHAPE Study (n=154).....	218
Table C22. Unadjusted Logistic Regression Model Results for Overweight/Obese <i>versus</i> Normal Weight (n=154).	221

Table D1. Purposeful Selection Logistic Regression Models - Odds Ratios for Walkability Scale in Relation to Overweight/Obesity (n=145).....	225
Table D2. Final Adjusted Model for Walkability Scale in Relation to Overweight/Obesity (n=145).	226
Table D3. Purposeful Selection Logistic Regression Models - Odds Ratio for Aesthetics Scale in Relation to Overweight/Obesity (n=145).	227
Table D4. Final Adjusted Model for Aesthetics Scale in Relation to Overweight/Obesity (n=145).	228
Table D5. Purposeful Selection Logistic Regression Models - Odds Ratio for Accessibility Scale in Relation to Overweight/Obesity (n=145).	229
Table D6. Final Adjusted Model for Accessibility Scale in Relation to Overweight/Obesity (n=145).	230
Table D7. Purposeful Selection Logistic Regression Models - Odds Ratio for Traffic Scale in Relation to Overweight/Obesity (n=145).....	231
Table D8. Final Adjusted Model for Traffic Scale in Relation to Overweight/Obesity (n=145).	232
Table D9. Purposeful Selection Logistic Regression Models - Odds Ratio for Crime Scale in Relation to Overweight/Obesity (n=145).....	233
Table D10. Final Adjusted Model for Crime Scale in Relation to Overweight/Obesity (n=145).	234
Table D11. Purposeful Selection Logistic Regression Models - Odds Ratio for Afraid Scale in Relation to Overweight/Obesity (n=145).	235
Table D12. Final Adjusted Model for Afraid Scale in Relation to Overweight/Obesity (n=145).	236
Table D13. Purposeful Selection Logistic Regression Models - Odds Ratio for the Built Environment in Relation to Overweight/Obesity (n=145).	237
Table D14. Multivariable Logistic Regression for Perceptions of the Built Environment in Relation to Overweight/Obesity, SHAPE Study (n=145).	238
Table D15. Purposeful Selection Logistic Regression Models - Odds Ratio for Physical Activity (60 minutes) Levels in Relation to Overweight/Obesity (n=145).....	239
Table D16. Purposeful Selection Logistic Regression Models - Odds Ratio for Physical Activity (20 minutes) Levels in Relation to Overweight/Obesity (n=145).	243
Table D17. Purposeful Selection Logistic Regression Models - Odds Ratio for Perceptions of Walkability, Physical Activity Levels (60 minutes) and Association with Overweight/Obesity (n=145).	247

Table D18. Purposeful Selection Logistic Regression Models - Odds Ratio for Perceptions of Aesthetics, Physical Activity Levels (60 minutes) , and Association with Overweight/Obesity (n=145).	250
Table D19. Final Adjusted Model for Perception of Aesthetics and Physical Activity (60 minutes) in Relation to Overweight/Obesity (n=145).	253
Table D20. Purposeful Selection Logistic Regression Models - Odds Ratio for Perceptions of Accessibility, Physical Activity levels (60 minutes), and its Association to Overweight/Obesity (n=145).	254
Table D21. Final Adjusted Model for Perception of Accessibility and Physical Activity (60 minutes) in Relation to Overweight/Obesity (n=145).	257
Table D22. Purposeful Selection Logistic Regression Models - Odds Ratio for Perceptions of Traffic and Physical Activity Levels (60 minutes) and Association with Overweight/Obesity (n=145).	258
Table D23. Purposeful Selection Logistic Regression Models - Odds Ratio for Perceptions of Crime and Physical Activity Levels (60 minutes) and Association with Overweight/Obesity (n=145).	261
Table D24. Final Adjusted Model for Perception of Crime and Physical Activity (60 minutes) in Relation to Overweight/Obesity (n=145).	264
Table D25. Purposeful Selection Logistic Regression Models - Odds Ratio for Perceptions of Fear and Physical Activity Levels (60 minutes) and Association with Overweight/Obesity (n=145).	265
Table D26. Final Adjusted Model for Perception of Fear and Physical Activity (60 minutes) in Relationship to Overweight/Obesity (n=145).	268
Table D27. Final Adjusted Model for Perception of the Built Environment and Physical Activity (60 minutes) in Relation to Overweight/Obesity (n=145).	269
Table E1. Purposeful Selection Logistic Regression Models, Odds Ratio of Neighborhood Region, Walkability and its Association to Overweight/Obesity (n=145).	271
Table E2. Adjusted Purposeful Selection Logistic Regression Models; Final Adjusted Model for Neighborhood Region, Walkability, and its Association to Overweight/Obesity (n=145).	273
Table E3. Purposeful Selection Logistic Regression Models, Odds Ratio of Neighborhood Region, Aesthetics, and its Association to Overweight/Obesity (n=145).	274
Table E4. Adjusted Purposeful Selection Logistic Regression Models, Final Adjusted Model for Neighborhood Region, Aesthetics, and its Association to Overweight/Obesity (n=145).	276

Table E5. Purposeful Selection Logistic Regression Models, Odds Ratio of Neighborhood Region, Accessibility, and its Association to Overweight/Obesity (n=145).....	277
Table E6. Adjusted Purposeful Selection Logistic Regression, Final Adjusted Model for Neighborhood Region, Accessibility, and its Association to Overweight/Obesity Models (n=145).	279
Table E7. Purposeful Selection Logistic Regression Models, Odds Ratio of Neighborhood Region, Traffic, and its Association to Overweight/Obesity (n=145).....	280
Table E8. Adjusted Purposeful Selection Logistic Regression Models, Final Adjusted Model for Neighborhood Region, Traffic, and its Association to Overweight/Obesity, (n=145).	282
Table E9. Purposeful Selection Logistic Regression Models, Odds Ratio of Neighborhood Region, Crime, and its Association to Overweight (n=145).....	283
Table E10. Adjusted Purposeful Selection Logistic Regression Models, Final Adjusted Model for Neighborhood Region, Crime, and its Association to Overweight/Obesity, (n=145).	285
Table E11. Purposeful Selection Logistic Regression Models, Odds Ratio of Neighborhood Region, Afraid, and its Association to Overweight/Obesity, (n=145).....	286
Table E12. Multivariable Logistic Regression Model for Neighborhood Region, Perception of the Built Environment and Association with Overweight/Obesity, SHAPE Study (n=145).....	288
Table E13. Purposeful Selection Logistic Regression Models, Odds Ratio for Neighborhood Region, Physical Activity levels (60 minutes), and its Association to Overweight/Obesity, (n=145).	289
Table E14. Multivariable Logistic Regression Model for Neighborhood Region, Physical Activity (60 minutes)and its Association to Overweight/Obesity, SHAPE Study (n=145).	292
Table E15. Purposeful Selection Logistic Regression Models, Odds Ratio for Neighborhood Region, Physical Activity levels (20 minutes), and its Association to Overweight/Obesity (n=145).	293
Table E16. Multivariable Logistic Regression Model for Neighborhood Region, Physical Activity (20 minutes) and Association with Overweight/Obesity, SHAPE Study (n=145).....	296
Table E17. Purposeful Selection Logistic Regression Models, Odds Ratio for Neighborhood Region, Walkability, Physical Activity (60 minutes) and its Association to Overweight/Obesity (n=145).	297

Table E18. Adjusted Purposeful Selection Logistic Regression Models, Final Adjusted Model for Neighborhood Region, Walkability, Physical Activity (60 minutes), and its Association to Overweight/Obesity (n=145).....	302
Table E19. Purposeful Selection Logistic Regression Models, Odds Ratio for Neighborhood Region, Aesthetic, Physical Activity (60 minutes) and its Association to Overweight/Obesity (n=145).	303
Table E21. Purposeful Selection Logistic Regression Models, Odds Ratio for Neighborhood Region, Accessibility, Physical Activity (60 minutes) and its Association to Overweight/Obesity (n=145).	309
Table E22. Adjusted Purposeful Selection Logistic Regression Models, Final Adjusted Model for Neighborhood Region, Accessibility, Physical Activity (60 minutes), and its Association to Overweight/Obesity (n=145).....	314
Table E23. Purposeful Selection Logistic Regression Models, Odds Ratio for Neighborhood Region, Traffic, Physical Activity (60 minutes) and its Association to Overweight/Obesity, (n=145).	315
Table E24. Adjusted Purposeful Selection Logistic Regression Models, Final Adjusted Model for Neighborhood Region, Traffic, Physical Activity (60 minutes), and its Association to Overweight/Obesity (n=145).....	319
Table E25. Purposeful Selection Logistic Regression Models, Odds Ratio for Neighborhood Region, Crime, Physical Activity (60 minutes) and its Association to Overweight/Obesity, (n=145).	320
Table E26. Adjusted Purposeful Selection Logistic Regression Models, Final Adjusted Model for Neighborhood Region, Crime , Physical Activity (60 minutes), and its Association to Overweight/Obesity, (n=145).....	324
Table E27. Purposeful Selection Logistic Regression Models, Odds Ratio for Neighborhood Region, Afraid, Physical Activity (60 minutes) and its Association to Overweight/Obesity (n=145).	325
Table E28. Adjusted Purposeful Selection Logistic Regression Models, Final Adjusted Model for Neighborhood Region, Afraid Scale , Physical Activity (60 minutes), and its Association to Overweight/Obesity (n=145).....	330
Table F1. Purposeful Selection Logistic Regression Models, Odds Ratio for Perception of Weight and its Association to Overweight/Obesity (n=145).	332
Table F2. Purposeful Selection Logistic Regression Models, Odds Ratio for Perception of Weight Goals and its Association to Overweight/Obesity (n=145).	336
Table F3. Purposeful Selection Logistic Regression Models, Odds Ratio for Perception of Parental Support and its Association to Overweight/Obesity (n=145).....	340

Table F4. Purposeful Selection Logistic Regression Models, Odds Ratio for Perception of Parental Weight and its Association to Overweight/Obesity, (n=145).....	343
Table F5. Adjusted Purposeful Selection Logistic Regression Models, Final Adjusted Model for Perception of Parental Weight and its Association to Overweight/Obesity, (n=145).	346
Table F6. Adjusted Purposeful Selection Logistic Regression Models, Odds Ratio for Perception of Parental Weight and its Association to Overweight/Obesity (n=145).....	347
Table F7. Adjusted Purposeful Selection Logistic Regression Models, Final Adjusted Model for Perception of Parental Weight and its Association to Overweight/Obesity (n=145).	350

I. INTRODUCTION

Unhealthy lifestyle choices made by adolescents can lead to obesity and have significant immediate-and long-term effects on health, with the most serious disease-related outcomes arising in adulthood. Adolescent obesity is a growing epidemic; the Centers for Disease Prevention and Control reports prevalence in the U.S. is 20.6% among adolescents aged 12-19 years which differs by racial/ethnic groups; the highest is among Hispanics (25.8%), followed by Blacks (22.0%) and non-Hispanic White populations (14.1%) (1). Kentucky has particularly high adolescent obesity rates compared to overall U.S. rates. According to the 2017 Kentucky Youth Risk Behavior Survey, an average of 20.2% of high school students (grades 9-12) were obese, compared to an US average 14.8% of high school students for the same year (2). Over twenty-seven percent of female middle school students (grades 6-8) were obese in comparison to 26.8% of male middle school students in the Kentucky (3). In addition, the 2017 Youth Risk Behavior Survey indicated that 78% of high school students and 71.8% of middle school students in Kentucky reported no physical activity (2, 3). Determinates are complex and interrelated and associated with poor social and economic status, racial/ethnic background, and social inequalities. Furthermore, poor lifestyle choices can exacerbate existing social inequalities, which negatively affects health and reinforces health disparities (4). Layers of determinates may include individual behaviors such as diet and physical activity and larger social contexts related to the community such as one's

neighborhood and built environment. The built environment is a multidimensional concept that has evolved over time and can be partially described using objective physical measures such as land use, physical infrastructure, transportation or neighborhood safety(5, 6). Taken together, previous findings indicate a positive relationship between various built environment measures and obesity in adolescents; however, the majority of studies included non-Hispanic White adolescents only or lack a comparison group for other races, and lack evaluation of subjective factors such as perception of one's environment (7). It is plausible that the relationship between built environments and weight could vary across racial/ethnic groups. For example, increased land use mix, including distance walked and time spent driving, among Blacks was reportedly associated with a greater overall reduction in the probability of being obese compared to White counterparts (8). Additionally, the importance of the relationship between physical activity and obesity, race, urbanicity and the built environment has become more visible because adolescents tend to have less autonomy in their behaviors and exercise routines than adults (1, 5). Thus, the main premise of the present study is that the socialized perceptions of adolescents of their environment may be as important in constraining their behavior and physical activity as the physical resources of their built environment.

Few studies have considered how an individual's perception of their built environment may serve as a risk factor for being overweight or obese. Perceptions of built environment may influence dietary intake, physical activity, psychological stress and other factors that can alter energy balance and increase the propensity for obesity among adolescents. Adolescents may be particularly vulnerable in the context of "impoverished

environments” that they perceive to be difficult, dangerous, lacking in resources, and unaesthetic.

A health-wealth gradient exists from the east- to west end of Louisville, Kentucky, the largest city and metropolitan area in the state where 5- and 10-year gaps were observed in life expectancy between neighborhoods (9). The city is comprised of the highest proportion of racial/ethnic populations in the state; 70.5% non-Hispanic White, 20.8% non-Hispanic Black, and 8.7% other race (10, 11). However, 78% of the population in the west-end of Louisville is non-Hispanic Black. The area comprised of nine neighborhoods has a poverty rate three times greater than the poverty rate of the greater Louisville Metropolitan Area (16.5% vs 5.5%, respectively) (12, 13). Furthermore, despite the lower violent crime rate average in Kentucky compared to the nation (41% difference), the violent crime rate average in the Louisville Metropolitan Area was 70.2% higher than in the nation and 190.9% higher than in Kentucky (14) where West Louisville accounts for majority of all violent crimes committed and reported in the city. Most homicide deaths occur in West Louisville, the age adjusted death rate is 21.64 -40.60 per 100,000 (15).

Among disparate adolescent populations at-risk for becoming overweight/obese, evaluating the perceptions of the environment where they live and attend school and how it relates to weight and health behaviors can provide insight into physical or structural changes needed at the community level. Therefore, the primary objective of this dissertation study, the *Survey of Health and the Perceived Environment* (SHAPE), was to conduct a cross-sectional epidemiologic pilot study among adolescents aged 12 to 17 years residing in West Louisville, Kentucky to evaluate the association between

perceptions of neighborhood built environment and overweight/obesity status as defined from body mass index. Additional measures of evaluation include adolescents' perceptions of their own and their parents' body size, measures of dietary intake and opportunities for engagement in physical activity, both indoors and outdoors. The central hypothesis for the study is that there is a statistically significant association between built environment measures, physical activity, and adolescent overweight/obesity status. This pilot study used a mixed-methods, community-based design conducted in three phases.

SPECIFIC AIMS

Phase 1 –Specific Aims–Focus Group Assessment of Study Questionnaire

1. To recruit a maximum of 20 participants, 7 to 10 females and 7 to 10 males, aged 12 to 17 years, from a local church organization for the conduct of two focus groups by gender.
2. To administer the SHAPE Study Questionnaire and facilitate a discussion in regards to clarity, relevancy, and sensitivity with adolescent participants on their perceptions of the questions.

The purpose of Phase 1 was to obtain input, opinions and perceptions of the study from representatives of the target population. Focus groups are commonly used in community-based epidemiologic research to establish the acceptability of the research goals and approach (16). The two focus groups aided in the assessment of the questions that measured factors related to the built environment and physical activity. In our study, this was considered critical given the characteristics of the target population: adolescents residing in West Louisville. These factors are key in the promotion of healthier lifestyle

within Jefferson County.

Phase 2 –Specific Aims–Refinement, Recruitment, and Administration of Study Questionnaire

1. To identify and establish professional relationships with community leaders and program directors of youth organizations and facilities utilized by the youth within West Louisville.
2. To recruit and administer the SHAPE Questionnaire to adolescents who reside in West Louisville.

The SHAPE Questionnaire was revised based on feedback received from the Phase 1 focus groups pretest. An epidemiological study with perceived built environment as the exposure and adolescent obesity as the outcome is a novel study in Jefferson County, Kentucky. Additionally, there is an urgent need to understand the lifestyle behaviors contributing to the development of obesity in the period of transition from adolescence to adulthood. Early life obesity is strongly associated with adulthood obesity. The evaluation of determinants for obesity in youth may help identify risk factors that increase risk for adult chronic conditions. This phase of the study was designed to provide data to clarify how the built environment and level of physical activity influences the risk of obesity among adolescents residing in West Louisville, and which will be relevant to community leaders, investors, public policy makers, and residents.

Phase 3 –Specific Aims–Analysis of SHAPE Study Data

1. To examine the distribution of the demographic characteristics (gender, race, age, SES, location, etc.) stratified by the perceived built environment, physical activity, and adolescent obesity.
2. To determine the associations of adolescents' perceptions of the built environment (*walkability, aesthetics, accessibility, traffic, crime, fear, physical activity levels, and perception variables*) and adolescent obesity in West Louisville.
3. To identify and evaluate potential confounders of the association between adolescents' perceptions of the built environment (*walkability, aesthetics, accessibility, neighborhood, crime, fear, opportunities for physical activity*) and adolescent obesity, including both individual (*diet, physical activity*) and group level covariates (*neighborhood location, median household income*) in West Louisville.
4. To evaluate the relationship between adolescents' perception of self- and parental-body size and parental support and obesity.

II. BACKGROUND

Population Profile of Louisville, Jefferson County, KY

A 2010 report of Analysis of Impediments to Fair Housing Choice showed that 45% of Louisvillians reside in residentially segregated areas (10). Approximately 260,000 (48%) of white residents live in census tracts in which 95% or more residents are white; 52,000 (40%) of black residents live in census tracts in which 80% or more residents are black. As a result, Louisville is ranked 43rd out of 102 for the most racially segregated metropolitan areas (10, 17). In addition, the distribution of poverty differs by race in Louisville. For example, youth between the ages of 14 and 18 years, 14.7% live below the poverty line, within this total, a higher proportion of blacks are living below the poverty line compared to whites (36.6% vs. 9.5%) (18, 19).

History of West Louisville

To provide context for the target demographic population and geographic area of the SHAPE study, it is important to understand the history of marginalization of the western end of Louisville in Jefferson County, KY. During the Civil Rights Era and beyond (1950s - 1970s), urban renewal projects placed more blacks in West Louisville, comprising of nine neighborhoods (10, 20). Also, during this period, over 15,600 white residents moved from the West End to the east, south, or suburban area of Jefferson

County (10). Subsequent programs that attempted to provide better housing opportunities for those in need did not succeed. These efforts include, but are not limited to: President Johnson's War on Poverty initiatives, open housing movement, federal social welfare programs, and initiation of the Department for Housing and Urban Development (HUD) (10).

West Louisville Today

Since 2003 after a city-county merger, Louisville's borders have been the same as those of Jefferson County. The current geographical area of West Louisville consists of the areas west of 9th Street in Louisville, covering the span of nine neighborhoods: Russell, Shawnee, Parkland, California, Park Duvalle, Portland, Park Hill, Chickasaw, and Algonquin. According to Kentucky State Data Center in 2014, there were 60,749 West Louisville residents (20, 21). West Louisville has remained socially and economically disadvantaged with residential segregation persisting throughout history. Consequently, West Louisville's historical marginalization has influenced past and present health and social disparities. Despite recent efforts for revitalization of neighborhood(s) in the West End, poor health and social indicators of the nine neighborhood community include high crime rates, poverty rates, and prevalence rates of poor lifestyle factors and indicators for disease status (22). This provides a strong rationale for investigating reasons for health disparities in West Louisville.

Obesity

Body mass index (BMI) for children and adolescents are age and sex specific (23); it is often called BMI-for-age (23). Adolescents body composition varies based on their age

and sex; therefore, age and sex-specific percentiles for BMI are utilized instead of BMI categories (23). For example, if an adolescent's BMI-for-age is between the 85th and 95th percentile, the adolescent is considered overweight. If an adolescent's BMI-for-age is in the 95th percentile or greater, the adolescent is considered obese. If an individual has a daily positive energy balance over a period of time, weight gain can occur. The elements that define energy balance includes: energy intake, energy expenditure, and energy storage (24). Energy intake is the amount of energy or caloric intake an individual consumes daily. Energy expenditure is the amount of energy expended or burned as fuel through daily processes. Energy expenditure occurs through the resting metabolic rate (RMR), the metabolism of food, and physical activity (24). Weight gain occurs if the amount of energy intake is greater than the amount of energy expended (24).

African Americans have a higher prevalence of obesity in the U.S. compared to all other ethnic groups (25). The obesity prevalence for US children increased by 10.4% between 2003 and 2007 (26). These past four years are crucial because, the obesity prevalence increased by 17.6% for children and adolescent females (26). The Centers for Disease Control (CDC) reported that childhood obesity is a major concern as level of overweight and obesity is correlated with serious health issues during adolescence and adulthood (1). The CDC reported that the prevalence of obesity among children and adolescents (2-19 years) was 18.5%; 18.4% among 6- to 11-year-olds, and 20.6% among 12- to 19-year-olds (1). NHANES reported 31.9% of America's youth had BMI greater than or equal to 85th percentile (27, 28). Kentucky is ranked 8th among the 50 states and the District of Columbia; 34.3% of Kentucky adults were obese in 2017 (29). Kentucky's youth had the third highest obesity rates out of 43 states in 2017 (29). Also in this year, 20.2% of

Kentucky's high school students were obese; in 2015, 18.5% of youth were obese (29). According to the Trust for America's Health and Robert Wood Johnson Foundation, 10-17 year olds have a current obesity rate of 19.3% in Kentucky (29). The Behavior Risk Factor Surveillance System (BRFSS) analyzed county level data in 50 states and the District of Columbia. Based on BRFSS analyses from 2015-2017, 66% of adults in Jefferson County (Louisville, KY) were overweight in comparison to 68% of adults (30). Thirty-two percent of adults in Jefferson County were obese in comparison to 34% of adults in Kentucky (30). The obesity rates for children, adolescents, and adults continue to rise from year to year.

Determinants of Adolescent Obesity

Seventy percent of African-Americans have an overweight or obese body size (31) compared to the US obesity average of 57%. Previous studies have also shown that African Americans do not change their dieting habits as readily as other ethnic groups (31). This act may increase the risk of weight-related diseases and increase the level of difficulty in weight loss. Sedentary lifestyles can also give rise of unwanted weight gain. Comorbidities, disabilities, stressful environments, and a lack of physical activity may cause an individual's energy expenditure to be less than his or her energy intake. An increased body mass index is associated with an increased risk of diabetes, high blood pressure, and elevated cholesterol in youth (28, 32, 33). Factors attributed to health disparities continue to drive a wedge between equality of health and healthcare within a society. Childhood obesity is largely associated with diet, which in turn could be associated with the built environment.

Built Environment

In the early 20th century, disciplines within public health became isolated and autonomous agencies emerged (housing, environment, agriculture, etc.) (34). Over decades as the United States' economy prospered, the American populace deviated from cities to suburbs. In the year 2000, the average American drove at least 14,000 miles per year. Due to the increase in paved land, highway construction, and the transition to suburbia, transit systems located in Metropolitan areas decayed (34). As a result of America's change in land-use, adolescents and adults have larger body weights with less muscle mass.

One of the initial systematic reviews focused on this association and was based on a critical assessment of 20 studies that shared a common definition for the outcome of obesity based on body mass index (BMI) (7). Seventeen (84%) articles reported a positive statistically significant relationship between an aspect of the objective-built environment and BMI. There were a total of 18 cross-sectional studies; therefore, directionality could not be established between the exposure and outcome (7). At least 17 studies were conducted in predominantly non-Hispanic White populations or did not include in comparisons among race or ethnicity (7). One of the 17 publications stratified by race to examine the relationship between the built environment and obesity (7, 8). In Frank et al., Blacks were more likely to be obese in comparison to whites after the evaluation of several aspects of the built environment (mixed land use, walkability, and commute time) (8).

Galvez et al. conducted a review of literature from January 2008 - August 2009 for childhood obesity and the built environment (35). A total of 48 articles were included in

the review; the articles included children and adolescents less than or equal to 18 years of age (35). Fifteen articles reported the association between physical activity and childhood obesity (35). Both perceived and objective behaviors were represented in the articles. Perceived availability of affordable recreational facilities in neighborhoods was associated with increased physical activity levels (35-37). Seven studies assessed neighborhood walkability and obesity; most of the studies found no significant association between the variables (35). Fifteen of 48 articles had an outcome of obesity. Most articles measured the objective built environment and found no significant association between the built environment and obesity. Most of the articles with obesity as the primary outcome did not measure individual behavior. It is important to assess the perceived and objective built environment as it pertains to obesity among adolescents and children.

Perceived Built Environment

The perceived built environment can be defined as someone's view or perception of their built environment, man-made and natural neighborhood structures. Ding et al. composed a systematic review of neighborhood environment and physical activity among youth (38). The variables in the review included environmental attributes such as parks, recreation facilities, land-use mix/destinations, street connectivity, walkability, traffic speed, and vegetation. The objective and perceived built environment and its association to the objective and subjective physical activity among children and adolescents (aged 13-18) were extracted for data synthesis (38). The data presented inconsistent associations with environmental attributes. There were a total of 103 articles reviewed, 58 articles examined the perceived environment, and 38 articles examined physical

activity and the built environment among adolescents. Based on participant's perceptions, the perceived built environment and its relation to physical activity yielded more uncertain, weaker results in comparison to the objective built environment. Only 29% of the articles reported a significant relationship between the perceived built environment and self-reported physical activity.

Based on the above article review, further work is needed to investigate the relationship between the perceived built environments in urban environments. Also, African American adolescents were more likely to reside in areas with higher levels of social, physical, and economic distress (39-43). These factors can include social instability due to concentrated poverty, lack of trust among community members, abandoned buildings, graffiti, crime, and vandalism (39-43). The following text below details the aspects of the built environment measured in association to obesity. The aspects of the built environment include neighborhood walkability, aesthetics, accessibility, traffic, crime, and perceptions of fear.

Aspects of the Built Environment

I. Neighborhood Walkability

Neighborhood walkability encompasses characteristics of the built environment that aid residents in physical activity, recreation, leisure, walking, access to services or travel to work (44, 45). Over the years, research in the walkability of a neighborhood has increased due to its ability to restrict or enhance the social, behavioral, and physical aspects of residents in a community (44, 46-48). Therefore, changes in a built environment could have long term effects on communities.

One of many validated scales, the Neighborhood Environment Walkability Scale (NEWS) was developed to assess the environmental characteristics that may influence physical activity in adults and adolescents (49, 50). In Rosenberg et al, adolescents aged 12-18 participated in the NEWS-Y (Y stands for youth) survey. Using one-way covariance analysis the researchers found that there was a significant relationships with various walkability characteristics (being active in a park, walking to a park, walking to shops, and walking to school) (50). In addition, Yueng et al. associated walking and cycling for transportation by youth with community design and transportation attributes (sidewalks, traffic safety, distance to location) (50, 51).

II. Aesthetics

One of the visual hallmarks of a neighborhoods decline and crime rates are abandoned buildings, buildings with graffiti, poor city landscaping (52). Abandoned or deserted buildings in neighborhoods have been called “magnets for crime” and can decreased the property value of homes (52-54). Due to the loss of jobs and economy, In 2011 there were 51% of vacant housing in the U.S. (52, 55). According to Teixeira, abandoned homes are an indicator of poor psychosocial and physical health outcomes in children and adolescents (52). Poor attractiveness in neighborhoods have also been linked to childhood and adolescent obesity (52). One criminology theory called the Broken Windows Theory proposes that minor crimes and social incivilities in neighborhoods attract predatory crimes because criminals believe that neighborhoods will not intervene (52, 56). It is important to have attractive neighborhoods that influences physical activity, elevates stress, and potentially lowers the residents BMI. Lovasi et al. evaluated neighborhood attractiveness and its association to BMI (57). Generalized modes were

used to analyze the data. Sidewalk cafés (log transformed density) were associated with lower BMI among 4334 participants in NYC (-0.58, 95% CI -0.90, -0.27). The presence of landmark buildings were associated with lower BMI among 7234 participants (-0.36, 95% CI -0.67, -0.06) (57). As of March 2017 in Louisville, there were more than 7,400 vacant and 4,600 abandoned properties (58). Over 60% of those properties were located in West Louisville. There were 240 vacant and abandoned properties in the East End. One hundred and ninety-seven properties were scheduled for demolition in March 2017 (58). One hundred and sixty-five (84%) of those properties were in West Louisville neighborhoods (58).

III. Accessibility

Neighborhood fast-food availability

A cross-sectional study, in an eight-county study region in South Carolina, evaluated the association between weekly fast-food consumption and the perceived availability of fast-food and objective measures of the food environment (59). Participants who perceived to have more fast food restaurants were more likely to consume fast food. However, a protective effect was observed for the association between weekly consumption of fast food and the presence of fast food restaurants. In child and adolescent studies, researchers have not yielded a consensus on whether or not the proximity of fast food restaurants is associated with health. Although there have been plenty of studies, a causal relationship is yet to be established. Davis and Carpenter analyzed the California Healthy Kids Survey in 2002-2005 to examine the relationship between fast food outlets near schools and adolescent obesity. After reductions based on the exclusion criteria, 100 students

were represented in the study. Using logistic models, the study reported that students with fast food outlets near their schools were likely to consume fewer fruits and vegetables, more servings of soda, and more likely to be overweight than students without fast food outlets near their schools (60). Students with fast food outlets within 0.5 miles of their schools were 6% more likely to be overweight than those who did not have fast food outlets within 0.5 miles of their schools (1.06, 95% CI 1.02-1.10) (60). Students with fast food outlets within 0.5 miles of their schools were 7% more likely to be obese than those who did not have fast food outlets within 0.5 miles of their schools (1.07, 95% CI 1.02-1.12) (60). More studies in locations across the US should be conducted to measure the validity of the study and to aid in better characterizing a relationship between fast food consumption and adolescent health.

Supermarkets

Presently in West Louisville, there are very few supermarkets, health food stores, and casual restaurants (café, pub, diner, themed restaurants, etc.). However, there are a large number of convenient stores and fast food restaurants. As the prevalence for overweight and obese adolescents increase in West Louisville, the built environment remains stagnant. The below maps show the number of grocery stores that have closed over the past year, the access to grocery stores, and low-income census tracts. In West Louisville, three grocery stores closed in 2016 due to economic hardship (61). Walmart has abandoned plans to build a super store on Broadway Street and 18th street (62). Old Louisville's Kroger on Second Street, which is very close to residents of West Louisville, was not able to renew the lease (62). Therefore, five prominent grocery stores in the West Louisville area closed in 2016 (61). The following map shows food access by

market area in Jefferson County in 2015 (63). The area west of downtown, which is known as West Louisville (Northwest Core, West Core, parts of the Southwest Core and Riverport) has very low access to food (63). In West Core, 39% - 52% of the residence live more than 0.5 miles away from supermarket.

In the Northwest Core, Southwest Core, and part of Riverport, 26% to 38% of residents live more than 0.5 miles away from a grocery store (63). The next map shows food access by census tracts in Jefferson county (64). This map shows which Census tracts in Jefferson County have the least to the greatest access to grocery stores and which areas are the most impoverished.

Census tracts in East Louisville have 0% to 15% of residents who live more than 0.5 miles away from supermarkets while residents in West Louisville may live more than 10 miles away from the nearest supermarket (64). Adolescent obesity is less prevalent in areas with large

supermarkets and higher in areas with several fast food restaurants (65). When residents have a higher accessibility to healthier options, they tend to eat healthier (66).

Parks

Residents with safe parks are more likely to be physically active and less likely to be obese (67). Having parking trails near adolescent homes has been linked to a reduction in weight. Sandy et al. found that when neighborhood crimes equaled 30 or more around different Indianapolis trails, children had higher BMIs (68). Trails within the communities potentially decrease the cost of exercise in communities and provide school aged students with activities to stay physically active. Unfortunately, trails may facilitate criminal activity by providing a safe place for meetings and blending with other community members (68).

IV. Traffic

Over the years, traffic as an aspect of the built environment has been evaluated as a part of neighborhood safety or walkability (69). Very few studies examined neighborhood traffic as a risk factor for adolescent obesity (70). Studies have reported that the number of cars, percentage of green space, accessible destinations, and safety have contributed to engagement in physical activities in children and adolescents (70-75). An ecological analysis conducted in California; observed that vehicle miles is associated with obesity (76). In Timpiero et al., one of the first perceived environment publications, parents who reported heavy traffic were more likely to have obese adolescents (Adjusted Odds Ratio: (AOR): 1.4: pvalue = <0.05) (69). Children and adolescents who believed their mom and dad thought there was heavy traffic in the neighborhood were 30% more likely to be obese than children and adolescents whose parents didn't believe there was heavy traffic

(AOR: 1.3; pvalue = >.05)(69). Because the pvalue was greater than .05, the analysis was not statistically significant (69). A longitudinal cohort study was conducted for children and adolescents aged 10 – 18. The cohort was from 11 southern California communities. If children and adolescents were exposed to traffic within 150 meters of the home, there was an increase in BMI for males and females ($\beta = 0.0030$; pvalue = <0.0001) (70). Results for the association of traffic and adolescent obesity continues to remain mixed (70).

V. Crime and Neighborhood Safety

Perceived crime and safety in neighborhoods have been thoroughly evaluated in adults. A systematic review highlighting the association between crime, physical activity, and BMI among adults reported mixed results (77-79). Fewer studies examine the relationship between perceived crime, physical activity, and obesity among adolescents. In San Antonio, 177 Mexican American, seventh grade girls participated in a study that examined perceived crime and physical activity. There was a statistically significant yet negative association between perceived crime and physical activity (77, 80). Three hundred and twenty-nine high school students from Baltimore participated in a study. The study reported that objective measured and perceived crime was not associated with park use or physical activity (77, 81). Larson et al. conducted a study among adolescents analyzing social and environmental constructs and obesity among adolescents (77, 82). The study concluded that adolescent girls with a perception of a lack of safety had higher BMIs than adolescent girls who felt safe in their neighborhoods. However, once the researchers dichotomized predictor variable there was no association with BMI or physical activity in the study (77, 82). Most adolescent studies have predictor variables

such as perceived crime or reported crime, but not both (38, 77, 83). Forstyh et al. focused on perceived and police-reported crime as it relates to adolescents' weight status (77). Approximately 42.5% of boys reported an unsafe neighborhood (22.7% during the night only and 19.8% during the day). Approximately 51.1% of girls reported an unsafe neighborhood (24.6% during the night only and 26.6% during the day). A linear relationship was found between the perception of neighborhood safety and reported crime ($p < .0001$). Total crime and physical activity was not statistically significant among adolescents; however, there was a correlation between perceived crimes and reported crimes in the study (77). It is important to evaluate perceived crime in relationship to adolescent obesity.

VI. Perception of Fear

Dulin-Keita et al. utilized examined the relationship between the perceived neighborhood disorder conceptual framework and obesity mediated by physical activity among African American adolescents (aged 12-16) in metropolitan-Birmingham, Alabama (39).

Burdette and Hill developed the perceived neighborhood disorder conceptual framework (39, 84). The framework recommends that perceived neighborhood disorder indirectly affects obesity through several mediating factors. The environment of the neighborhood's social and physical disorder can be associated with psychological and physiological distress (39). Some of the neighborhood factors that could trigger distress were public loitering, crime, graffiti, vandalism, abandoned buildings, etc. (39). The 101 study participants self-reported their perceived neighborhood disorder responses in a Likert format. A large percentage of overweight and obese adolescents were significantly associated with having the highest quartile of perceived disorder ($\chi^2 = 5.77$, $p = 0.016$).

Also, physical activity (moderate-to-vigorous intensity) did not mediate the relationship between perceived neighborhood disorder and obesity ($\beta = 0.208$, $p = 0.310$) (39, 84)

Once there is a chronic activation of a psychological distress response, eating unhealthy and limited physical activity can become a coping mechanism (39, 84). Evenson et al. reported that a disordered neighborhood environment, which is mostly known as urban environments, directly depresses the engagement of physical activity among adolescents (39, 85). The environment may not promote physical activity, but it may promote the fear of criminal or harsh activity.

The Ecological Systems Theory

The Ecological Systems Theory contextualizes influential factors of childhood obesity as shown in Figure 1(35). These factors include family, school, community, and society (35). According to the Ecological Systems Theory (EST) childhood development occurs as a result of interactions between family, school, community, and, society, at large (86). The community and societal factors in this theory are referred to as the built environment. In this theory, the components of the built environment includes housing, roads, walkways, density, transportation networks, shops, parks, and public spaces (35, 87). This model is similar to the model composed by the United Nations Children's Fund (UNICEF) that describes factors that influence malnutrition in childhood (87, 88). The child risk factors within the model refers to the direct factors that influence the weight of the child. The italicized child risk factors can modify the effect of the child's weight.

Several studies have examined the childhood factors as it relates to obesity. The etiology of childhood obesity and obesity-related factors are complex in nature; cross-sectional

and longitudinal studies have reported various findings in individual and community level characteristics (86). Galvez et al. believes that there is satisfactory data for researchers to incorporate the ETS model into future childhood obesity studies (35).

Figure 1. Ecological Systems Theory (35, 86)

The Ecological Systems Theory incorporates elements that are influential to obesity among adolescents.

Covariates

Covariates evaluated in this study have been summarized based on the Ecological Systems Theory. The covariates discussed below includes: physical activity, sedentary behaviors, perception of weight, weight goals, parental support, dietary intake, meals at school and home, and socioeconomic status.

Physical activity

The WHO, World Health Organization, recommends that children and youth, aged 5-17 years, have at least 60 minutes of moderate to vigorous-intensity physical activity, MVPA, daily (89). According to recent accelerometer data, 42% of children and 8% of adolescents in the United States met this guideline (90, 91). In the Kentucky 2017 Youth Risk Behavior Survey, 12.4% of middle school students engaged in physical activity for at least 60 minutes on at least one day a week (92). Out of the 112 African American middle-school- survey participants, 18.2% only engaged in physical activity for at least 60 minutes on at least one day a week (92). About 54% of US high school students compared to 60% of Kentucky middle school students were not physically active at least 60 minutes per day on 5 or more days (93). Out of the 134 African American high-school survey participants in Kentucky, 66.3% were not physically active at least 60 minutes per day on 5 or more days (93).

Regular or daily physical activity increases strength and endurance, enhances bone structure and muscles, controls weight, decreases stress and anxiety, and improves self-esteem in children and adolescents (94, 95). Children and adolescents are more likely to be influenced by their environment than their adult counterparts. If adolescents are not able to engage in physical activity, they are more susceptible to obesity and other chronic illnesses. Youth have less autonomy in their behaviors and exercise routines than adults (96-99). Several research articles stress the importance of studying physical activity in youth, its relationship to obesity, race, urbanicity, and the built environment.

Ding et al.'s systematic review of neighborhood environment and physical activity among youth, there were more articles that revealed a significant association with reported physical activity (66%) and the objectively measured built environment than objectively measured physical activity (33%) (38). The reported physical activity demonstrated more of a consistent relationship than the objectively measured physical activity because reported measures take into consideration active transport (street connectivity) and leisure time physical activity (parks, recreation facilities, crime-related safety) (38).

Hager et al. examined the association examined the role of the perceived built environment within school proximity in African American adolescent girls (100). A total of 224 sixth and seventh grades completed the questionnaire and accelerometer assignment. The individual-level data was analyzed using bivariate analyses which showed that girls who were overweight were less physically active than girls who had a healthy weight ($t = 2.7$, $p = 0.008$). Older adolescent girls who resided further from their school had more of a negative perception of the built environment ($r = -0.15$, $p = 0.023$). The results of this study proposed that negative perceptions of the built environment may lead to physical inactivity in adolescent girls. Most of the adolescent girls with negative perceptions of the built environment reported having abandoned homes, broken windows, and increased fast food outlets in their communities. By examining the physical and built environment of communities instead, policy developers could possibly aid in the development of environmental attributes for adolescents (100).

According to Belcher et al., as age increases in youth, their MVPA (minutes spent in moderate to vigorous PA) decreases (28). The NHANES (National Health and Nutrition

Examination Survey) cross-sectional study indicated that youth aged 6 to 11 years engaged in MVPA for an average of 88 minutes per day, followed by ages 11 to 15 years (33 minutes per day), and ages 16 to 19 years (26 minutes per day). Broderick et al. concluded that physical activity declines between the ages of 11 and 12 (101). Physical activity has been positively and negatively associated with the perceived built environment and adolescent obesity.

Dietary Intake

Throughout the past several decades, dietary patterns have shifted. Food is now processed differently. The changes in our environment have caused energy imbalance and obesity patterns across the country; studies have consistently shown positive associations between supermarkets or health food stores, diet patterns, and weight status (5, 102-104). Food cost also plays a significant role in determining eating patterns and health behaviors (5, 105-107). The parents or guardians govern children and adolescents' dietary patterns. Therefore, they may have limited to minimal decision-making power in their food choices. Dietary habits are largely affected by the closeness of the shops, grocery stores, convenient stores, grocery stores and other product-driven establishment.

Fruit and Vegetable consumption

Literature on fruit and vegetable consumption shows that individuals with lower incomes are less likely to consume fruits and vegetables (108, 109). A neighborhood's SES is correlated with the number of supermarkets, farmer's markets, and restaurants (108, 110). Supermarkets tend to provide a range of fruit and vegetables at lower prices than convenient store and neighborhood grocery stores. (108, 111-113). Families who reside in lower SES areas may have to travel to affluent neighborhoods to visit the supermarket

or they shop at multiple stores to retrieve desired food and household items (108, 114-116) . Also the quality and freshness of the produce have been called into question at smaller, neighborhood grocery stores. Blitstein et al. analyzed the association between the residents' perception of their food shopping environment and dietary intake of fruits and veggies (108). The study's sample consisted of six low- income, primarily minority neighborhoods in Chicago, Illinois. Participants who were highly satisfied with their food shopping environment were more likely to eat three or more servings of fruits and vegetables in comparison to participants who were not satisfied with their food shopping environments. Participants who reported having convenient access to fresh fruits and veggies (OR = 2.13, pvalue: .015) ate three or more servings in comparison to those who did not have access to quality, fresh fruits and veggies.

Unhealthy Food Consumption

In relation to the increased prevalence of overweight and obesity, American children have inadequate dietary practices. One of the practices includes consuming energy-dense nutrient poor foods, eating larger portion sizes, and eating more meals away from home than children who reside in Russia, China, and the Philippines (117, 118). Energy-dense nutrient poor foods include an inadequate intake of fiber, vitamins A and C, calcium, and an excessive amount of saturated and trans fat along with added sugar and sodium (117, 119-121). A study was conducted in low-income neighborhoods of Baltimore City, Maryland. Children aged 9-13 years exceeded the daily estimated energy requirements (EER) for boys (1,800 –2,200 kcal) with an average mean daily intake of 2,429 kcal and the EER for girls (1,600 – 2,000 kcal) with an average mean daily intake of 2,732 kcal. For adolescents aged 14-16, the EER was exceeded again, the mean daily intake for boys

(2,400-2,800 kcal) was 3,339 kcal and 2,846 kcal for girls (2,000 kcal). Also, majority of the children and adolescents did not meet the Dietary Reference Intakes (DRIs) for dietary fiber and vitamin E. The children aged 5-8 years met the recommended intakes of nutrients such as vitamins A, B, C, D, folate, thiamin, riboflavin, and etc. Parents are able to have more control over the younger children's diet in comparison to the older children and the adolescents.

Sugar-sweetened Beverages

The 2015 –2020 Dietary Guidelines for Americans recommend decreasing added sugar consumption to less than 10% of calories per day and to drink beverages with no added sugar (122, 123). The National Center for Health Statistics created a report in January 2017 demonstrating the consumption of sugar-sweetened beverages among U.S. youth aged 2-19 from years 2011-2014 by sex, age, and ethnicity. Sugar sweetened beverages are defined as regular soda, fruit drinks (fruit juice that is less than 100% and nectars with added sugar), sweetened coffees and teas, and sports and energy drinks (122, 124). Based on NHANES data, about two-thirds (64.5% boys and 61.3% girls) of youth consumed at least one sugar-sweetened beverage per day. Through the years, boys consumed more sweetened beverages compared with girls across all age groups, except for groups aged 2-5- which showed no statistical significance. Non-Hispanic black girls had the highest calorie intake from beverages at 156kcal, next Non-Hispanic white girls at 124kcal, Hispanic girls at 115 kcal, and lastly Non-Hispanic Asian girls at 58 kcal. Overall, 7.3% of the youth daily energy came from sugar-sweetened beverages.

Sedentary Behaviors

Basset et al. reviewed sedentary behaviors in U.S. Children and adults (125). Over the past 30 years, children and adults have increased the use of electronic media (television, computers, cell phones, video games, etc.). There are two ways in which electronic media increases the risk of obesity: it takes less energy to watch shows than any other replaceable activity and more calories are consumed by snacking (125-127). Within recent years, 8 to 18 year olds, spend at least 53 hours per week on devices. Several cross-sectionals studies have attributed hours of television watching to obesity (125, 128, 129). Electronic media viewing has also been linked to poorer aptitude tests in children. Another literature review on sedentary behaviors reported that adolescents who viewed television 4 or more hours per day decreased their viewing hours between 1990 and 2008 (125). Between 1999 and 2007, The YRBSS reported that TV watching declined among children and adults (125, 130) . Although the time spent watching live television has declined, the time spent watching television on multiple electronic devices has increased. The 2017 YRBS reported that on an average school day, 43.0% of US high school students reported playing video games or used a computer for 3 hours or more a day not related to school work (131). A few studies have reported that there was not a strong association with computer time and obesity. The American Academy of Pediatrics recommends that screen time is less than 2 hours per day (125). Although experts suggest that the link between screen time and obesity is lower than television watching and obesity, there are concerns about prolonged sitting. Prolonged sitting could result in high triglyceride levels, impaired insulin sensitivity, and suppressed lipoprotein lipase activity (125, 132, 133).

Perception of Weight

In past studies, perception of weight has not been studied as a covariate for the perceived built environment and obesity. However, research has concluded that an unhealthy body image was associated with obesity and physical inactivity (134, 135). Adolescent development is a critical period for internalizing a healthy body image (134). During puberty, changes in adiposity can be seen as negative, especially if the adolescents' cultural emphasize being thin (134). Girls were more likely than boys to have a negative body image if their body image was misaligned with cultural ideals. Adolescent boys have cultural expectations of being tall with increased muscle mass (134). An adolescents' BMI is connected to their body image. Multiple studies report that adolescents with a BMI in the 85th percentile or greater have concerns about their weight (134, 136, 137). Longitudinal studies suggest that the impacts on body image can be long term; a negative body image could remain years into an adolescents adulthood (134, 138, 139). The perception of an adolescent's weight can also be influenced by family and friends (134).

Sibling relationships can have positive and negative impacts on body weight and self-esteem. Greer et al. reported that adolescents' body esteem was greater when adolescents' disclosed their positive or negative body issues on their siblings, especially females (140). When adolescents receive negative body related comments from their siblings, they were more likely to have a low level of body esteem. In addition, younger siblings have poor body esteem if older siblings disclose negative body issues. Previous literature reported that between 32% and 90% of parents do not correctly identify the weight index

of their child (141). A few studies showed that African American and Hispanic mothers were more likely to incorrectly identify their weight of their child if they too were overweight. Baughcum et al. observed that low maternal education was correlated with the misclassification of their children's weight (142). In a cross-sectional study, conducted by De La O et al., parents were asked to classify their child's weight (141). Out of the 576 parent-child pairs that were analyzed, misclassifications of weight classes happened 25% of the time. Seventy-one percent of overweight children were reported as "about right" by parents. Also, boys were more likely to be misclassified than girls (29% vs. 21%, p value= .03) (141). Cultural beliefs can influence the parents' decisions on nutrition and other health-related issues. Befort et al. (2008) mentions that larger body sizes are coveted in the African American community and this ideology could in turn increase the consumption of fats and calories (143).

Weight Goals

Adolescent perceptions of weight is directly linked to their weight goals. In past studies, weight goals have not been studied as a covariate for the built environment and obesity. The National Longitudinal study of Adolescents Health concluded that normal weight adolescents who perceived themselves to be obese were 41% more likely to become obese in adulthood than normal weight adolescents who perceived themselves to be normal weight (AOR: 1.41; 95% CI: 1.22 -1.64) (144) . According to Quick et al. normal weight adolescents who misperceive themselves as overweight are more likely to report that they have weight loss goals (144, 145). Adolescents with an overweight perception were likely to report physical activity and three plus hours or screen time per day (144, 146). Peers and friends of adolescents help to shape weight goals and physical

behaviors. Although this connection is often overlooked, it has become very important as children enter into adolescence. As time progresses in adolescents' lives, the sibling disclosure decreases, peer disclosure increases (140). A meta-analytic review concluded that more attention should be given to peers than parents on factors that influence adolescents eating behaviors (147). There were also social influences on eating, especially as an adolescent. Olive and Thelen conducted a study among children entering adolescence on the influence of peers in eating behaviors (148). In the results, the children's eating behaviors were influenced by how much their peers liked them (147, 148). Also, if their peers commented negatively on their body, they were more likely to have body concerns. Salvy et al. found that overweight and obese children consumed more calories when they were alone than when they were paired with a peer (149). Also, a child's snack options are predicted based on their peer's snack options (147, 149).

Parent's Support

In order to successfully manage the weight of children and adolescents, parental involvement is crucial (125, 150-153). Throughout the literature, it has remained unclear why some parents encourage and a healthy lifestyle while others do not.

Parent's Work Hours

For decades, more mothers have entered the workforce than any other time in history. At the same time, the rate of childhood and adolescent obesity has increased. Several studies have examined the relationship between the two variables. The literature proves that it is very difficult to determine whether a mother's work hours influences childhood obesity. Mothers who work full time jobs do not spend as much time preparing meals and eating

meals with their children compared to mothers who do not have fulltime jobs (154, 155). Childcare services or babysitters may provide the children and adolescents with less than nutritious food in the absence of the mother(154). On the contrary, many mothers in the workforce purchase healthier food options for their children and adolescents. Anderson et al. explained that the parental work hours does not explain the mechanism behind childhood and adolescent obesity (155, 156).

Encouragement to Child/Adolescent Dietary Intake

Childhood prevention guidelines recommend that parents encourage their children to eat healthier foods, partake in physical activities, and discourage the intake of unhealthy food options (157). Parents of children and adolescents hear messages from the media, professionals, and family to encourage fruit and veggie consumption, restrict unhealthy snack food and sugary deserts, and avoid being too controlling about their child or adolescent's eating habits (157). There are many nutritional guidelines to consider as a caretaker or parent; the results of these guidelines could be burdensome to the parent and the child. Usually when children are obese, the implication is that parents have not encouraged their young to consume an adequate amount of healthy foods and do not discourage large portion amounts and unhealthy food options. One study specifically looked at the maternal's encouragement and discouragement on selective food items (157). There were 222 primary caregiver-child dyads in the study. Mothers of an obese child had higher rates of encouragement (RR=1.64, p=0.01) and higher rates of discouragement than any other group (RR =2.90, p=0.01). The article deduces that future research is needed to understand the high discouragement of vegetables among mothers with an obese child (157). Adolescents are in more control of their dietary habits and

behaviors; their parent's encouragement may or may not affect their fruit and vegetable consumption.

Socioeconomic Status

Racial and ethnic disparities observed in adolescent obesity research has been attributed to socioeconomic status (158). So much so that researchers believe that reducing the income disparity may reduce the disparity within racial and ethnic disparities within adolescent obesity (158, 159). Sing et al. examined the association between socioeconomic status, ethnicity, and other behavioral variables. The study included 46,707 children and adolescents aged 10-17 years. The results of the study shows that about 15% of the participants reported obesity. The prevalence of obesity included: Twenty-six percent of American Indian/Alaska Native ,23% of Non-Hispanic black, 19% of Hispanics , 19% of Native Hawaiians/ Pacific Islanders, 16% Asians, and 12% whites (160). The prevalence of obesity was higher in single parent homes and homes with lower socioeconomic backgrounds. In addition, once socioeconomic status and demographic factors were controlled, Hispanic and non-Hispanic black children and adolescents were 34% and 80% more likely to be obese than Non-Hispanic white children and adolescents. Participants whose parents had less than 12 years of education were 50% more likely to be obese than participants with college-educated parents (160).

Meals at School and Home

The National School Lunch Program (NSLP) is used throughout Kentucky and other states in public schools and nonprofit private schools (161). The NSLP is a federally funded program aims to provide a nutrient balanced meal to school aged students for a

very low cost or no cost at all. This program was established under the National School Lunch Act, executed by Harry Truman in 1946 (161). The School Breakfast Program (SBP) provides federal funds to the states for nonprofit breakfast programs in schools. In 2011, SBP in school has increased from 48.8% in 1990 to 92.2% (4,1) (162). The goal of the program is to provide breakfast for students who would not have received breakfast at home (1) (162). During the summer, students from low-income families may not receive the traditional breakfast and lunch provided to them through NSLP and SBP. The students may not receive a well-balanced meal over the summer as well. Because of this, Kentucky has initiated the Summer Food Service Program (SFSP). Over the summer, this program provides almost 2.5 million breakfast, lunches, and snacks to school aged students. There are more than 2,200 sites in Kentucky (161). There is not much data to support the hypothesis that school meals influence obesity among student. One study raised concern that breakfast in the classroom could have an influence on obesity because of the caloric intake and energy increase (162, 163). Although it has been reported that children who do not eat breakfast at home are less likely have regular family dinners (162, 164). Lawmen et al evaluated breakfast patterns among low-income children in an urban area. They found that obese children and adolescents ate few breakfast meals compared to normal weight youth (1.13 vs 1.31, $p < .01$). Most of the students in the study were privileged to eat breakfast at home and at school (39.8%) (162). The programs provide students with the necessary nutrients to perform well in their classes.

It is important to analyze the above covariates or potential confounders to determine whether or not perceptions of the built environment are statistically associated with adolescent obesity among adolescents in West Louisville.

III. METHODS

A. Phase 1 Methods

1.0 Focus Group Objectives and Eligibility

The objective of the focus groups was to assess the opinions and perceptions of representative adolescents responding to the SHAPE Questionnaire. To achieve this objective, the SHAPE Study team recruited adolescents from a local church youth center. The goal was to recruit at least 20 participants, at least one per year of age, with equal numbers of females and males, who frequently visited, were members, or were associated with the youth center. To participate, adolescents also had to speak English, be literate, and reside in one of the target neighborhoods of west Louisville. Only one adolescent per household was able to participate in the focus group.

1.0 a. IRB Approval

This study was approved by the Institutional Review Board at the University of Louisville (IRB 17.1180). The details of the SHAPE Study are located in Appendix A.

1.1 Recruitment methods

1.1 a. Direct recruitment

Two recruitment methods were utilized for obtaining informed consent from the parents or guardians of the adolescents. In order for adolescents to participate in the focus groups,

informed consent could be obtained indirectly from parents who received the informed consent document via adolescents or directly from meeting the parents. During direct recruitment, The SHAPE Study team handed adolescents from the youth center documents in a closed envelope. For adolescent participation to occur, the informed consent document had to be delivered to the SHAPE Study's team members via the adolescent or adult.

1.1b. Recruitment Summary

Recruitment occurred for two weeks for the male focus group and three weeks for the female focus group. The recruitment days consisted of Tuesday, Wednesday, Thursday and Sunday after normally scheduled mentor groups and classes. The male focus group was held on May 3rd, 2018. Ten adolescent males and their parents consented to the focus group, however, only six adolescent males participated in the focus group; the age range consisted of 12-16 year olds. The males resided in the following West Louisville neighborhoods: Shawnee (one 14 year old and two 16 year old participants) and Algonquin (two 14 year old participants). One male participant, age 14, resided in Old Louisville. The female focus group was held on March 17th, 2018. A total of 3 females were recruited for the focus group; however, 2 adolescent females (Shawnee, age 14 and Park Duvalle, age 17) participated in the focus group. Due to a scheduling conflict, one adolescent female was interviewed on March 20th, 2018 (Park Duvalle, age 12).

1.2 Focus Group Procedures

After the informed consent documents were signed, the adolescents chose a false name to be identified by during the focus group. This is another method to de-identify the adolescents. It also helps adolescents to feel anonymous and they may be willing to speak

more freely; the transcripts from the audio-recorder and laptop notes included only the false names. They then completed the draft SHAPE Questionnaire, after which a team member led them through discussion of their opinions and perceptions of the questions using a semi-structured guide (Appendix A). Participants' responses were recorded using a digital recorder. Transcripts from the recordings were evaluated to identify themes in their opinion and perceptions of the questionnaire and specific questions. The SHAPE team provided lunch for the adolescents and each received a \$5 gift card from Subway.

1.3 Focus Group Thematic Analysis

The audio recordings from the focus groups were transcribed and analyzed using inductive thematic analysis. With inductive thematic analysis, themes were developed from the focus group responses (165). With this analysis, consistent response themes for each question were identified and categorized into sections and used as a basis for refining the content or structure of specific questions and the questionnaire as a whole.

B. Phase 2 Study Methods

1.0 Community Gatekeepers

The objective of Phase 2 was to conduct a pilot, cross-sectional survey among adolescents (ages 12 – 17) who reside in West Louisville to evaluate the association between the perceived built environment, physical activity, and obesity (body mass index). The first specific aim was to identify and establish professional relationships with community leaders and program directors of youth organizations and facilities utilized by the youth within West Louisville. It was important to establish respectful relationships

with these gatekeepers to ensure successful recruitment and sensitivity to community participation in survey research (166).

1.1 Recruitment Venues

1.1a *High” traffic programs and “Mid to low” traffic programs*

High traffic programs are well-known and well attended, in-person programs within the West-Louisville community. Most well-known programs will include adolescents who reside in multiple neighborhoods, thereby allowing more diversity within the data of a pilot study. Mid to low traffic programs could be considered public libraries and youth ministries (166).

1.2 Survey Sampling Approach

The second specific aim of Phase 2 of the SHAPE Study was to recruit participants from local youth and community organizations in West Louisville for the survey. The goal was to survey at least 50% male and 50% female participants, aged 12-17 who resided in West Louisville. In order to do so, the SHAPE team’s goal was to visit a total of at least 8 “high” or “mid to low” traffic programs. The goal was to recruit and survey 15 adolescents from each “high” or “mid to low” traffic program. While recruiting at a facility, if more than 15 adolescents wanted to participate in the study, the team encouraged their participation. It was important for all ages (12-17) to be represented in the study. Because six ages are represented in the study, another recruitment goal was to have at least 16.67% (17 adolescents) of each represented age. The process of choosing a sample size for a pilot study requires feasibility, details of the statistical plan, and research risks – risks that a specific aim may or may not be achieved due to time

constraints (167). Moore et al. notes that small sample size may be appropriate for pilot studies and evaluating the feasibility of a study protocol (167).

1.2a Inclusion Criteria

The inclusion criteria for Phase 2 of the SHAPE Study consisted of adolescents who spoke English and were literate. The participants were 12-17-year-old adolescents and primarily resided in one of West Louisville neighborhoods. Only one adolescent per household could participate in the study. The West Louisville neighborhoods included: Algonquin, California, Chickasaw, Park Duvalle, Park Hill, Parkland, Portland, Russell, and Shawnee.

1.2b Exclusion Criteria

Female adolescents who were pregnant or had been pregnant in the past 6 months were excluded because of the associated fluctuations in weight and hormone levels during and after pregnancy.

1.3 Recruitment Method 1– Closed Environment.

Closed environments were synonymous with classroom-like environments in that there was a program instructor(s) present. In this type of environment, information regarding the study was provided in a central location with all adolescent potential participants present and they were informed of the return date when the SHAPE study team would return. In order to inform parents or guardians about the SHAPE study, a parental notification letter was sent to parents five days before the SHAPE team administered the questionnaire within a closed environment. (Appendix A, Parental Notification Letter 1). Upon completion, participants were provided a goodie bag with snacks.

1.4 Recruitment Method 2– Open Environment.

In open environments, potential participants were not located centrally but were scattered in different areas of the facility. Open environments may include community centers, public libraries, and health fair events at aforementioned facilities. In order to recruit participants for the study, the SHAPE team set up a booth/table in the facility. In certain open environments such as youth fairs where a parent or guardian was not present, the parental notification letter (Appendix A, Parental Notification Letter 2) was given to the adolescent to be hand-delivered to their parent or guardian noting that the adolescent had participated in the study. An assent form was explained to participating adolescents and they completed the questionnaire in a confidential area monitored by a study team member. Upon completion participants were provided a goodie bag with snacks.

1.5 Data Storage

The assent forms and questionnaires and other study materials were stored in a portable, locked cabinet. Questionnaire data were recorded in a database stored on a study password-protected computer in secure office.

1.6 Summary of Recruitment

A total of 156 adolescents ($n = 156$) completed the survey during the survey collection period of Phase 2 of the study. The surveys were collected within a 4-week period which included July 2018 to August 2018. The adolescents completed the surveys at each respective location: community health or youth fairs, and high “traffic” programs. The

SHAPE Study registered for three community health or youth fairs, and utilized the open environment recruitment methods in order to survey the adolescents. After contact was established with gatekeepers of the high “traffic” programs, the co-investigator requested a formal meeting from the gatekeepers. After the meeting, the gatekeepers scheduled a meeting between the adolescents and the SHAPE team. Because the meetings were held in an open environment and upon the gatekeepers’ request, the open environment recruitment methods were utilized to survey adolescents. The number of surveys were collected at the following events: community health event (n=63), community health and wellness fair (n=41), back to school fair (n=21), local high “traffic program (n=7), and other local “high” traffic program (n=24). A total of two surveys, from different locations were discarded because of the eligibility criteria; siblings, who stayed in the same household, completed the survey.

Participants provided their neighborhood location in West Louisville (Algonquin, California, Chickasaw, Park Duvalle, Park Hill, Parkland, Portland, Russell, Shawnee, and other). Sixteen percent of adolescents (n =26) selected other for their neighborhood. The surveys (n =26) with the selection of “other” as their primary residence were not discarded from the study. A total of two surveys, from different locations were discarded because of the eligibility criteria; siblings, who stayed in the same household, completed the survey. The data from the surveys were coded for the remaining 154 adolescents. The number of analyzed surveys included: community health event (n=62), community health and wellness fair (n=41), back to school fair (n=21), local high “traffic program (n=7), and other local “high” traffic program (n=23).

Validity of Survey

The SHAPE Questionnaire was designed using several national validated surveys. The four surveys included: the 2017 Middle School Youth Risk Behavior Survey, the 2017 State and Local Youth Risk Behavior Survey, the 2009 Neighborhood Environment Walkability Scale- Youth (NEWS_Y), and the 1996 Amherst Health and Activity Study (AHA) Student Survey. The 2017 Middle School Youth Risk Behavior Survey and the 2017 State and Local Youth Risk Behavior Survey have been validated in several publications. In a 1991 study, there was a sample of 1,679 students in grade 7 – 12. The survey was administered on two occasions, 14 days apart. Three-fourths of the questions had high reliability; with kappa statistics between 61% - 100% (168). Brener et al. further evaluated the height and questions from the surveys (two questions). The study included 2,965 high school students. The survey was administered on two occasions, 14 days apart. On average, students over reported their height by 2.7 inches and under reported their weight by 3.5 pounds (168). The 2009 neighborhood Environment Walkability Scale – Youth (NEWS-Y) was validated in 2005. A sample of adolescents 12 – 18 years old participated in the study. The test retest reliability was examined, the ICC (intraclass correlation) was measured as 0.56 for land use mix-access and 0.76 for land use mix diversity (49). The 1996 Amherst Health and Activity Student (AHA) Student Survey was further validated in 2003. The study sample included 380 children and adolescents, grades 7-12, and two of their parents. The one week test-retest reliability was R (correlation coefficient) = 0.81 (169).

Phase 3 Statistical Analysis Plan

1.0 Analysis Overview

SAS, Statistical Analysis System, version 9.4 was utilized to perform the statistical analysis for the specific aims. Appendix B; Table B1 displays demographic variables as well as the outcome variable (overweight/obesity), main effects and covariates. The table lists the variable name, SAS code, the question associated with the variable and the related source.

1.1. Scales created from SHAPE Variables

The SHAPE Questionnaire included 56 questions. There were multiple questions for each section. In order to analyze each aspect within the built environment and potential covariates, scales were created. The built environment scales consisted of walkability, accessibility, aesthetics, traffic, crime, and afraid scale. The covariate scales included: fruit and veggie, unhealthy food, meals at home, school meals, fun, comfort, and support scale. Each scale was created in SAS. In order for a scale to be created, the response categories each section of variables were the same. A new variable was created for each section of variables (walkability, accessibility, etc.) then divided by the number of variables. An average of the subset of variables were created. Variable categories were based on the distribution of each variable.

Body mass index categories were based on age and sex-specific data for children and adolescents. BMI estimates for children and adolescents are calculated from a percentile calculator or a graph as shown in Figure 2. The cut-off point for children and adolescents who are underweight is less than or equal to the 5th percentile for age and sex. Children and adolescents between the 5th and 85th percentile are considered normal weight for their age and sex. The cut off for overweight is between the 85th and 95th percentile; the obese cut-off point is greater than or equal to the 95th percentile. According to the World Health Organization, a BMI of 30 or greater in young adults corresponds to a BMI in the 95th percentile for children and adolescents (170).

[illegible]

1.3 Variables from Other Sources

The Kentucky State Data Center and Metro United Way composed data profiles for each neighborhood area within the Louisville Metropolitan Area based on 2010 census tracts (172). In order to create statistics on each individual neighborhood within West Louisville, a specific programming code was utilized (172). Jefferson County's overall median household income in 2011- 2015 was \$48,695 (166). Algonquin's and Park Hill's median household income in 2015 was \$19,894. The median household income for California in 2015 was \$16, 591. Chickasaw's median household income consisted of \$31,497 in 2015 (166). The median household income for Park Duvalle was \$25,044 (166). Parkland's median household income consisted of \$22,615 in 2015. In 2015, the neighborhood of Portland produced a median household income of \$23,705 (166). The neighborhood of Russell's median household income was \$17, 264 in 2015. Last, Shawnee's median household income was \$29,157 in 2015 (166). The US Census Bureau measures poverty by a set of income thresholds that varies by family size and gross income (173). If a family's income is less than the family's threshold, then family is considered to be living in poverty (173).

Statistical Analyses

The demographic characteristics included age (categorical and continuous), grade, ethnicity, neighborhoods, and median household income. The Chi square test was performed for the analysis of categorical independent variables and Analysis of Variance (ANOVA) for continuous independent variables. Multivariable modeling for

identification and control of confounders was performed using multivariable logistic regression for Specific Aims 2 -4. .

Logistic Regression

Purposeful selection of variables was evaluated for the logistic regression analyses. Because there were several covariates and main effects for each specific aim, an algorithm was developed to search through subsets of covariates and identify a model that best fit the data and exclude unnecessary variables (165). Models were evaluated through the addition or exclusion of single variables from a full model adjusting for all relevant covariates. Because all but one of the exposure variables are categorical, the linearity assumption was of little concern (174). The first step in model building consisted of fitting a simple univariate logistic regression model for each independent variable (main effect or perceived characteristics) to the outcome. Because the sample size was small, a liberal significance level of 0.40 was used to screen variables for inclusion in multivariable models. Next, one by one, each pre-screened variable of interest was entered into multiple logistic regression model. Interaction was ignored during this process. Once the multiple logistic regression model was saturated with all of the variables of interest, those with a p-value greater than 0.40 were removed and confounders evaluated. Covariates which resulted in a > or equal to 10% change in the main effect were included in the final model and interaction between remaining covariates and the main effect was evaluated. Last, the goodness of fit for the model to the data was assessed (174). The Nagelkeke R-square provides an explanation for the magnitude of variation in the dependent variable (body size) explained by independent variables (175). The Hosmer and Lemeshow test provides an indication of how well the

data fits in logistic regression (175). If the data fits poorly, it is indicated by a level of significance (p-value) than 0.05 (175). Also, multi-collinearity was assessed for non-linear models using the information matrix in SAS (176). Multi-collinearity can occur when there are high correlations between two or more predictor variables (176). The redundant information can skew the results (176). Therefore, it is best to remove any correlated predicted variables (176).

Analysis for Phase 3 Specific Aims

Demographic Characteristics

1. To examine the distribution of the demographic characteristics (gender, race, age, SES, location, etc.) stratified by the perceived built environment, physical activity, and adolescent obesity.

Specific Aim 1 examined the distribution of the demographic characteristics by the perceived built environment variables, the physical activity variables, and adolescent obesity. Moreover, the distribution of the main effects, perceived built environment and perception variables were stratified by adolescent obesity and by West Louisville neighborhood regions in Tables 1 - 3. In the following tables for each Specific Aim, adolescent obesity was coded as absent (0, normal weight) or present (1, overweight/obese). Of the 154 participants, there were nine missing outcome values for a final analytic sample size of $n = 145$. Missing data for each analysis varied, it was dependent upon the missing data from each exposure variable in the model.

Adolescents' Perception of their Built Environment and Physical Activity

2. To determine the associations of adolescents' perceptions of the built environment and adolescent obesity in West Louisville.

Hypothesis Specific Aim 2: H2_a: There is a significant association between adolescents' perceptions of the built environment and adolescent obesity in West Louisville.

Specific aim 2 evaluated the interrelationship of the adolescent's perceptions of their built environment, physical activity levels (for at least 20 minutes and 60 minutes), and obesity. The aspect(s) of the perceived built environment included walkability, aesthetics, accessibility, traffic, crime, perceptions of fear and physical activity. The perception variables included: perceptions of weight, weight goals, fruit and veggie scale, comfort scale, and fun scale.

Neighborhood Influences on Adolescent's Perception of Built Environment and Physical Activity

3. To identify and evaluate potential confounders of the association between adolescents' perceptions of the built environment and adolescent obesity, including both individual and group level covariates.

Hypothesis Specific Aim 3: H3_a: There is a significant association between adolescents' perceptions of the built environment and adolescent obesity after adjusting for confounders with West Louisville neighborhood regions.

Specific Aim 3 examined the relationship between West Louisville neighborhoods, adolescent perceptions of their built environment, physical activity (for at least 20 minutes and 60 minutes) and adolescent obesity. Specific Aim 3 analyzed group-level covariates such as West Louisville neighborhood regions (Eastern, Western, and Other) and median household income. Individual level covariates included perception variables such as perceptions of weight, weight goals, fruit and veggie scale, comfort scale, and fun scale. Potential confounders were identified and adjusted in the purposeful selection models.

Perception of Self

4. To evaluate the relationship between adolescents' perception of self- and parental-body size and parental support and obesity.

Hypothesis Specific Aim 4: H4_a: There is a significant association between adolescents' perception of self and parental body size and parental support and adolescent obesity

It was important to evaluate the adolescents' perception of self and parental support in relation to adolescent obesity. Individual level covariates for perception of self included:

weight goals, fruit and veggie scale, fun scale, mom's weight, dad's weight, ethnicity. Group level covariates for perception of self-included median household income and West Louisville neighborhood regions. Covariates for parental support included support scale, meals at home per week, and fun scale; group level covariates included median household income and West Louisville neighborhood regions. Covariates for parental body size included fun scale, weight goals, median household income, and neighborhood regions.

IV. RESULTS – FOCUS GROUP

The objective of the focus group was to assess the perceptions of a questionnaire designed to evaluate the relationship between health and the perceived environment among adolescents (ages 12-17y) who reside in West Louisville. Recruitment for the focus groups began after focus group documents (seen in Appendix A) were approved by the Institutional Review Board at the University of Louisville.

Specific Aims

1. To recruit a maximum of 20 participants, 7 to 10 females and 7 to 10 males, from a local church organization for the conduct of two focus groups (1 female, 1 male).

Recruitment occurred for two weeks for the male focus group and three weeks for the female focus group. The recruitment days consisted of Tuesday, Wednesday, Thursday and Sunday after normally scheduled mentor groups and classes. Both focus groups were held at a local youth program where residents of West Louisville were known to frequent.

2. To administer the SHAPE (Survey of Health and Perceived Environment) Questionnaire and facilitate a discussion with the adolescents on perceptions of the questions.

The recordings were analyzed using inductive thematic analysis. With inductive thematic analysis, consistent themes and patterns for each question were identified and used for editing the SHAPE questions. Due to the purpose and the objective of the focus group, the revised questionnaire items were not identified as themes, but were categorized into sections. Although they are not stated as themes, multiple participants, the questions were

revised from the SHAPE Questionnaire as described below.

SHAPE Questionnaire Items

On the basis of feedback from the focus groups, the study team assessed the perceptions of the questionnaire, examined the clarity, accuracy, relevance, and significance of questionnaire items to aid in the establishment of the significance and legitimacy of the questions.

Table of Contents

Focus Group

Thematic Analysis

- I. Perceptions
 - a. Length of the Questionnaire
 - b. Height and Weight Questions
 - c. Confusing Words and Statements
 - i. *Following Directions*
 - ii. *Lengthy Physical Activity section*
 - d. Peer Perceptions on Food Questions
 - e. Parental Questions
 - f. *Parents within the Household*
 - g. *Mother's Weight*
 - h. *Additional Parental Questions*
 - i. Neighborhood Questions
- II. Revision
 - a. Acronym
 - b. Condensing Categories
 - a. Condensing Food Questionnaire Item
 - c. Fast Food Clarity
 - a. Junk Food Details
 - d. Confusing Directions
 - e. Popular Video Games
 - f. Similar Questions
 - g. Comfort Level Questions
 - h. Parent's Weight
 - i. Open-Ended Question

I. Perceptions

Length of the Questionnaire

In order to assess the length of the questionnaire, the facilitator asked the focus group participants their perceptions on the amount of time utilized for the completion of the S.H.A.P.E. questionnaire. The data below present views of male adolescents.

Host: Thank you. What do you guys think about the time that it took to answer the questionnaire?
Mr. Pig Feet: It was hard.
Someone in the background: No, it's not.
Host: Mr. Pig Feet, you said it was hard?
Mr. Pig Feet: To me it seemed hard.
Host: OK. [Pablo raises his hand] Pablo?
Pablo E: To me, I just think you know it's about you, so for me it ain't gone [isn't going] be hard. It's about me and my community and like I know what I do every day and stuff so, I mean.. yeah.
Host: 4Boogie
4Boogie: It took me a couple of minutes to answer.
Host: What do yall feel about the time that it took to answer the questionnaire? Was it too long or too short?
Blue: Um, like if you are a fast reader than I guess it would take you a little bit lesser time. But I think it was pretty simple.
Host: Ok, so it was pretty simple to you overall.
Blue: yeah.
Rest of the crowd: yeah. Pretty simple.

March 17th, 2018

The content below addressed the female's group perspective on the length of the questionnaire.

Host: Ok, So what do you think about the time that it took to answer the questionnaire?
Jayla: It was really quick.
Host: Was it too short?
Jayla: No
Taylor: No

Continued...

Host: Was it too long?

Jayla: It was easy. I like how all of your questions kinda [kind of] got straight to the point. I've done other surveys where it's like confusing and you really had to think about it. It was like straight to the point and it wasn't like too easy straight to the point, but it was like a question

where you could take the time to think about it but you aint gotta [don't have to] sit there and really dwell on the question.

Taylor: Yeah cuz [because] normally I be having to [have to] ask questions about what they mean.

Explanation: The SHAPE Questionnaire contained 56 questions, multiple answer choices for each question, several directions, and potential thought-provoking questions that may take more than 30 seconds to complete. The time upon the completion of the SHAPE Questionnaire varied for each participant. The minimum time that a male participant completed the questionnaire was 6 minutes. The female participants started the questionnaire at 12:39; it was completed by 12:51 pm; one female participant completed the questionnaire at 12:45pm (6 minutes) and the other at 12:51pm (12 minutes). It is important to acknowledge the time it takes to complete the questionnaire during the pilot study.

Height and Weight Questions

“My Height and Weight” section consists of questions asking adolescents to describe their weight based on body mass index categories and shade in their present height and weight. The data below ask for the adolescents’ thoughts and opinions about questions within this section.

March 3rd, 2018

Host: *Alright. Let's go to the next page. "My Height and My Weight" Questions. Alright, so here is where I asked you guys about your height and your weight. How did you feel when I asked you about your height and your weight?*

Pablo: *Uh, I feel good. Ya know I'm proud of that. I would like to lose some but I'm proud of this weight right here, ya know.*

Host: *[4Boogie raises his hand] 4Boogie?*

4Boogie: *I was mad about the weight.*

Host: *Why was [were] you mad. Tell me, I wanna [want to] know.*

4Boogie: *I feel like I am overweight.*

Host: *Did you put [select the answer choice] that on...that you feel like you are... You didn't put that on your paper?*

Pablo: *You gotta be truthful with yourself bro.*

4Boogie: *I put that like, I wanna lose weight. I wanna lose more than .. I want to lose a lot. I want to be like real skinny.*

Explanation: One of the study's objectives was to analyze the relationship between the perceived environment along with additional factors and body mass index for adolescents. It was significant to ask adolescents about their height and weight in order to calculate their body mass index (BMI). Height and weight questions were sensitive and private in nature. Based on the passage above, it could be difficult for adolescents to answer truthfully.

Peer Perceptions

It was also important to understand their peers' perceptions on height and weight questions. The SHAPE Questionnaire was given to their peers within the West Louisville area. It was critical to know whether to anticipate adolescents' subjective point of view or inaccurate subjective point of view. When analyzing the data from the questionnaires, precision within each estimate was vital.

March 3rd, 2018

Host: Ok, How do you think your peers or the students you go to school with will feel about me asking about your height and your weight?

Pablo: I mean, people at my school. I mean, they really... Some of um, might care. You know it's like, some people are emotional and stuff and if they feel like they are overweight, then they might, might have something and stuff.

Host: yeah [I understand] ...

Pablo: About the height, they may not care. But when it comes to like weight, it's like people get ashamed of themselves [themselves].

Pablo: yeah, some people joke on people about their weight.

Host: yeah, that could be a problem

KJ: At my school, it's like nobody really talks about nobody.

Host: What about the girls your age? Do you think they will have a problem?

Mr.502: I'm taller than all the girls my age. All the girls I know.

KJ: It depends because some girls are tall, and they don't like being tall.

Crowd: yeah, they don't like being tall.

Pablo: Some of the girls play sports though.

Mr. 502: Some girls just don't have a problem with their height.

March 17th, 2018

Host: How do you guys think your peer will feel about this question? Like if, I was to ask your peers about their height and their weight?

Taylor: Some people might be mad, but some people don't.

Jayla: It may make some of them feel uncomfortable because everybody's not ok with their weight. And then again like you said like, I don't know it may make some of them feel uncomfortable and then a lot of kids may feel like "Oh, I on know, ion know" [I don't know]. I ain't [have not] been to the doctor this long, like I don't know.

Host: Yeah

Jayla: And I like how you did the height thing because if they don't know [if they don't know their height] specifically they can like pick which one they think

March 20th, 2018

Host: What about your height? How does it feel to be asked about your height?

CardiB: I mean, I didn't care for my height. It was fine to me. I don't like the example.

Host: You don't like the example?

CardiB: Cuz [Because] when I first seen [saw] it, I was like, what is this here for, it is not my height.

Continued...

Host: I put the example there because people may not know how to fill in the spaces.

CardiB: At first, when it said like feet, I was thinking about my shoe size, so I put like seven. Then I looked over it, and looked up, I was like "Oh, this was an example."

Host: Oh ok

CardiB: It says 5'7 on this one, I had to use common sense, so I put 5'5.

Host: Ok, what about your peers? How do you think your peers will feel about being asked about their height and their weight?

CardiB: My peers, seriously, if you would like, ask them a question. It would depend on their mood. They would either be like, "what is it, what's the survey". Or they'll be like keep walking and think you are a crazy lady. A lot of people really don't come and ask would you like to take this survey. So, it's like a spam or something.

Host: They may not want to take the survey. That's what you're saying? If I come up to them and ask them.

CardiB: yeah.

Explanation: According to the adolescents in the focus group, their peers may or may not experience sensitivity when completing the height and weight questions. Multiple focus group participants stated that it depended on a peer's subjective view of their height and weight. The participant from the interview mentioned that the mood of the adolescents might determine whether they would complete the questionnaire or answer the questions truthfully. In addition, there was a possibility that the adolescents may not be aware of their current height and weight.

Confusing Words and Statements

"My Physical Activity" Questions consisted of three questions that highlights various time lengths and types of physical activity every day of the week. The directions for this section asks adolescents to think back over the past seven days to choose the best answer that represents the number of days during the week that adolescents were physically active for at least 20 minutes and 60 minutes. The lengthy and wordy questions have the

potential to be confusing to adolescents. The data below entails the discussion about the differences between physical activity and exercising.

March 3rd, 2018

Host: So, lets um turn to the next page. I asked about your physical activity levels on this page. Could you guys tell me what physical activity is and what exercising is?

Pablo: Um, physical activity ... that's like you know recreational, I'll say... Exercising is actually like I have a goal to achieve and I have to burn this much and do this much. I play basketball, so I have to go to practice every day, except on Fridays. So, it's like um, we exercise and do that [be physically active], but we also run and so it's like the mixture. It's a difference between exercise and you know, and activities, I think...

Host: yeah?

KJ: It's the same thing, because you are still losing weight cuz [because] you like trying.

Pablo: But sometimes you don't lose weight. If you hoop [play basketball] everyday, you don't lose weight. When you go home and stuff, you gain that weight back when you eat.

Host: So, exercising for you is like losing weight and having a plan. Physical activity is just something that you naturally do cuz [because] you play ball?

Pablo: Exercising is eating healthy

KJ: When you do [play] sports, when you run. I play basketball and you have to run down the court. When you exercise, you run...

Host: So, to you, it's the same thing?

March 17th, 2018

Host: Do you guys think there is a difference between physical activity and exercise? Or is it similar or what do you think about those words.

Jayla: No, I think it is the same. Cuz in school they call it physical ed, physical education and so I think their the same.

Taylor: A lot of people do physical education [physical activity].

Explanation: Within the questionnaire, examples were provided for physical activity or exercise. Any miscommunication or confusion on the definition of those two words were addressed in the focus groups.

Following Directions

The directions for the physical activity section required adolescents to think back over the seven days prior to completing the questionnaire. The fill in the blank statement required adolescents to write down the present day of the week. *Today is _____, so seven days ago was last _____.* The directions were there to help adolescents focus on the past seven days to aid in answering each of the questions. The content below consisted of the female focus group perceptions of the directions.

Host: Think back on the past week or seven days, today is Saturday, so seven days ago was last Saturday.

Taylor: seven days ago, wasn't it last Saturday?

Host: Yeah

Taylor: Ok

Host: How do you feel about this statement? Do you think it's needed?

Jayla: Hmm?

Host: Like this statement, so people can think back at it [days of the week].

Jayla: yeah, cuz [because] some they may not be thinking like... They could take it as a Friday and then like, I don't know.

Host: Ok. So do you think I could probably fill it in for them?

Taylor: Probably

Explanation: This insight is valuable. The directions of every section should be clear and easy to understand.

Lengthy Physical Activity section

There are three sentences within this section. The participant below stated his feelings towards the physical activity section.

Host: Alright, so were any words confusing in this section cuz [because] the sentences were kind of long.

Mr. 502: I feel like you should have shortened them like... I feel like you did too much on this.

Host: Shorten the sentences? Mr. 502?

Mr. 502: I think you should have explained it more better and shortened it more better.

Host: Explained it better?

Mr. 502: Yeah cuz, I was thinking like, what is you talking about?

Host: Ok.

Explanation: Within the physical activity section, each question used “physical activity” and “exercise” interchangeably. Example: How many days did you exercise or participate in physical activity for at least 60 minutes per day or more. The questionnaire listed examples of exercise or physical activity: basketball, soccer, running, swimming laps, fast bicycling, fast dancing, or similar aerobic activities. Because the questionnaire listed examples of various types of exercise or physical activity, it is not required to change the word physical activity to work-out or to refer to physical activity as exercise only. In addition, majority of the focus group participants, male and female, understood the definition of exercise and physical activity.

Peer Perceptions on Food Questions

During the male focus group, the participants would begin a discussion without the facilitator asking a direct question. The text below represented one of these dialogues.

Mr. 502: Some people don't [eat] food in the morning. Some people got problems at home.

Host: Do you think this question is kind of iffy [sensitive]?

Mr. 502: like for home... Some people go to school just to eat. So, some people don't have it...

Host: So, you think it's just like a sensitive question that I may need to like rephrase or do something else with it?

Mr. 502: Yeah, rephrase.

Pablo: Some people don't have food at home.

Host: How else do you guys feel about that question?

Pablo: Look, I mean. Look, I think you're doing a good job.

Pablo: I'm just saying like...

Mr. 502: What if a person take this [complete the questionnaire] and you don't know if you're homeless?

Pablo: Well, they can tell her that... you know what I mean... you know what I mean homie [friend]

Explanation: The adolescents realized that questions asking how many days they ate breakfast, lunch, and dinner may be a sensitive issue for some of their peers. It is possible that some adolescents do not eat breakfast or dinner at home. The questions were sensitive and it is prudent to understand the potential effects these questions could have on those completing the questionnaire.

Parental Questions

The parental questions from the S.H.A.P.E. Questionnaire prompted many responses and feelings from the participants. Many participants discussed their perceptions about the parental questions at the beginning of the discussion section. The detailed text below the conversation during the discussion of the parental set questions.

Host: Alright, so let's turn to the next page "My parent's support in their work hours" So, how do yall [you all] feel about me asking questions about your parents' support?

Pablo: I think it was good.

4Boogie and KJ: Mumbling

Blue: Your Parents' support?

Host: Your parents' support?

Continued...

Blue: My mom does

KJ: My mom does... My dad, he lives in Texas, he don't do nothing for me.

4Boogie: My dad, he don't do nothing for me.

KJ: My mama supports me all the time.

Host: Ok

KJ: and my family member

Explanation: This passage showed that a few of the participants indirectly answered the question. Within the S.H.A.P.E. Questionnaire, the parent support questions asked if an adult in your household drove you to school-related, events, ate dinner with you, encouraged you to exercise, etc. Although the questionnaire only asked if an adult in your household supported you, the participants confirmed one of their parents did not aid in these activities. Because the section asked about their parents, the adolescents would begin to think about the roles of both parents in their lives. These questions have the potential to be very sensitive to adolescents completing the questionnaire.

Parents within the Household

This section of texts is a continuation of the aforementioned section. Its presence aids in the confirmation of the sensitive nature of the questions within “My Parent’s Support and Work Hours”.

March 3rd, 2018

Host: So when you answered the questions, you answered the question thinking about your mom?

KJ: Yeah

Host: Ok

KJ: I don't really care about my dad.

4Boogie: Me either. I really want to fight my dad.

Host: OK

Continued...

KJ: He don't call me or nothing.

4Boogie: Cuz all the things he did in the past to me. ONLY To Me

Host: Nodding, Mhmm

4Boogie: mumbles and keeps talking about his father

Host: Anybody else?

Pablo: I love my mom and my dad.

March 17th, 2018

Host: How do you guys feel about being asked about how often your parents are around on a daily basis?

Taylor: I don't see my daddy, he works third shift. Sometimes, I don't see him at all.

Host: So, Taylor he works like at night a lot?

Taylor: yeah

Host: Jayla:

Jayla: Yes, it didn't bother me. I feel like I see my mama a little too much but that's probably what most teenagers will say. And I don't get to see my dad at all. I don't bother me though. I just don't get to see him for real [not lying].

March 20th, 2018

Host: Alright let's go to "My Parent's support" and their work hours, which is the next page. How did you feel about the questions that asked about your parents support?

CardiB: Mmm,

Host: like was it a sensitive topic or uncomfortable or...?

CardiB: Um, for some it probably would have been like uncomfortable. But for me like, it really wasn't uncomfortable.

Host: Mmm K. How do you feel about being asked how often your parents are around on a day-to-day basis?

CardiB: I really don't care. My mama work from home so she's always around.

Host: How do you think your peers would feel about that?

CardiB: See, they probably would just skip over that question because they don't really talk much about their parents.

Host: So you're saying that's a sensitive topic for them?

CardiB: Yeah. Some of them mamas are like crackheads and they are taking care of their sisters.

Explanation: Each participant could only answer the questions based on their circumstances. Questions from this section prompted intense emotions about one of their parents. While other participants were not emotionally affected by the questions. According to the interviewee, adolescents may experience intense emotions during this section if their parents are not supportive.

Mother's Weight

A question in the parent's support section asked adolescents to properly identify the answer choice that represented their mother or father's body shape. The answer choices were created from the BMI categories. One of the participants began discussing his feelings towards the question at the beginning of the focus group.

March 3rd, 2018

4Boogie: The um, question about the parents, uh, the one about the female, the mom. That one was messed up [it was difficult to answer the question]. I had to say that.

Host: You felt some type of way about it [was it a sensitive question]?

Everyone laughs.

4Boogie: It said, did you feel like your mom was overweight or just the right amount of weight.

Mr. 502: I feel you too a little bit. I know what he was talking about. I feel like that too [Mr. 502 understands that the question could have been difficult to answer].

4Boogie: Cuz My dad told me to never tell a woman that she... um... [it's difficult for the participant to acknowledge his mom's weight].

Pablo: My mama, she be in the gym...

Host: Yeah that's right, never tell her. But, you can write it down in your questionnaire.

4Boogie: I was scared.

Host: Ok, you never tell her to her face, no, but you can write the truth down in the questionnaire.

Mr. Pig Feet: I do.

Explanation: From this text, it seemed that if the participants perceived his mother to be overweight, they were hesitant to respond correctly. Using foresight, participants could also have hesitated if they perceived their mother to be underweight. None of the participants mentioned any sensitivity issues recording their fathers' weight.

March 17th, 2018

During the female focus group, the responses in regard to their mothers' weight were different. The adolescent girls were not as hesitant to share their mothers' weight. Also, a participant provided a different perspective to how her peers would feel answering the question.

Host: How do you think your peers would react to me asking about their parents' weight?

Jayla: I think they'll just be like, how should I know this? I don't know. Or...

Host: But they'll probably still fill it out [complete it] though, right?

Jayla: Probably. They'll probably just badger you with a whole bunch of...

Host: Questions?

Jayla: yeah

Explanation: According to the female participant, it is possible that some adolescents will not be aware of their parent's body shape. The question recorded for the adolescent's perception of their parents' body weight. Based on the body language, throughout the focus groups, it was noticeable that an adolescent may be hesitant, embarrassed, or shy to answer the question. It is also possible that adolescents have not noticed their parents' recent body shape.

Additional Parental Questions

Without asking a specific question, a participant volunteered his opinions about having additional questions that address parental activities.

Mr. 502: So, you said something about the parents. So, I feel like you should, you did good about the parents, but I feel like you should of did more about the parents [have additional questions about parents].

Host: Ok, I should talk more about the parents?

Mr. 502: You talked about us, but you talked about the weight and all that. But you should have asked more about the parents too.

Host: ok... about their physical activity, about like what kind of foods they eat and stuff? [food intake, and etc.]

Mr. 502: Yeah.

Explanation: It is important to know that adolescents may be willing to answer additional questions about their parents day-to-day activities. As a part of a pilot study, adolescents who resided in West Louisville completed the SHAPE questionnaire. It is advantageous to know that future implications could consist of adding additional parental questions to the SHAPE questionnaire.

Neighborhood Questions

During this section, the participants shared different points of views on answering questions geared towards their neighborhood.

Host: *Were there any questions that you guys remember [from completing the questionnaire] that you did not want to answer? Like any questions that you just did not want to answer?*

Blue: *Um, I didn't really wanna [want to], it's not that I didn't really want to answer it but [he did not have a problem answering the questions], like, when it said in my neighborhood I am afraid of and listed choices...*

Host: *What question is that? What number is that?*

Blue: *Number 56*

Host: *Number 56. Ok. How you feel about it?*

Blue: *Um, I just didn't want to like, take it [complete this section] and make it seem like the neighborhood was like bad and like, it wasn't like a nice place to live or anything.*

Continued...

Host: Ok, so you were kinda [kind of] hesitant in responding because you didn't want to make it seem like your neighborhood was bad?

Explanation: In the text above, the participant had mixed feelings on whether or not to answer the neighborhood questions from a truthful point of view. He did not want to report that he resided in a “bad” neighborhood. Through this perception, many adolescents who reside in West Louisville may feel similar to Blue. This could in turn, result in adolescents partially disclosing their built environment.

People in the Neighborhood

One of the last questions asked in the focus group was about people in their neighborhood. The discussion below discloses the adolescents' feelings towards people in the neighborhood.

Host: Alright, so let's look at the last one #56. The last question. How did it make you feel for me to ask you that question? [Because] I'm asking you about people in your neighborhood.

Pablo: I mean, it's good to know [good to know for the study]. But me, like I said like, ain [I am not] afraid of nothing [anything] and like, it's just like the neighborhood I live in – I don't hang with them [people who may cause trouble in the neighborhood].

KJ: Too much [it's difficult to deal with people who cause trouble in the neighborhood]

Pablo: yeah not even that, it's just like I don't got time. Even though, I'm not afraid to die, I know I got a journey ahead of me.

Host: Right.

4Boogie: Aint even nobody [No one] gone [will] mess [bully] with me in my neighborhood cuz [because] my neighborhood is like quiet.

Pablo: quiet

KJ: You don't want to get caught up with the wrong crowd.

Pablo: It ain't [is] nothing to be afraid of it's just who you choose to be around

4Boogie: Who you hang out with.

Explanation: The last question asked the adolescents if they were afraid of specific people in the neighborhood. These people consisted of: people I don't know, other kids my age, kids that pick on me, gangs, homeless people, drug dealers, and adults outside of my household. All of the male adolescents in the focus group agreed that they were not afraid of anyone in their neighborhood. It is possible that other male adolescents will agree to not being afraid of anyone within their neighborhood.

March 17th, 2018

The female focus group perspective on people in the neighborhood differed from the males' perspective.

Host: Look at #56, it's the last question. How do you feel about being asked questions about people in your neighborhood?

Taylor: When they be rolling around [driving] with their cars with the windows down, I guess I be like [I say to myself] they [are] coming to close to the porch, I be like "brother's name" [I say my brother's name] , I really be calling his name. And then when I go outside to take the trash outside and I'm by myself, I act like I'm talking to somebody.

Host: Because people are around?

Taylor: They be [stand] in the alley

Jayla: So, I hear like several drive-bys down my street, like cars going this way down my street [pointing]. Like say I'm home alone and I hear a car speeding up or something, I get scared. So, if I see someone coming down my street late at night driving slow, it scares me. Drug affiliations live like across from me and

March 20th, 2018

The interviewee's perspective on people within her neighborhood.

Host: Yeah. Look at #56. How did you feel about being asked questions about people in your neighborhood?

Host: But if you have gangs and stuff and bullies in your neighborhood, I guess you stay away from them?

CardiB: Nah, I hang with them. It's like ...

Continued...

CardiB: I hang with all the people, it's like the gangs know me. I'll walk down the street and it will just be a crowd of black dudes, walking up like "what's up cardi, what's up".

Continued...

Ya know, it's just that little skinny black girl like "what's up" [referring to herself]. Ya know that old white lady driving down the street and she looking and she's making sure they not doing nothing to me. I'm like "girl I'm fine, you can keep going now, like I'm ok. I'm ok." They not gone do nothing to me.

Host: yeah cuz [because] they probably seen you since you were little so... they know you.

CardiB: yeah, so it's like some old dudes in those gangs "I use to always see you" "Yo mama use to always help me out, I use to babysit you for real, for some money." So, it's like, I'm ok, you do not have to slow down. It is not going to be another murder.

Explanation: The adolescents in the focus groups were open and honest about being afraid of people in their neighborhood. They did not hesitate to share their encounters within their neighborhood. The interviewee was not afraid of the gangs, bullies, and others within her neighborhood because they have known each other for years. This can create a sense of community. When other adolescent girls complete the questionnaire, they may be more likely to share their experiences.

II. Revisions

After reviewing all of the transcripts from the focus groups and interviews, the SHAPE questionnaire was edited. The edits took place after the assessment of the adolescent perceptions of questionnaire items. The questionnaire items have been examined based on clarity, accuracy, relevance and significance. The revisions below consisted of the transcript from the focus groups or interview that promoted the revision, the original questionnaire item, and the revised questionnaire item.

Acronym

The first page of the SHAPE Questionnaire displays the definition of S.H.A.P.E. and an introduction to the questionnaire. In order clear any misunderstanding around the title of this questionnaire, the title has to be altered.

The text below demonstrates the dialogue between the adolescents and facilitator.

March 17th, 2018

Host: Ok yall ready? So is there any content that you would change on the page?

Jayla: You're using shape with like an acronym, I think that's what it's called right?

Host: yeah

Jayla: So maybe you should put like the lil [little] dots instead of making it like all words

Jayla: Yeah

Explanation: It is important to be grammatically correct. This action helped the adolescents understand that The S.H.A.P.E. study is an acronym. Also, introducing the study as a health and environment study aided in influencing their zeal and efforts to complete the questionnaire to the best of their abilities.

Condensing Categories

Within various sections of the questionnaire, there were nine answer choices (0-7 days and I don't know) for each question. There were over five questions with at least nine answer choices. During the male focus group, the participants voiced their opinions about lengthy answer choices. Below is the transcript from the focus group, a few sample questionnaire items, and the revise questionnaire item.

March 3rd, 2018

Host: Alright, so were any words confusing in this section cuz [because] the sentences were kind of long.

KJ: I feel like the answers is too long. A,B,C,D,E,F,G,H,I... You should have just did like 0 to 2 days, 3 to 5 days...

Host: So you guys think that I should shorten it to like 0 to 2, 0 to something like that?

Pablo: yeah..

Host: Ok...

Original Questionnaire Item

11. How many days did you exercise or participate in physical activity for **at least 60 minutes per day or more**

Examples: basketball, soccer, running, swimming laps, fast bicycling, fast dancing, or similar aerobic activities?

- A. 0 days
- B. 1 day
- C. 2 days
- D. 3 days
- E. 4 days
- F. 5 days
- G. 6 days
- H. 7 days
- I. Don't know

Revision

11. How many days did you exercise or participate in physical activity for **at least 60 minutes per day or more**

Examples: basketball, soccer, running, swimming laps, fast bicycling, fast dancing, or similar aerobic activities?

- A. 0 – 1 days
- B. ~~1 day~~ 2 – 3 days
- C. ~~2 days~~ 4 – 5 days
- D. ~~3 days~~ 5 – 7 days
- E. ~~4 days~~
- F. ~~5 days~~
- G. ~~6 days~~
- H. ~~7 days~~
- I. Don't know

New Questionnaire item

11. How many days did you exercise or participate in physical activity for **at least 60 minutes per day or more**

Examples: basketball, soccer, running, swimming laps, fast bicycling, fast dancing, or similar aerobic activities?

- A. 0 – 1 day
- B. 2 – 3 days
- C. 4 – 5 days
- D. 5 – 7 days
- E. Don't know

Explanation: Due to the physical activity recommendations and guidelines by several sources, it is important to highlight adolescents who exercised for at least 3 days, at least 5 days, and greater than 5 days. Other answer choices within the physical activity questionnaire items were changed as well.

Condensing Food Questionnaire item

The text below illustrates why the answer choices should be condensed for this questionnaire item.

March 3rd, 2018

Pablo: Alright so where it says my food, ya know. Um...I didn't really get it like [didn't understand question], cuz [because] like, it says in the past seven days how many times did you eat fast food, and like, I ate fast food like yesterday. but like, it was pizza, and um it was only one time so what I did like, I was think[ing] like, "how come she didn't just say how many days did you eat it", instead of saying how times did you eat it. I don't think everybody just eat fast food like three times a day like if they do then..

Host: Right,

KJ: That's what I was kind of confused on too... Had you put 1 to 3 times...

Mr. 502: I don't even eat fast food like that.

Host: Ok so... I should change it into days.

Pablo: Yeah

Kj: Yeah

Host: Ok

Pablo: Or How many times per week...

Someone: yeah...

Pablo: how about 2 to 3 times per week or you know 1 time per week...

Mr. 502: yeah, you should.

Blue: Yeah, people would. yeah some people don't even eat fast food like days, so you can change it to weeks.

Host: Ok.

Original Questionnaire Item

18. During the past 7 days, how many days did you eat junk food (**chips, cookies, or cakes to snack on in your home?**

- A. 0 days
- B. 1 day
- C. 2 days
- D. 3 days
- E. 4 days
- F. 5 days
- G. 6 days
- H. 7 days
- I. Don't know

Revision

18. During the past 7 days, how many days did you eat junk food (**chips, cookies, or cakes to snack on in your home?**)

- A. I did not eat junk food during this time
- B. 1 to 3 times per week
- C. 4 to 6 times per week
- D. 7+ times per week
- E. Don't know

New Questionnaire Item

18. During the past 7 days, how many days did you eat junk food (**chips, cookies, or cakes to snack on in your home?**)

- A. I did not eat junk food during this time
- B. 1 to 3 times per week
- C. 4 to 6 times per week
- D. 7+ times per week
- E. Don't know

Explanation: The answer choices above were changed to number of times per week to better answer how many times adolescents ate junk food.

Fast Food Clarity

One of the “My Food” questions ask adolescents about their consumption of fast food.

The questionnaire item included examples of fast foods but not fast food chains. The text below helped to establish a reason for editing this particular question.

March 17th, 2018

Host: All right, so were there any words or phrases you didn't understand from this section? Would you word any questions differently?

Taylor: Shouldn't fast food be like outside [fast food chain]? Fast foods like McDonald's or Domino's pizza

Jayla: yeah for examples you should have named like actual like fast food restaurants

Host: What did I name?

Jayla: You named like fried chicken, pizza, French fries, burgers and more. My mama cook that at home. She can cook it at home.

Taylor: Yeah

Continued...

Host: So, ok so what number was that?

Both: 16

Host: So for 16, I should have said McDonalds, Pizza Hut, all of that?

Both: Mhmm

Host: Because that's fast food.

Host: Ok.

Taylor: Fast food can be putting some noodles in the microwave.

Jayla: But like when you think of fast food, you think of like going out, going through a drive through kind of thing

Host: Yeah. Ok. That's good.

Original Questionnaire Item

16. During the past 7 days, how many times did you eat **fast foods**? (Fried chicken, Pizza, French fries, burgers, and more)

- A. I did not eat fast foods during this time
- B. 1 to 3 times per day
- C. 4 to 6 times per day
- D. 7+ times per day
- E. Don't know

Revision

16. During the past 7 days, how many times did you eat **fast foods**?

(McDonalds, Pizza Hut, Indi's
Chicken, Taco Bell, KFC, and etc.)

- A. I did not eat fast foods during this time
- B. 1 to 3 times per day
- C. 4 to 6 times per day
- D. 7+ times per day
- E. Don't know

New Questionnaire Item

Explanation: According to the text of the focus groups, many adolescents do not

16. During the past 7 days, how many times did you eat **fast foods**?
(McDonalds, Pizza Hut, Indi's
Chicken, Taco Bell, KFC, and etc.)

- A. I did not eat fast foods during this time
- B. 1 to 3 times per day
- C. 4 to 6 times per day
- D. 7+ times per day
- E. Don't know

identify fried chicken and other unhealthy foods as fast food if their parents cook it at home. Therefore, it was important to clarify the meaning of fast foods.

Junk Food Details

The interviewee noticed the significance of asking whether junk food was eaten inside the home or outside the home.

March 20th, 2018

Host: Alright, so what questions in this section took you the longest time to answer?

CardiB: How many days did you eat junk food. I had to think cuz [because] it said just cookies or cake to snack on in your home.

Host: Hmm, because you eat junk food here don't it [is that correct]?

CardiB: yeah, so I'm like ok, it say[s] home, so it must just mean home, cuz at home I don't eat a lot of junk food. When I get home, I go to sleep. I eat all of my junk food during the day or at school or here or some.

Host: That's very smart and I need to take that out because what I meant was like just junk food wherever you eat it, it doesn't matter. So, I'm going to take that out "on in your home".

Original Questionnaire

18. During the past 7 days, how many days did you eat junk food (**chips, cookies, or cakes to snack on in your home?**

- A. I did not eat junk food during this time
- B. 1 to 3 times per week
- C. 4 to 6 times per week
- D. 7+ times per week
- E. Don't know

Revision

18. During the past 7 days, how many days did you eat junk food (**chips, cookies, or cakes, pies, and etc.**

- A. I did not eat junk food during this time
- B. 1 to 3 times per week
- C. 4 to 6 times per week
- D. 7+ times per week
- E. Don't know

New Questionnaire Item

18. During the past 7 days, how many days did you eat junk food (**chips, cookies, or** cakes, pies, and etc.

- A. I did not eat junk food during this time
- B. 1 to 3 times per week
- C. 4 to 6 times per week
- D. 7+ times per week
- E. Don't know

Explanation: In an effort to generalize the question, all references to home and school were deleted. Adolescents were able to tally the number of times they ate junk food independent of their environment.

Confusing Directions

One set of directions consistently caused confusion among adolescents in the focus group. The text below introduces the problem and revision of the directions aim to combat the problem.

March 3rd, 2018

Host: So you said I should like word it better? Do you got [have] any ways that I could word it better?

KJ: Like... this statement at the topic [directions]. Think back for seven days, Today is March 3rd so seven days ago was ... I didn't understand that...

Host: I was thinking like today is Saturday so seven days ago was last Saturday. I'll take it out.

KJ: Naw, it's cool.

Original Questionnaire Item

Think back on the past week – for seven days. Today is _____, so seven days ago was last _____.

Revision

Think back on the past week – for seven days. Today is _____ (day of the week), so seven days ago was last _____ (ex. If today is Monday, seven days ago was Monday).

New Questionnaire Items

Think back on the past week – for seven days. Today is _____ (day of the week), so seven days ago was last _____ (ex. If today is Monday, seven days ago was Monday).

Explanation: In this revision, it was necessary to clarify the sentence for this section.

Therefore, more text was added to clarify the week in question.

Popular Video Games

It was important to relate to adolescents. In the “My Fun Time” section, examples of video games were listed. According to adolescents, these video games were not popular.

The text below demonstrated the need to clarify the types of video game systems.

March 17th, 2018

Host: Alright so, which electronics should be included in the section?

Jayla: Take out Nintendo, Gameboy

Host: What else? I think I had like Xbox right.

Taylor: Xbox 1, Xbox 360

Jayla: Take off computer games

Host: So, people don't play games on their laptops or desktops anymore?

Taylor: They be playing like (begins to list games) on their phones.

Jayla: Oh yeah, you can play those on your phone.

Original Questionnaire Item

24. On a school day, how many hours do you play video or computer games or use a computer for something that is not school work? (Include activities such as Nintendo, Game Boy, PlayStation, Xbox, computer games, and the Internet.)
- A. I do not play video or computer games on school day
 - B. Less than 1 hour per day
 - C. 1 hour per day
 - D. 2 hours per day
 - E. 3 hours per day
 - F. 4 hours per day
 - G. 5 or more hours per day
 - H. Don't know

Revision

24. On a school day, how many hours do you play video or computer games. (Include game systems such as Nintendo, Wii, PlayStation, Xbox, computer games, and apps on electronic devices, and etc.)
- A. I do not play video or computer games on school day
 - B. Less than 1 hour per day
 - C. 1 hour per day
 - D. 2 hours per day
 - E. 3 hours per day
 - F. 4 hours per day
 - G. 5 or more hours per day
 - H. Don't know

New Questionnaire Item

24. On a school day, how many hours do you play video or computer games. (Include game systems such as Nintendo, Wii, PlayStation, Xbox, computer games, and apps on electronic devices, and etc.)
- A. I do not play video or computer games on school day
 - B. Less than 1 hour per day
 - C. 1 hour per day |
 - D. 2 hours per day
 - E. 3 hours per day
 - F. 4 hours per day
 - G. 5 or more hours per day
 - H. Don't know

Similar Questions

Two questionnaire items were similar. Both of the questions asked participants to select the number of hours they spent watching TV and watching videos. A clear distinction between the two should exist. The text below demonstrates similar between two of the questions.

March 3rd, 2018

Host: Ok um, because we talked about electronic devices and all of that, do you think some of the questions sounded the same?

Pablo: No

KJ: Yeah

Host: Like number 25 and number 26

KJ: Yeah, that's basically the same thing. You're still watching stuff. You're still watching videos.

Pablo: Oh yeah, watching tv.

KJ: Netflix is movies and tv shows.

Pablo: Yeah that is true.

Host: So yall [you all] consider.. cuz when I watch Netflix I consider it to be.. I'm watching like an online show or online tv show

Pablo: I'll just say movie..

KJ: That's the same thing still as 25 cuz [because] you spend [time] watching tv shows or movies.

Host: Yeah, I should be more specific and probably say watching it on the television, to be more distinct.

Pablo: yeah

KJ: yeah

Host: Ok. Thank you KJ and Pablo

Original Questionnaire Item

25. On a school day, how many hours do you spend watching TV shows or movies? Include DVDs and shows you watch on a TV.
- A. I do not watch TV on an average school day
 - B. Less than 1 hour per day
 - C. 1 hour per day
 - D. 2 hours per day
 - E. 3 hours per day
 - F. 4 hours per day
 - G. 5 or more hours per day
 - H. Don't know
26. On a school day, how many hours do you spend watching videos? Include videos you watch a computer, tablet, cell phone, or other portable device (Netflix, YouTube, Social Media, etc).
- A. I do not watch DVDs or videos on an average school day
 - B. Less than 1 hour per day
 - C. 1 hour per day
 - D. 2 hours per day
 - E. 3 hours per day
 - F. 4 hours per day
 - G. 5 or more hours per day
 - H. Don't know

Revision

25. On a school day, how many hours do you spend watching TV shows or movies? Include DVDs, videos you watch on a computer tablet cellphone and other devices. (Netflix, YouTube, and other streaming websites.
- A. I do not watch TV on an average school day
 - B. Less than 1 hour per day
 - C. 1 hour per day
 - D. 2 hours per day
 - E. 3 hours per day
 - F. 4 hours per day
 - G. 5 or more hours per day
 - H. Don't know
26. On a school day, how many hours do you spend on social media? (SnapChat, Instagram, Twitter, Facebook, other Social Media outlets, etc.).
- A. I do not use Social Media on an average school day
 - B. Less than 1 hour per day
 - C. 1 hour per day
 - D. 2 hours per day
 - E. 3 hours per day
 - F. 4 hours per day
 - G. 5 or more hours per day
 - H. Don't know

New Questionnaire Item

25. On a school day, how many hours do you spend watching TV shows or movies? Include DVDs, videos you watch on a computer, tablet, cellphone, and other devices. (Netflix, YouTube, and other streaming websites.
- A. I do not watch TV on an average school day
 - B. Less than 1 hour per day
 - C. 1 hour per day
 - D. 2 hours per day
 - E. 3 hours per day
 - F. 4 hours per day
 - G. 5 or more hours per day
 - H. Don't know
26. On a school day, how many hours do you spend on social media? (SnapChat, Instagram, Twitter, Facebook, or other Social Media outlets, etc.).
- A. I do not use Social Media on an average school day
 - B. Less than 1 hour per day
 - C. 1 hour per day
 - D. 2 hours per day
 - E. 3 hours per day
 - F. 4 hours per day
 - G. 5 or more hours per day
 - H. Don't know

Explanation: In order to distinguish a difference between both questions, the subject of both questions needed to change. The first question is now geared towards hours spent watching television through multiple sources. The second question asks how many hours adolescents spend on social media.

Comfort Level Questions

In the “My comfort” section, adolescents were to agree or disagree with the effects of working out. Two of the questions were very similar. The dialogue with the interviewee below prompted a change in the way one question was asked.

March 20th, 2018

Host: ok, what question would you change in this section?

CardiB: Yeah, like it should just be like “I enjoy it” because if you enjoy something then you obviously find it fun. So, it’s like yeah... those is [these are] like basically the same questions.

Host: I don’t find it fun to work out, but I enjoy the results of it.

CardiB: Ah, so you enjoy the results,

Host: Yeah, I just don't like to do it. Laughs.

Original Questionnaire Item

When I am physically active...		Disagree	Agree
27.	I enjoy it.		
28.	I find it fun.		
39.	It gives me energy.		

Revision

When I am physically active...		Disagree	Agree
27.	I <u>find it fun.</u>		
28.	<u>It gives me energy.</u>		
39.	I <u>enjoy the results of working out.</u>		

New Questionnaire Item

When I am physically active...		Disagree	Agree
27.	I find it fun.		
28.	It gives me energy.		
39.	I enjoy the results of working out.		

Explanation: Two of the questions may have yielded a similar response from adolescents. Therefore, it was important to change one of the questions. It is possible for there not to be a distinguishable difference between the words “fun” and “enjoy”.

Parents' Weight

Most of the adolescent males had a difficult time answering the question about their mother's weight. They also had suggestions of how to clear any confusion related to the question.

March 3rd, 2018

Host: Look at number 37, it says how do you describe your mom's weight or how do you describe your dad's weight?

Host: How would you rewrite that question?

4Boogie: How would you describe yo [your]mama?

Host: How would you describe your mama?

Pablo: I think it's good.

Crowd: Chatter

KJ: You know cuz [because], you see where it says like mama or female guardian [pointing to the questionnaire]? It's like you [creator of the questionnaire] asking them instead of asking us what, how do you describe your weight? So it's like you asking us how we describe our weight instead of our mom's weight.

Pablo: How do you describe their weight?

Host: So, I should say how do you describe your mom or female guardian's weight?

KJ: Yeah.

KJ: And how do you describe your dad or male guardian's weight.

Host: Good intake

Original Questionnaire Item

The next question asks about you and your parent's body shape. Circle the best representative of your parent's body shape.															
37.	<table border="1"><thead><tr><th><u>Mom or Female Guardian</u></th><th><u>Dad or Male Guardian</u></th></tr></thead><tbody><tr><td>How do you describe your weight?</td><td>How do you describe your weight?</td></tr><tr><td>A. Very underweight</td><td>A. Very underweight</td></tr><tr><td>B. Slightly underweight</td><td>B. Slightly underweight</td></tr><tr><td>C. About the right weight</td><td>C. About the right weight</td></tr><tr><td>D. Slightly overweight</td><td>D. Slightly overweight</td></tr><tr><td>E. Very overweight</td><td>E. Very overweight</td></tr></tbody></table>	<u>Mom or Female Guardian</u>	<u>Dad or Male Guardian</u>	How do you describe your weight?	How do you describe your weight?	A. Very underweight	A. Very underweight	B. Slightly underweight	B. Slightly underweight	C. About the right weight	C. About the right weight	D. Slightly overweight	D. Slightly overweight	E. Very overweight	E. Very overweight
<u>Mom or Female Guardian</u>	<u>Dad or Male Guardian</u>														
How do you describe your weight?	How do you describe your weight?														
A. Very underweight	A. Very underweight														
B. Slightly underweight	B. Slightly underweight														
C. About the right weight	C. About the right weight														
D. Slightly overweight	D. Slightly overweight														
E. Very overweight	E. Very overweight														

Revision

The next question asks about you and your parent's body shape. Circle the best representative of your parent's body shape.															
37.	<table border="1"><thead><tr><th><u>Mom or Female Guardian</u></th><th><u>Dad or Male Guardian</u></th></tr></thead><tbody><tr><td>How <u>would</u> you describe your <u>mom or</u> <u>female guardian's</u> weight?</td><td>How <u>would</u> you describe your <u>dad or male</u> <u>guardian's</u> weight?</td></tr><tr><td>A. Very underweight</td><td>A. Very underweight</td></tr><tr><td>B. Slightly underweight</td><td>B. Slightly underweight</td></tr><tr><td>C. About the right weight</td><td>C. About the right weight</td></tr><tr><td>D. Slightly overweight</td><td>D. Slightly overweight</td></tr><tr><td>E. Very overweight</td><td>E. Very overweight</td></tr></tbody></table>	<u>Mom or Female Guardian</u>	<u>Dad or Male Guardian</u>	How <u>would</u> you describe your <u>mom or</u> <u>female guardian's</u> weight?	How <u>would</u> you describe your <u>dad or male</u> <u>guardian's</u> weight?	A. Very underweight	A. Very underweight	B. Slightly underweight	B. Slightly underweight	C. About the right weight	C. About the right weight	D. Slightly overweight	D. Slightly overweight	E. Very overweight	E. Very overweight
<u>Mom or Female Guardian</u>	<u>Dad or Male Guardian</u>														
How <u>would</u> you describe your <u>mom or</u> <u>female guardian's</u> weight?	How <u>would</u> you describe your <u>dad or male</u> <u>guardian's</u> weight?														
A. Very underweight	A. Very underweight														
B. Slightly underweight	B. Slightly underweight														
C. About the right weight	C. About the right weight														
D. Slightly overweight	D. Slightly overweight														
E. Very overweight	E. Very overweight														

New Questionnaire Item

The next question asks about you and your parent's body shape. Circle the best representative of your parent's body shape.															
37.	<table border="1"><thead><tr><th><u>Mom or Female Guardian</u></th><th><u>Dad or Male Guardian</u></th></tr></thead><tbody><tr><td>How would you describe your mom or female guardian's weight?</td><td>How would you describe your dad or male guardian's weight?</td></tr><tr><td>A. Very underweight</td><td>A. Very underweight</td></tr><tr><td>B. Slightly underweight</td><td>B. Slightly underweight</td></tr><tr><td>C. About the right weight</td><td>C. About the right weight</td></tr><tr><td>D. Slightly overweight</td><td>D. Slightly overweight</td></tr><tr><td>E. Very overweight</td><td>E. Very overweight</td></tr></tbody></table>	<u>Mom or Female Guardian</u>	<u>Dad or Male Guardian</u>	How would you describe your mom or female guardian's weight?	How would you describe your dad or male guardian's weight?	A. Very underweight	A. Very underweight	B. Slightly underweight	B. Slightly underweight	C. About the right weight	C. About the right weight	D. Slightly overweight	D. Slightly overweight	E. Very overweight	E. Very overweight
<u>Mom or Female Guardian</u>	<u>Dad or Male Guardian</u>														
How would you describe your mom or female guardian's weight?	How would you describe your dad or male guardian's weight?														
A. Very underweight	A. Very underweight														
B. Slightly underweight	B. Slightly underweight														
C. About the right weight	C. About the right weight														
D. Slightly overweight	D. Slightly overweight														
E. Very overweight	E. Very overweight														

Explanation: Before the focus group, the questions asked, “How would you describe your weight”? The subject of both questions was incorrect. After analyzing the text from the focus groups, a few revisions were created for the questions.

Open-Ended Question

During the focus groups, adolescents asked questions about the open-ended question at the beginning of the questionnaire. The question asked adolescents to list any health conditions that would make it difficult to them to exercise. If adolescents did not have any conditions, they did not feel comfortable leaving the question blank. The text below displays the conversation in the focus group.

March 3rd, 2018

Mr. Pig Feet: Can you do number 10?
Host: If you don't have any issues, leave it blank. Yeah...
4Boogie: I've got asthma (mumbles something)
Host: So, number 10... I got a lot of questions from you guys and that's pretty much when you had to fill in if you had like any physical issues that's preventing you from working out. So,

Continued...

should I just say, "If you have any issues that prevent you from working out put it here and if you don't have any, please leave it blank?" So, should I add a sentence that says "If you don't have anything wrong with you, leave it blank."

4Boogie: Or cuz [because] some people don't like to leave it blank.

Host: NA or just write NA? How about that?

Crowd: nods head.

Pablo: that's great.

Original Questionnaire Item

Before you proceed please answer the following question.

10. Do have any health conditions that would make it difficult for you to exercise? If so, write it in the space below.

Revision

Before you proceed please answer the following question.

10. Do you have any health conditions that would make it difficult for you to exercise? If so, write it in the space below. If not, please write N/A in the space below.

Please go to the next page.

New Questionnaire Item

Before you proceed please answer the following question.

10. Do you have any health conditions that would make it difficult for you to exercise? If so, write it in the space below. If not, please write N/A in the space below.

Please go to the next page.

Explanation: After the revision, adolescents have the option of writing N/A which stands for not applicable.

IV. RESULTS – PHASE III

Results for Specific Aim 1

For Specific Aim 1, demographic variables and risk factors were assessed in relation to body size (normal weight versus overweight or obesity) and geographic region of the neighborhoods in West Louisville. *(Demographics assessed by other main effects and covariates are provided in Tables C1- C19 in the Appendix C.)*

Table 1: Demographic Characteristics, Stratified by Overweight/Obese versus Normal Weight, SHAPE Study (n= 145).

Characteristics^{1,2}	Normal Weight (n= 66)	Overweight/ Obese (n=79)	p-value³
	N (%) ⁴	N (%)	
Gender			0.78
Female	42(44.7)	52(55.3)	
Male	24(47.1)	27(52.9)	
Age (years)			0.34
12 – 13	35(50.7)	34(49.3)	
14 – 15	17(39.5)	26(60.5)	
16 – 17	14(42.4)	19(57.6)	
Age (continuous)	Mean±SD	Mean±SD	0.69
	13.9±1.7	14.0±1.7	
Grade			0.09
6 th – 8 th	36(52.9)	32(47.1)	
9 th – 12 th	29(38.7)	46(61.3)	
Ethnicity			0.72
Black	61(45.9)	72(45.1)	
Non-Black	4(40.0)	6(60.0)	
Neighborhoods⁵			0.17
Eastern Region	31(54.4)	26(45.6)	
Western Region	25(39.7)	38(60.3)	
Other	10(41.7)	14(58.3)	
Median Household Income⁶			0.11
Less than \$25,000	37(52.9)	33(47.1)	
More than \$25,000	19(38.0)	31(62.0)	

- ¹ Weight percentiles defined as: underweight (less than or equal to 5th percentile), normal weight(between 5th and 85th percentile); overweight (between 85th and 95th percentile), and obese (greater than or equal to 95th percentile).
- ² Participants were restricted to those who have the outcome of the given analysis.
- ³ The p-value presented for each categorical valuable is the Mantel-Haenszel Chi-Square Statistic; p-value for continuous variables based on ANOVA.
- ⁴ Numbers may not add to 100% due to rounding.
- ⁵ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.
- ⁶ Neighborhoods with a median household income less than 25K includes Algonquin (\$19,894), California (\$16,591), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table 1 shows the distribution of demographic characteristics stratified by body size: normal versus overweight/obese. Although 154 participants were surveyed, data for body size were missing for 9 participants. (*Demographics, main effects, and covariates including missing outcomes may be found in Tables C20 – C21 of Appendix C.*) There were no statistically significant associations ($p < 0.05$) between demographic variables and body size. Grade and median household income had the strongest associations with p-values of 0.09 and 0.11, respectively. There was no significant difference between females and males for prevalence of overweight/obesity (p-value = 0.78). Fifty-five percent of females were overweight/obese compared to 52.9% of males. Forty-nine percent of 12-15-year olds were overweight or obese, 60.5% of 14-15-year olds, and 57.6% of adolescents aged 16-17 years. The prevalence of overweight/obesity was higher in the western neighborhoods (60.3%) than in the eastern region (45.6%). The majority of the adolescents in the study lived in households that earned less than <\$25,000 (70 participants) annually as opposed to households that earned >\$25,000 annually (50 participants), although there were 25 participants with missing data. Interestingly, the prevalence of overweight/obesity was higher in the households earning > \$25,000 annually (62%) than in those with incomes < \$25,000 (47.1%).

In Table 2, adolescents' perceptions of the built environment and perception variables were stratified by normal versus overweight/obese. There were no statistically significant ($p < 0.05$) associations with the exceptions of self-perception of weight and Dad's weight. Interestingly, 41.7% of overweight/obese adolescents expressed being afraid of their neighborhood while 67.8% of overweight/obese participants said they were moderately afraid.

Table 2: Risk Factors by Overweight/Obese versus Normal Weight, SHAPE Study (n=145).

Characteristics^{1,2}	Normal Weight (n= 66)	Overweight/ Obese (n= 79)	p-value³
	N (%)⁴	N (%)	
Physical Activity (60 minutes)⁵			0.64
0 - 3 days	26(44.8)	32(55.2)	
4 - 7 days	29(49.2)	30(50.8)	
Physical Activity (20 minutes)⁵			0.75
0 - 3 days	34(45.9)	40(54.1)	
4 - 7 days	23(48.9)	24(51.1)	
Walkability Scale⁶			0.56
Easy	43(44.8)	53(55.2)	
Medium	15(42.9)	20(57.1)	
Hard	8(57.1)	6(42.9)	
Aesthetics Scale⁶			0.78
Not aesthetically pleasing	23(44.2)	29(55.8)	
Mildly aesthetically pleasing	20(46.5)	23(53.5)	
Aesthetically pleasing	23(46.9)	26(53.1)	
Accessibility Scale⁶			0.92
Limited facilities	22(48.9)	23(51.1)	
Some facilities	22(40.0)	33(60.0)	
Most facilities	22(50.0)	22(50.0)	
Traffic Scale⁶			0.54
No Traffic	33(43.2)	43(56.6)	
Traffic	33(48.5)	35(51.5)	
Crime Scale⁶			0.51
No crime	26(42.6)	35(57.4)	
Crime	40(48.2)	43(51.8)	
Afraid Scale⁶			0.39
Not Afraid	19(51.4)	18(48.6)	
Moderately Afraid	19(32.2)	40(67.8)	
Afraid	28(58.3)	20(41.7)	
Perceptions of Weight⁷			<0.0001
Normal weight	65(59.1)	38(34.5)	
Overweight	1(2.4)	40(97.6)	
Weight Goals⁷			0.84
Lose weight	10(15.4)	55(84.6)	

Characteristics^{1,2}	Normal Weight (n= 66)	Overweight/ Obese (n= 79)	p-value³
Stay the same/nothing	33(66.0)	17(34.0)	
Gain weight	23(76.7)	7(23.3)	
Fruit and Veggie Scale⁷			0.10
Inadequate intake	39(49.4)	40(50.6)	
Adequate intake	18(34.6)	34(65.4)	
Unhealthy Scale⁷			0.62
Limited to no unhealthy foods	34(43.6)	44(56.4)	
Many unhealthy foods	32(47.8)	35(45.2)	
Meals at Home Scale⁷			0.23
0 – 3 days	18(38.3)	29(61.7)	
4 – 7 days	47(48.96)	49(51.0)	
Meals at School Scale⁷			0.59
0 – 2 days	46(46.5)	53(53.5)	
3 – 5 days	17(41.5)	24(58.5)	
Fun Scale⁷			0.30
0 - 3 hours per day	40(41.7)	56(58.3)	
4 + hours per day	22(51.2)	21(48.8)	
Comfort Scale⁷			0.30
Mild to moderately comfortable	12(37.5)	20(62.5)	
Comfortable working out	54(47.8)	59(52.2)	
Support Scale⁷			0.87
Low-mid parental support	30(44.8)	37(55.2)	
High parental support	36(46.2)	42(53.8)	
Mom's weight⁷			0.06
Normal weight	50(51.0)	48(49.0)	
Overweight	15(34.1)	29(65.9)	
Dad's weight⁷			0.001
Normal weight	55(56.1)	43(43.9)	
Overweight	9(24.3)	28(75.7)	

¹ Weight percentiles defined as: underweight (less than or equal to 5th percentile), normal weight (between 5th and 85th percentile); overweight (between 85th and 95th percentile), and obese (greater than or equal to 95th percentile).

² Participants were restricted to those who have the outcome of the given analysis.

³ The p-value presented for each categorical valuable is the Mantel-Haenszel Chi-Square Statistic; p-value for continuous variables based on ANOVA.

⁴ Numbers may not add to 100% due to rounding.

⁵ Physical activity based on response to questions on: the number of days in the previous 7 days that a participant exercised or participated in physical activity for at least 20 or 60 minutes per day.

⁶ Walkability based on response to questions on the ability to walk to certain places within an adolescents' neighborhood. Aesthetics based on response to questions on whether or not there are pleasing/displeasing neighborhood features. Facilities based on response to questions on whether recreational or food facilities in the neighborhood. Traffic based on response to questions on whether traffic and traffic control exist in neighborhoods. Crime based on response to questions about crime in the neighborhood. Afraid based on response to questions on whether adolescent' are afraid of people in the neighborhood.

⁷ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Unhealthy food based on responses to questions about fast food, junk food, and beverage consumption within past 7 days. Meals at home based on responses to questions on eating breakfast, lunch, and dinner at home within past 7 days. Meals at school based on responses to questions on eating breakfast, lunch, and dinner at school within past 7 days. Fun scale based on responses to questions on

hours adolescents spend on social media, watching television, and playing video games. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out. Parental Support based on responses to questions on parental support for physical activities, school activities, and support within the home. Mom and dad's weight based on responses to questions on how adolescents perceive their mom and dad's weight.

Specific Aim 1 – a

Approximately 55 percent of overweight or obese adolescents reported “easy” for the walkability scale, while other overweight or obese adolescents reported medium (57%) and hard (42.9%) walkability within their neighborhood. Normal weight adolescents reported similar results for the walkability sale (p -value=0.56); easy (44.8%), medium (42.9%) and hard (57.1%). More overweight or obese adolescents reported limited or some accessibility to facilities (supermarkets, recreational facilities, parks, etc.) in their neighborhood, compared to normal weight participants.

Approximately 98% of adolescents perceived their weight as overweight. Approximately 84.6% of overweight or obese adolescents have weight loss goals. Thirty-four participants of overweight or obese adolescents would like to stay the same weight and 23.3% of overweight or obese adolescents would like to gain weight (p -value = 0.84). For the fruit and veggie scale variable, 50.6% of overweight or obese adolescents reported inadequate intake of fruit and veggies (p -value = 0.10). Moreover, 65.4% of overweight or obese adolescents reported adequate intake of fruit and veggies, Majority of adolescents ate meals at school 0-2 days an average week; a higher percentage of overweight and obese adolescents ate meals at school (53.5%) in comparison to normal weight adolescents (46.5%) (p -value = 0.23). Fifty-eight percent of overweight or obese adolescents ate meals at school for 3-5 days on an average week.

Seventy-five percent of overweight/obese adolescents reported overweight for dad's weight (p-value = 0.001).

Specific Aim – 1b.

In Table 3 adolescents' perceptions of the built environment were stratified by neighborhood. A total of 153 participants were assessed by neighborhood region for Table 3 with one missing participant.

Table 3: Risk Factors by Region of Neighborhood Location, SHAPE Study (n=153).

Characteristics^{1,2}	Eastern Region (n= 58)	Western Region (n=69)	Other (n= 26)	p-value ³
	N (%) ⁴	N (%)	N (%)	
Physical Activity (60 minutes)⁵				0.10
0 - 3 days	21(33.9)	29(46.8)	12(19.4)	
4 - 7 days	29(46.0)	27(42.9)	7(11.1)	
Physical Activity (20 minutes)⁵				0.32
0 - 3 days	28(35.0)	38(27.5)	14(7.5)	
4 - 7 days	23(46.9)	18(37.7)	8(16.3)	
Walkability Scale⁶				0.06
Easy	34(34.7)	46(46.9)	18(18.4)	
Medium	14(35.9)	17(43.6)	8(20.5)	
Hard	10(62.5)	6(37.5)	0(0.0)	
Aesthetics Scale⁶				0.003
Not aesthetically pleasing	29(54.7)	18(33.9)	6(11.3)	
Mildly aesthetically	15(31.3)	26(54.2)	7(14.6)	
Aesthetically pleasing	14(26.9)	25(48.1)	13(25.0)	
Accessibility Scale⁶				0.61
Limited facilities	21(42.9)	18(36.7)	10(20.4)	
Some facilities	24(42.1)	23(40.4)	10(17.5)	
Most facilities	13(27.7)	28(59.6)	6(12.8)	
Traffic Scale⁶				0.37
Traffic	30(41.7)	31(43.1)	11(15.3)	
No Traffic	28(34.6)	38(46.9)	15(18.5)	
Crime Scale⁶				0.34
No crime	24(38.1)	24(38.1)	15(23.8)	
Crime	34(37.8)	45(50.0)	11(12.2)	
Afraid Scale⁶				0.78
Not Afraid	16(43.2)	15(40.5)	6(16.2)	
Moderately Afraid	19(29.7)	33(51.6)	12(18.8)	
Afraid	23(44.2)	21(40.4)	8(15.4)	
Perception of Weight⁷				0.61
Normal weight	43(41.7)	42(70.8)	18(17.5)	

Characteristics^{1,2}	Eastern Region (n= 58)	Western Region (n=69)	Other (n= 26)	p-value ³
Overweight	13(31.0)	23(54.8)	6(14.3)	
Weight Goals⁷				0.44
Lose weight	27(40.3)	33(49.3)	7(10.5)	
Stay the same/nothing	20(38.5)	23(44.2)	9(17.3)	
Gain weight	11(33.3)	13(39.4)	9(27.3)	
Fruit and Veggie Scale⁷				0.15
Inadequate intake	36(43.4)	36(43.4)	11(13.3)	
Adequate intake	17(30.9)	28(50.9)	10(18.2)	
Unhealthy Scale⁷				0.64
Limited to no unhealthy	34(41.9)	32(39.5)	15(18.5)	
Many unhealthy foods	24(33.3)	37(51.4)	11(15.3)	
Meals at Home Scale⁷				0.88
0 – 3 days	20(40.0)	20(40.00)	10(20.0)	
4 – 7 days	38(37.6)	47(46.5)	16(15.8)	
Meals at School Scale⁷				0.41
0 – 2 days	40(39.2)	46(45.1)	16(15.7)	
3 – 5 days	16(34.8)	20(43.5)	10(21.7)	
Fun Scale⁷				0.85
0 - 3 hours per day	38(37.6)	45(44.6)	18(17.8)	
4 + hours per day	16(34.8)	22(47.8)	8(17.4)	
Comfort Scale⁷				0.05
Mild to moderately	8(22.9)	19(54.3)	8(22.9)	
Comfortable working out	50(42.4)	50(42.4)	18(15.3)	
Support Scale⁷				0.67
Low-mid parental support	28(39.4)	28(39.4)	15(21.1)	
High parental support	30(36.6)	41(50.0)	11(13.4)	
Mom's weight⁷				0.72
Normal weight	37(38.1)	45(46.4)	15(15.5)	
Overweight	20(45.5)	16(36.4)	8(18.2)	
Dad's weight⁷				0.29
Normal weight	36(37.1)	45(46.4)	16(16.5)	
Overweight	18(48.7)	14(37.8)	5(13.5)	

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Participants were restricted to those who have the outcome of the given analysis.

³ The p-value presented for each categorical variable is the Chi-Square statistic.

⁴ Numbers may not add to 100% due to rounding or missing data.

⁵ Physical activity based on response to questions on: the number of days in the previous 7 days that a participant exercised or participated in physical activity for at least 20 or 60 minutes per day.

⁶ Walkability based on response to questions on the ability to walk to certain places within an adolescents' neighborhood. Aesthetics based on response to questions on whether or not there are pleasing/displeasing neighborhood features. Facilities based on response to questions on whether recreational or food facilities in the neighborhood. Traffic based on response to questions on whether traffic and traffic control exist in neighborhoods. Crime based on response to questions about crime in the neighborhood. Afraid based on response to questions on whether adolescent' are afraid of people in the neighborhood.

⁷ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Unhealthy food based on responses to questions about fast food, junk food, and beverage

consumption within past 7 days. Meals at home based on responses to questions on eating breakfast, lunch, and dinner at home within past 7 days. Meals at school based on responses to questions on eating breakfast, lunch, and dinner at school within past 7 days. Fun scale based on responses to questions on hours adolescents spend on social media, watching television, and playing video games. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out. Parental Support based on responses to questions on parental support for physical activities, school activities, and support within the home. Mom and dad's weight based on responses to questions on how adolescents perceive their mom and dad's weight.

Participants residing in the western region reported somewhat lower frequency of physical activity ($p\text{-value} = 0.10$ for 60 minutes/day) although there was considerable missing data for this variable. Adolescents who resided in the eastern, western, and other regions engaged in physical activity for at least 60 minutes per day for 0-3 days per week (62 adolescents, 40%). Adolescents who resided in the eastern, western, and other regions engaged in physical activity for at least 60 minutes per day for 4-7 days per week (63 participants, 41%). Adolescent residents of the eastern region were more likely to report their neighborhood to be "hard" on the walkability scale (62.5%) compared to those in western region (37.5%; $p=0.06$). The aesthetics scale, was statistically significantly associated with neighborhood region ($p\text{-value} = 0.003$). Fifty-four percent of adolescents in the eastern region versus 33.9% of adolescents in the western region, and 11.3% in other reported their neighborhood as not aesthetically pleasing.

The comfort scale also was statistically significant to neighborhood region ($p\text{-value} = 0.05$). Participants in the eastern region were somewhat more likely to report being comfortable working out ($50/58 = 86\%$) than those in the western ($50/69 = 72\%$) or other ($18/26 = 69\%$) regions. Most adolescents from the eastern region (30 adolescents, 36.6%) and western region (41 adolescents, 50%) reported high parental support. Approximately 21% of other reported low-mid parental support and 13.4% of other reported high

parental support (p-value = 0.67). Results of univariate analyses are shown in Table 4.

(Table C22 in the Appendix displays variables that are not significant as well.)

Table 4. Univariable Odds Ratios for Overweight/Obesity by Demographic and Perception Covariates, SHAPE Study (n=145).

Unadjusted Model¹	Odds Ratio	95 % CI²
Grade		
6 th – 8 th	1.00	
9 th – 12 th	1.78	0.91 – 3.47
Neighborhood Region³		
Eastern Region	1.00	
Western Region	1.81	0.87 – 3.74
Other	1.68	0.63 – 4.37
Median Household Income⁴		
Less than \$25,000	1.00	
More than \$25,000	1.83	0.87 – 3.83
Perceptions of Weight⁵		
Normal weight	1.00	
Overweight	68.40	9.04 – 517.61
Weight goals⁵		
Stay the same/nothing	1.00	
Lose weight	10.67	4.37 – 26.05
Gain weight	0.59	0.21 – 1.65
Fruit and Veggie Scale⁵		
Inadequate intake	1.00	
Adequate intake	1.85	0.89 – 3.79
Fun Scale⁵		
0 - 3 hours per day	1.47	0.71 – 3.02
4 + hours per day	1.00	
Comfort Scale⁵		
Mild to moderately comfortable	1.53	0.68 – 3.41
Comfortable working out	1.00	
Mom's weight⁵		
Normal weight	1.00	
Overweight	2.01	0.96 – 4.22
Dad's weight⁵		
Normal weight	1.00	
Overweight	3.98	1.70 – 9.31
Afraid Scale⁵		
Not Afraid	1.00	
Moderately Afraid	2.22	0.95 – 5.17
Afraid	0.75	0.31 – 1.78

¹ Participants were restricted to those who have the outcome of the given analysis.

² 95% CI, 95% Confidence Interval

³ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

- ⁴ Neighborhoods with a median household income less than 25K includes Algonquin (\$19,894), California (\$16,591), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).
- ⁵ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Fun scale based on responses to questions on hours adolescents spend on social media, watching television, and playing video games. Comfortability based on responses to questions in regards to how comfortable adolescents were working out. Mom and dad's weight based on responses to questions on how adolescents perceive their mom and dad's weight. Afraid based on response to questions on whether adolescent' are afraid of people in the neighborhood.

The only aspect of the built environment that was significant based on the criterion p-value of 0.40 was the afraid scale (p-value = 0.02; Specific Aim 1-4). Grade and gender were included in all multivariable models in Specific Aims 2 – 4 as demographic characteristics and potential covariates. Specific Aim 3-4 included neighborhood region (p-value = 0.24) in the purposeful selection models. Median household income (p-value = 0.10) was significant based on the criterion p-value of 0.40 and subsequently entered into multivariable models in Specific Aims 3 - 4. The perception variables that met the screening criterion of $p < 0.40$ included: perceptions of weight (p-value = < 0.00 ; Specific Aim 2-4), weight goals (p-value = < 0.00 ; Specific Aim 2 - 4), fruit and veggie scale (p-value = 0.10; Specific Aim 2-4), fun scale (p-value = 0.29; Specific Aim 4), comfort scale (p-value = 0.30; Specific Aim 2), mom's weight (p-value = 0.06; ; Specific Aim 4), and dad's weight (p-value = 0.00; Specific Aim 4).

Results for Specific Aim 2

Specific Aim 2 examined the interrelationship between each aspect of the perceived built environment, physical activity, and the outcome. The final covariates in the adjusted model increased the model's fitness; the covariates included gender, perceptions of

weight variable, weight goals, and the comfort scale. (*The purposeful selection models for Specific Aim 2 are located in Appendix D; Tables D1 – D27.*)

Table 5. Multivariable Logistic Regression Model for Associations of Perception of the Built Environment and Physical Activity with Overweight/Obesity, SHAPE Study (n=145).

Adjusted Model ^{1,2}	Odds Ratio	95% CI ³	p-value ⁴
Physical Activity (60 mins)⁵			
0 -3 days	0.55	0.17 - 1.71	0.30
4 – 7 days	1.00		
Afraid Scale⁶			
Not Afraid	1.00		0.00
Moderately Afraid	2.66	0.73 - 9.70	0.14
Afraid	0.24	0.05 - 1.09	0.06
Gender			
Male	1.00		
Female	0.45	0.13 - 1.59	0.22
Perceptions of Weight⁷			
Normal weight	1.00		
Overweight	36.30	3.38 - 389.60	0.0030
Weight Goals⁷			
Not trying/Stay the same	1.00		0.00
Lose weight	4.84	1.34 - 17.54	0.02
Gain weight	0.35	0.08 - 1.49	0.15
Comfort Scale⁷			
Comfortable	1.00		
Mild to moderately comfortable	2.86	0.67 - 12.15	0.16

¹ Built environment defined as aspects within the neighborhood (1) walkability scale; (2) aesthetics scale; (3) accessibility scale; (4) traffic scale; (5) crime scale; (6) afraid scale.

² Participants were restricted to those who have the outcome of the given analysis.

³ 95% CI, 95% Confidence Interval

⁴ The p-value presented for each categorical variable is the Chi-Square statistic.

⁵ Physical activity based on response to question: How many days, did you exercise or participate in physical activity for at least 60 minutes per day or more? (1) 0 - 3 days (2) 4 – 7 days.

⁶ Afraid scale based on response to questions on whether adolescent' are afraid of people in the neighborhood.

⁷ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out

Physical activity and the afraid scale showed significance after adjusting for covariates in the model. The adjusted odds of being overweight or obese was 0.55 (95% CI: 0.17 - 1.71; p-value = 0.30) for adolescents who exercised an average of 0 -3 days a week than

those who exercised an average of 4 -7 days a week. The odds of adolescents who were moderately afraid of people within their environment were 2.66 greater for overweight or obese than adolescents who were not afraid of people within their environment after adjusting for physical activity and covariates (95% CI: 0.73 - 9.70, p-value = 0.14). The following tests measured the goodness of fit for the above model: the Nagelkerke R-square (0.61) and the Hosmer and Lemeshow Goodness of Fit Test (p-value=0.64). Therefore, about 61% of variation in body size can be explained by the independent variables. Also, multi-collinearity did not exist in the models for Specific Aim 2.

Results for Specific Aim 3

The objective of Specific Aim 3 was to evaluate the relationship between West Louisville's neighborhood regions, each aspect of the built environment, physical activity levels, perceptions of the environment, and adolescent obesity. Table 6 displays the final adjusted logistic regression model. (*The purposeful selection models for Specific Aim 3 are located in the Appendix E, Tables E1 – E28.*)

Table 6. Multivariable Logistic Regression Model for Neighborhood Region, Perceptions of Built Environment, Physical Activity (60 minutes) in Relation to Overweight/Obesity, SHAPE Study (n=145).

Adjusted Model ¹⁻⁴	Odds Ratio	95% CI ⁵	p-value ⁶
Physical Activity (60 minutes)			
0 – 3 days	0.41	0.10 - 1.59	0.20
4 – 7 days	1.00		
Neighborhood Region			
Eastern Region	1.00	0.62 - 10.17	0.20
Western Region	2.51		
Other	8.91		
Walkability Scale⁷			
Difficult	1.00	0.01 - 3.75	0.30
Medium	0.22		
Easy	0.09		

Adjusted Model ¹⁻⁴	Odds Ratio	95% CI ⁵	p-value ⁶
Traffic Scale⁷			
No Traffic	1.00		
Traffic	0.52	0.15 - 1.83	0.30
Crime Scale⁷			
No Crime	0.43	0.09 – 2.04	0.29
Crime	1.00		
Afraid Scale⁷			
Not Afraid	1.00		
Moderately Afraid	2.71	0.58 – 12.67	0.21
Afraid	0.32	0.02 – 0.99	0.05
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	2.41	0.69 - 8.40	0.17
Gender			
Male	1.00		
Female	0.32	0.06 – 12.67	0.17
Perceptions of Weight⁸			
Normal weight	1.00		
Overweight	18.94	1.70 – 210.67	0.02
Weight Goals⁸			
Not try/Stay the same			
Lose Weight	13.80	2.49 - 76.55	0.00
Gain Weight	0.21	0.03 - 1.30	0.10
Comfort Scale⁸			
Comfortable	1.00		
Mild to Moderately Comfortable	2.15	0.43 – 10.73	0.35

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Built environment defined as aspects within the neighborhood (1) walkability scale; (2) aesthetics scale; (3) accessibility scale; (4) traffic scale; (5) crime scale; (6) afraid scale.

³ Physical activity based on response to question: How many days, did you exercise or participate in physical activity for at least 60 minutes per day or more? (1) 0 - 3 days (2) 4 – 7 days

⁴ Participants were restricted to those who have the outcome of the given analysis.

⁵ 95% CI, 95% Confidence Interval

⁶ The p-value presented for each categorical variable is the Chi-Square statistic.

⁷ Walkability based on response to questions on the ability to walk to certain places within an adolescents' neighborhood. Traffic based on response to questions on whether traffic and traffic control exist in neighborhoods. Crime based on response to questions about crime in the neighborhood. Afraid based on response to questions on whether adolescents' are afraid of people in the neighborhood.

⁸ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out.

The afraid scale was the only main effect or aspect of the built environment in Specific

Aim 3 that exhibited standard significance. Variables in the model included physical

activity (60 minutes), neighborhood region, walk scale, traffic scale, crime scale, and afraid scale. Grade, gender, perceptions of weight, weight goals, and comfort scale increased the model's fitness by decreasing the p-value of the main-effects, neighborhood region, and physical activity. Goodness of fit for the above model was measured by the Nagelkerke R-square (0.67), and the Hosmer and Lemeshow Goodness of Fit Test (p-value = 0.32). Therefore, about 67% of variation in body size can be explained by the independent variables. Also, multi-collinearity did not exist in Specific Aim 3 models. The odds of being overweight or obese for adolescents who lived in the other neighborhood region was 8.91 times greater than the odds of being overweight or obese for adolescents who lived in the eastern neighborhood region after adjusting for the variables in Table 6 (95% CI: 1.08 - 73.73; p-value = 0.04). Adolescents with easy walkability within their neighborhoods were 91% less likely to be overweight or obese than adolescents with difficult walkability within their neighborhood after adjusting for covariates and main effects (95% CI: 0.00 - 1.83; p-value = 0.09). After adjusting for covariates and main effects, adolescents with traffic in their neighborhood were 48% less likely to be overweight or obese than those without traffic in their neighborhood (95% CI: 0.15 - 1.83; p-value = 0.30). Adolescents who did not reported crime within their neighborhood were almost 57% less likely to be obese or overweight than those who reported crime within their neighborhood after adjusting for covariates and main effects (95% CI: 0.09 - 2.04; p-value = 0.29).

Results for Specific Aim 4

Specific Aim 4 evaluated the relationship between adolescents' perception of self- and parental- body size and parental support with body size. (*The purposeful selection models for Specific Aim 4 are located in Appendix F, Tables F1 – F7*).

Table 7. Multivariable Logistic Regression Model for Perception of Weight and Association with Overweight/Obesity versus Normal Weight, SHAPE Study (n=145).

Adjusted Model ^{1,2}	Odds Ratio	95% CI ³	p-value ⁴
Perceptions of Weight⁵			
Normal weight	1.00		
Overweight	57.21	6.45 – 507.18	0.0003
Fruit and Veggie Scale⁵			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie	5.39	1.68 – 17.33	0.00
Perception of Mom's Weight⁵			
Normal weight	1.00		
Overweight	1.86	0.50 – 6.92	0.35
Perception of Dad's Weight⁵			
Normal Weight	1.00		
Overweight	5.97	1.61 – 22.17	0.01
Median Household Income⁶			
Less than \$25,000	1.00		
More than \$25,000	2.84	0.98– 8.24	0.06

¹ Perceptions about weight based on response to question on: how the participant describes their weight as very underweight, slightly underweight, about the right weight, slightly overweight, and very overweight.

² Participants were restricted to those who have the outcome of the given analysis

³ 95% CI, 95% Confidence Interval

⁴ The p-value presented for each categorical variable is the Chi-Square statistic.

⁵ Perceptions about weight based on response to question on how the participant describes their weight. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7. Mom and dad's weight based on responses to questions on how adolescents perceive their mom and dad's weight.

⁶ Neighborhoods with a median household income less than 25K includes Algonquin (\$19,894), California (\$16,591), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duval (\$25,044), and Shawnee (\$29,157).

Perception of being overweight was strongly associated with being overweight/obese (95% CI: 6.45 – 507.18; p-value = 0.00), suggesting that adolescents who had BMI's

above the cut point for overweight/obesity knew they were overweight/obese.

Adolescents who reported being overweight were 57.21 times more likely to be overweight or obese than those who reported being normal weight after adjusting for covariates. Those with a median household income greater than \$25,000 had 2.84 times the odds of being overweight or obese than adolescents with a median household income less than \$25,000 after adjusting for covariates and the perception of weight variable (95% CI: 0.98– 8.24; p-value =0.06). The following tests measured the goodness of fit for the above model: the Nagelkerke R-square (0.55) and the Hosmer and Lemeshow Goodness of Fit Test (p-value=0.72). Fifty-five percent of variation in body size can be explained by the independent variables and multi-collinearity did not exist in the models.

Table 8. Final Purposeful Selection Adjusted Logistic Regression Model – Odds Ratio and 95% Confidence Interval for Weight Goals in Association with Overweight/Obesity, SHAPE Study (n=145).

Adjusted Model^{1,2}	Odds Ratio	95% CI³	p-value⁴
Weight Goals⁵			
Not try/Stay the same			
Lose weight	8.81	2.60 – 29.82	0.00
Gain weight	0.10	0.02 - 0.67	0.02
Gender			
Male	1.00		
Female	0.41	0.11 – 1.50	0.18
Fruit and Veggie Scale⁵			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie	3.17	1.00 – 10.11	0.06
Mom's weight⁵			
Normal weight	1.00		
Overweight	2.66	0.74 – 9.52	0.13
Dad's weight⁵			
Normal weight	1.00		
Overweight	4.32	1.24 – 15.05	0.02
Median Household Income⁶			
Less than \$25,000	1.00		
More than \$25,000	4.69	1.45 – 15.16	0.00

¹ Weight goals based on response to question: which of the following are you trying to do about your weight? The responses were lose weight, gain weight, stay the same weight, and I am not trying to do anything about my weight.

² Participants were restricted to those who have the outcome of the given analysis

³ 95% CI, 95% Confidence Interval

⁴ The p-value presented for each categorical variable is the Chi-Square statistic.

⁵ Perceptions about weight based on response to question on how the participant describes their weight. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Mom and dad's weight based on responses to questions on how adolescents perceive their mom and dad's weight.

⁶ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Weight goals was a statistically significant exposure variable in the above model (p-value <.00). In Table 8, Adolescents who wanted to lose weight were 8.81 times more likely to be overweight or obese than adolescents who wanted to stay the same weight after adjusting for covariates (95% CI: 2.60 – 29.82; p-value = 0.00). Those who wanted to gain weight were 10% less likely to be overweight or obese than those who wanted to stay the same weight after adjusting for covariates (95% CI: 0.02 - 0.67; p-value = 0.02). The following test measured the goodness of fit for the above model: the Nagelkerke R-square (0.57) and the Hosmer and Lemeshow Goodness of Fit Test (p-value = 0.90). Fifty-seven percent of variation in body size can be explained by the independent variables; multi-collinearity did not exist in the models.

Table 9. Multivariable Logistic Regression Model for Perception of Parental Support and its Association to Overweight/Obesity SHAPE Study (n=145).

Adjusted Model ^{1,2}	Odds Ratio	95% CI ³	p-value ⁴
Parental Support Scale⁵			
Low to mid-parental support	0.80	0.38 - 1.69	0.56
High parental Support	1.00		
Gender			
Male			
Female	1.44	0.65 - 3.15	0.36
Grade			
6 th – 8 th Grade			
9 th – 12 th Grade	1.54	0.72 - 3.25	0.26

Adjusted Model ^{1,2}	Odds Ratio	95% CI ³	p-value ⁴
Median Household Income⁶			
Less than \$25,000			
More than \$25,000	1.82	0.84 - 3.93	0.12

¹ Parental Support based on responses to questions (yes/no): encourage you to do physical activities or play sports; exercise or play sports with you; drive you to school-related activities; eat dinner with you; do any of your parents or guardians work long hours; and are any of your parents or guardians home after school.

² Participants were restricted to those who have the outcome of the given analysis

³ 95% CI, 95% Confidence Interval

⁴ The p-value presented for each categorical variable is the Chi-Square statistic.

⁵ Parental Support based on responses to questions on parental support for physical activities, school activities, and support within the home.

⁶ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table 9 displayed the final purposeful selection model for logistic regression with support scale as the primary exposure variable. The support scale was not significant in the above model (95% CI: 0.38 - 1.69; p-value: 0.56). The covariates in the model were significant based on the criterion p-value of 0.40. Only 5% of variation in body size can be explained by the independent variables (Nagelkerke R-Square =0.05). Also, multi-collinearity did not exist in the models. Table 10 displayed the final purposeful selection model for the perception of parental weight and its association to body size.

Table 10. Multivariable Logistic Regression Model for Perception of Parental Weight and Association with Overweight/Obesity. SHAPE Study (n=145).

Adjusted Model ^{1,2}	Odds Ratio	95% CI ³	p-value ⁴
Perception of Dad's Weight			
Normal Weight	1.00		
Overweight	4.17	1.29 – 13.43	0.02
Perception of Mom's Weight			
Normal Weight	1.00		
Overweight	1.15	0.33 – 3.95	0.83
Median Household Income⁵			
Less than \$25,000	1.00		
More than \$25,000	3.16	1.14 – 8.82	0.03
Fun Scale⁶			
0 – 3 hours per day	1.69	0.54 – 5.25	0.36

Adjusted Model ^{1,2}	Odds Ratio	95% CI ³	p-value ⁴
4+ hours per day	1.00		
Perception of Adolescents Weight⁶			
Normal weight	1.00		
Overweight	46.93	5.40 – 408.87	0.0005

¹ Mom or dad's weight based on responses to question: How would you describe your dad or male guardian's weight? The responses were very underweight, slightly underweight, about the right weight, slightly overweight, and very overweight.

² Participants were restricted to those who have the outcome of the given analysis

³ 95% CI, 95% Confidence Interval

⁴ The p-value presented for each categorical variable is the Chi-Square statistic.

⁵ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

⁶ Perceptions about weight based on response to question on how the participant describes their weight. Fun scale based on responses to questions on hours adolescents spend on social media, watching television, and playing video games.

Adolescents with overweight dads were 4.17 times greater odds of being overweight or obese than adolescents with normal weight dads (95% CI: 1.29 – 13.43; p-value: 0.02) after adjusting for covariates. Those who had the perception of overweight moms were 15% more likely to be overweight or obese than adolescents with normal weight moms (95% CI: 0.33 – 3.95; p-value: 0.83) after adjusting for covariates. Adolescents who watched television, played computer and video games, and engaged in social media an average of 0 -3 hours per day were 169% more likely to be overweight or obese than adolescents who took part in screen time for an average of 4+ hours a day after adjusting for covariates (95% CI: 0.54 – 5.25; p-value: 0.36). Goodness of Fit for Table 10 was measured by the Nagelkerke R-square (0.49), and the Hosmer and Lemeshow Goodness of Fit Test (p-value =.90). Therefore, about 49% of variation in body size can be explained by the independent variables and multi-collinearity did not exist in the models. Demographic characteristics (Specific Aim 1) and various risk factors were assessed in relationship to adolescents' body size (Specific Aim 2 – 4). Interestingly after adjusting

for covariates, one of the main covariates, physical activity displayed a protective effect to the outcome variable. In Specific Aims 2 – 4, the afraid scale, perceptions of weight, perceptions of mom and dad’s weight remained significant.

V. DISCUSSION

The overall objective of this study was to evaluate the association between adolescents' perceptions of their neighborhood environment and overweight/obesity as defined from BMI. The main effects included walkability, aesthetics, accessibility, traffic, crime, and fear of different types of people in the neighborhood. Only one aspect of the perceived built environment, fear of different types of people or the afraid scale, was significantly associated with overweight/obesity among adolescents residing in West Louisville. It is possible that perceptions of walkability, aesthetics, accessibility, traffic, and crime were not significantly associated with overweight/obesity status due to the small sample size and selection of adolescents. If more adolescents were surveyed from the nine neighborhoods of West Louisville, greater variation in questionnaire responses may have been detected. There is a possibility of selection bias associated with those adolescents who agreed to participate in the study compared to those who did not. The following discussion evaluates the significant variables within the analyses.

Afraid Scale

Overall, the afraid scale appeared to remain significant even after adjustment for gender, neighborhood region, grade, physical activity, perception of weight, weight goals, and the comfort scale. Several studies agree that fearful adolescents will avoid social interaction within their built environment, which can change their physical activity, social and

transportation patterns (177-181). Zani et al. showed that perceived social problems were associated with not feeling safe in an adolescent's community (181, 182). Exposure to violence can increase levels of fear in one's neighborhood (181), which was detected in this study. The below text from the female focus group held on March 17th, 2018 displays adolescents' exposure to violence.

Host: Look at #56, it's the last question. How do you feel about being asked questions about people in your neighborhood?

Taylor: I'm scared of homeless people.

Jayla: I don't know. I'm not really afraid of nobody. I just found out that my neighbor was an alcoholic or whatever.

Taylor: When they be rolling around with their cars with the windows down, I guess I be like they coming to close to the porch. I be calling my brother's name, I really be calling his name. And then when I go outside to take the trash outside and I'm by myself, I act like I'm talking to somebody.

Jayla: So, I hear like several drive-bys down my street, like cars going this way down my street. Like say [for example] I'm home alone and I hear a car speeding up or something I get scared yeah, Drug affiliations live like across from me.

Taylor witnesses a murder last Thanksgiving, a guy standing next to her was shot and killed.

Jayla witnesses her brother's murder. He was shot 9 times after leaving a parade in the neighborhood.

If adolescents experience psychological distress, they may have an elevated perception of physical harm or victimization. Adolescents who experience distress are more likely to engage in obesogenic sedentary behaviors than physical activity (39, 84). Once there is a chronic activation of a psychological distress response, eating unhealthy foods and limiting physical activity can become a coping mechanism (39, 84). Evenson et al. reported that a disordered neighborhood environment, directly depresses adolescents' engagement in physical activity (39, 85). By promoting crime, the environment may suppress adolescents' interest in physical activity

Nadine Burke Harris, MD the author of *The Deepest Well: Healing the Long-Term Effects of Childhood Adversity* explained the sources of toxic stress in the lives of disadvantaged children and adolescents (183). If children experience strong or continuous adversity – such as exposure to violence, inadequate parental support, physical or emotional abuse from adults or other peers, biological mechanisms could occur to cause toxic stress (183). Toxic stress is characterized as a continuous activation of the stress-response system (183). When the stress response is activated continuously or very strongly within a child’s biological system, receptors will not stop the two primary stress response systems, the hypothalamic-pituitary-adrenal axis (HPA) and the sympathetic-adrenal-medullary (SAM) axis, from secreting stress hormones into the bloodstream (183, 184). HPA ultimately releases cortisol in the blood and too much of this steroid hormone can cause weight gain (184). The SAM axis stimulates the physical reaction of fight or flight – secretion of epinephrine and norepinephrine – which increase a person’s heart rate, blood pressure, respiration, blood flow, and slows down the digestive system(184). Once the HPA or SAM axis no longer deactivates, the body’s stress thermostat is broken and cortisol is chronically released into the body(183).

The prolonged stimulation of stress-response systems can interfere with the physiological development of the brain’s structure and organs (183). Prolonged activation of stress-response can increase the risk for diseases well into adulthood. These diseases consist of obesity, diabetes, cancer, stroke, heart disease, and even Alzheimer’s disease (183).

Burke Harris stated that the child or adolescent’s “mind may not remember the stress of the traumatic experience, but the body will always remember” (183).

Adolescents who are afraid of adults, bullies, gangs, or peers within their neighborhoods may experience continuous stress. These elevated stress levels may be reflected in negative perceptions of their environment, social support systems, and health.

Adolescents who were afraid of different types of people in their neighborhood remained protective to the outcome variable in each specific aim. In Table C10, Appendix C, the distribution of the categorical variables of gender and age were statistically different in relationship to the afraid scale (p-value = 0.02, p-value = 0.05, respectively). A higher percentage of females reported being moderately afraid of people in their neighborhood, and a higher percentage of adolescents ages 12-13 years reported being afraid. In Table 1, 145 adolescents reported their height and weight measurements. Sixty-nine adolescents, almost half of the participants who reported the outcome, were ages 12-13 years and 50.7% of them reported normal weight. There's a possibility that limited variation in the study influenced the risk of overweight/obesity for adolescents who reported being afraid of different types of people in their neighborhood.

Perception of Adolescents' Weight

The self-perception of weight was significantly associated with body size after adjusting for covariates (gender, fruit and veggie scale, perception of mom and dad's weight, ethnicity, and median household income). Forty-one adolescents perceived themselves as overweight and 81 adolescents perceived themselves as normal weight. The body size variables (normal weight vs overweight/obesity) consisted of 79 overweight/obese adolescents. Desmond et al. suggest that fewer black females consider themselves overweight because their perception of weight is compared to other black females (185).

Also, being overweight or obese isn't necessarily associated with negative connotations that may exist in other cultures (185). In the same study, males were more likely to perceive themselves as thinner (185).

Adolescents' Weight Goals

Adolescents' weight goals were significantly associated with body size after adjusting for covariates (gender, fruit and veggie scale, mom and dad's weight, ethnicity, and median household income). According to the NHANES Study, 2011-2014, boys who considered themselves to be overweight were more likely to have weight loss goals than boys who perceived themselves to be or normal weight. They were also less likely to meet the physical activity recommendations (186). Girls who perceived themselves to be overweight were more likely to have weight loss goals; they also reported less physical activity (186).

Perception of Mom and Dad's Weight

In Specific Aims 1 and 4, dad or male guardian's weight remained statistically significant in relationship to body size (normal weight vs overweight/obesity). In Specific Aim 4, perception of dad's weight was analyzed as a main effect, alongside mom's weight. After adjusting for covariates (median household income, fun scale, and perception of weight) dad's weight remained significant.

In Specific Aim 1 and 4, mom or female guardian's weight was not significant in relationship to body size (normal weight vs overweight/obesity). In Specific Aim 4, mom's weight was analyzed as a main effect. After adjusting for covariates (median

household income, fun scale, dad's weight, and perception of weight) mom's weight was not significant.

Very few studies have examined the association between the perception of mom and dad's weight and adolescent obesity. Studies have examined the parental influences on the risk of adolescent obesity (187). These influences include parenting style, encouraging healthful behaviors, and parent feeding practices (187). A parents own food preferences, intake patterns, and eating behaviors influence children at a young age (188). Parental influence can persist through adolescence (188). The below text from the male focus group on March 3rd, 2018 may explain why adolescents have incorrectly reported their mother' weight.

4Boogie raises his hand.

Host: Yes, 4Boogie?

4Boogie: The um, question about the parents, uh, the one about the female, the mom. That one was messed up. I had to say that.

Host: You felt some type of way about it?

Everyone laughs.

4Boogie: It said did you feel like your mom was overweight or just the right amount of weight.

Mr. 502: I feel you too a little bit. I know what he was talking about. I feel like that too.

4Boogie: Cuz [Because] my dad told me to never tell a woman that she.. um..

Pablo: My mama, she be in the gym...

Host: Yeah that's right, never tell her. But, you can write it down on your questionnaire.

4Boogie: I was scared.

Median Household Income

In Specific Aim 4, the covariate, median household income remained statistically. As a covariate and confounder, median household income was associated with the perception of adolescents' weight, adolescents weight goals, and the perception of dad's weight. The median household income categories (less than \$25,000 and greater than \$25,000) are

both indicative of a low socioeconomic status; Chickasaw neighborhood has the highest median household income of \$31,497. It is more than likely that the perception of the adolescents' weight, weight goals, and parents' weight are influenced by income. In Paeratukul et al., perceptions of being overweight were higher for women with a higher income. The women with higher incomes were more likely to report the correct weight (189).

Physical Activity

Physical activity was not associated with the outcome variable. As covariates entered the model, physical activity's p-value would decrease. In Appendix D, Table. D15 as perception of weight entered the model, physical activity became protective of the outcome variable. In Appendix E. Table. E.13, again as perception of weight entered the model, physical activity became protective of the outcome. Perception of weight and adolescent weight goals were confounders to physical activity (60 minutes) in Specific Aim 2 and 3. Several studies have reported differences in physical activity levels in relation to the built environment (38, 190-192).

Limitations to the Study

There were several limitations to the study. First, the study's sample size was small (n=154), which resulted in limited statistical power. Also, several covariates had missing data. Variables with the most missing data were physical activity (60 minutes) (n=26), physical activity (20 minutes) (n=33), and median household income (n=27). Furthermore, 26 adolescents in the "other region" neighborhood variable, did not live in

one of targeted West Louisville neighborhoods. The missing data, including the unequal distribution of the neighborhood variable, could have skewed the results.

Recall bias may have existed during the completion of the questionnaire. The height and weight measurements were self-reported. It is possible that the adolescents may not have known their exact height and weight measurements. Likewise, adolescents may have perceived the height and weight questions as hurtful. If so, they could have reported a false height and weight measurement. Adolescents had to respond to a total of 56 questions on the SHAPE Questionnaire. Despite the effort in Phase I to tailor the questionnaire to be age and culturally appropriate, it is uncertain whether or not participants understood each question. The SHAPE team was available to explain and answer questions from each participant. If the sentences were not fully understood, questions may not have been answered in the context in which they were given. Also because of the length of the questionnaire, the participants could have experienced weariness and accelerated the process of completing the survey by responding falsely to survey questions. Inaccurate responses to survey questions could also skew the results of the study.

The questionnaires were administered to adolescents during their summer break, at the end of July through mid-August. Only a few adolescents completed the questionnaire during their first week of school. The questionnaire examined a snap-shot in time. Therefore, it is possible that their responses may have differed during the school year. Although there were questions that began with “on an average school day”, recall bias could have occurred.

The quality of research from the focus groups were heavily dependent on the individual skills of the facilitator and the facilitator's personal biases. Although majority of the adolescents from both focus groups discussed their perceptions of the SHAPE questionnaire, it is conceivable that adolescent males and females were hesitant to fully disclose their thoughts and feelings to the focus group facilitator. Also, the pressure of voicing their concerns to a group of their peers may have occurred. In turn, this may have lessened the quality of research from the focus groups. During the thematic analysis, one person selected themes for the perceptions and revisions of the SHAPE Questionnaire. Usually, multiple researchers of a study select themes and agree upon a set of themes for a focus group (193).

During the analysis of the focus groups, the content validity of the questionnaire was validated instead of the construct validity. The content validity focuses on the content of the questionnaire, it is an assessment of the survey items and the degree in which they match the objectives of the questions (194). The construct validity is traditionally defined as the degree in which a survey measures what it claims to measure (194). Construct validity has been known as the stronger validity technique of the two; construct validity measures external validity or the generalizability of the survey instrument (194).

Moreover, the design was that of a pilot study, which is why the focus was more on content (internal) than on construct (external) validity. Should the SHAPE Study lead to a larger study, external validation of the questionnaire would of course be a goal.

Selection bias could have existed as well. The participants of the SHAPE Study may have been more likely to participate in comparison to other adolescents who resided in the

same neighborhood region. Because of the limitations above, the results of the study may not be generalizable to West Louisville.

Strengths of the Study

There were several strengths of the SHAPE Study. First, this was possibly the first pilot study conducted to evaluate the relationship between the perceptions of the built environment and adolescent obesity. This pilot study is seen as a mini version of a full-scale study (195). In this pilot study, a research instrument – the SHAPE questionnaire - was validated and tested on 154 adolescents. The study provided us with approaches, ideas, and techniques that we may not have considered in the design of a larger study e.g. subjective height and weight measurements vs objective height and weight measurements (195) and how to how to probe perceptions such as walkability, aesthetics, accessibility, traffic, crime, and fear of the environment.

The study produced a proficient amount of data to agree upon the completion of a larger study(195). If needed, we have the ability to change the data collection methods and analyze data in a larger study more efficiently and precisely (195).

In this study, the community - based participatory research was a collaborative project with youth organizations, community centers, and research investigators. A rapport was built between organizations and the SHAPE study staff. This is vitally important to the conduct of a larger study. Trust in the community create links to important resources that are beneficial for all parties involved.

During the focus groups, we were able to obtain descriptive dialogue about the perceptions and opinions of the SHAPE Questionnaire. The adolescents also critiqued

punctuations, grammar, and definitions of study items (ex. junk food, video games, physical activity, etc.) that were missed by the researchers. Many adolescents disclosed struggles and hardships related to residing in a West Louisville neighborhood. The adolescents were not limited to specific questions about the questionnaire. The facilitator was able to steer the conversation or redirect it when necessary. The focus groups provided a range of information that aided in interpretation of the analyses of the questionnaire and the collected data.

The survey instrument, the SHAPE Questionnaire, was based on several nationally validated questionnaires, and was modified and qualitatively validated through age and culturally-representative focus groups to include questions specifically related to adolescents who resided in neighborhoods in West Louisville.

Data were collected and managed by an eight-member trained research team. The team was trained in recruitment methods, presentation delivery to parents and adolescents of informed consent and assent, focus group methods, and administration of the questionnaire.

This study utilized quantitative and qualitative methods to meet its objectives. Integration of the two methods provided a better solution than either alone. The two methods were able to counter weaknesses from each method. In-depth conversations about adolescents' perceptions of residing in West Louisville helped to counter the overall weakness.

In order to analyze data from each section of the SHAPE Questionnaire, scales were created from each aspect of the built environment and covariates. With scales, each potential covariate could be properly analyzed in a multivariate logistic model. The

aspects of the built environment (walkability, accessibility, aesthetics, traffic, crime, and fear of different types of people in the neighborhood) were subjective in nature. They were based on the perceptions of the youth in West Louisville. Many adolescents will be the future adult residents of Louisville, it is imperative to understand how to make the community a better place in which to reside.

Limited selection bias may have existed in the study. Adolescents who participated in the study were recruited from high traffic programs, mid-to low traffic programs, and local youth and health fairs. This recruitment technique may have helped to decrease the possibility for selection bias. Over 93% of the study sample was composed of Black adolescents. Although multiple races were invited to enter the study, West Louisville is mostly composed of non-Hispanic Blacks (78%) (12, 13). Hence, the study's racial composition was roughly representative of the population of West Louisville.

Future Implications

The pilot study provided important information on how to approach and recruit adolescent participants from the target community and provided a draft of an age and culturally appropriate questionnaire. It also revealed weaknesses in the questionnaire, as reflected in missing data, and ways to improve the sensitivity of perception, physical activity and diet scales. Analyses of the data collected also indicated ways in which variables could be coded, validated and analyzed with higher precision should a larger study be conducted. Perceptions of weight and weight goals are potential effect modifiers in the association between the built environment and adolescent obesity. Construct validity can be performed on the data by several quantitative analyses in order to identify

whether the SHAPE questionnaire measures what it claims to measure. Also, specific questions within the built environment and covariate data can be answered in its relationship to obesity. The main effect and covariates can be coded as outcome variables for future analysis.

A larger study should include a wider sample of West Louisville's neighborhoods, if not all neighborhoods throughout greater Louisville, with a greater diversity of racial/ethnic and socioeconomic position. It is important to understand better the full variation among built environments, including resident's perceptions of their environment, if policy makers and community stake-holders are to better understand structural and social inequities and inequalities that influence health outcomes such as overweight and obesity. While a limited pilot study, the SHAPE study points to the importance of understanding adolescents' perceptions of their environment as an integral part of the physical and social structure of their built environment. A longitudinal study that measures the perceptions of the built environment as they relate to risk for chronic diseases (obesity, diabetes, cancer) and mental health (toxic stress, depression, anxiety) would be needed confirm the causal relationships. Intervention programs for adolescents in such communities could be planned targeting coping mechanisms for emotional responses to the environment, such as fear and anxiety, in addition to physical activity and diet. Intervention programs should have the objectives of teaching coping mechanisms to adolescents, controlling anxiety levels, and possibly aid in limiting worrisome, untruthful thoughts and conquering fears. Physical activity and obesity interventions among adolescents can promote the importance of an active lifestyle and nutritional intake. With data from the SHAPE Study and future SHAPE Study analyses, policies can be

developed to enhance street connectivity, sidewalk and trail infrastructure, public transit infrastructure and access, and access to parks and other public recreational facilities in West Louisville (196).

Various researchers of the Adverse Childhood Experience (ACE) Study created training toolkits for pediatricians, residents, medical home teams and others to understand the adverse effects of violence in the lives of adolescents (197). The ACE study is one of the largest studies to investigate childhood trauma in association with health as an adult (198). The ACE test could be administered by medical professionals to better understand how to treat adolescents who have been exposure to violence (197). The ACE survey will provide a snapshot into the details of Adverse Childhood Experience (ACE) , which can facilitate conversations between medical professionals, parents, and adolescents about their trauma and how to reduce ACE scores for their children (197)

VI. CONCLUSION

This pilot study used a mixed-methods, community-based design in West Louisville, Kentucky and was conducted in three phases: Within the phases: the SHAPE questionnaire was assessed in a focus group setting, adolescents were recruited and administered the SHAPE Questionnaire, and the data was analyzed. Recommendations for a larger study were given. The study yielded a small, preliminary sample size of 154 participants. Purposeful selection of variables was evaluated utilizing logistic regression analyses. The afraid scale or fear of different types of people in the neighborhood was the only statistically significant aspect of the built environment association with adolescent obesity. This could be due in part to the small sample size and limited variation within the data. Adolescents who were moderately afraid of people within their environment (adults, peers, bullies, gangs, and homeless people) were more likely to be overweight or obese than those who were not afraid of different types of people within their neighborhood.

The findings associated with this study demonstrate the urgency to research the built environment, fear and stress levels of adolescents, and its toxic effects on adolescents' health. The built environment, which includes aspects of the neighborhood, natural and man-made, creates a climate that supports unhealthy eating, physical inactivity, a lack of social support, and potentially violence (199). Social disadvantage, including low socioeconomic status and race has been associated with increased levels of stress among adolescents (200). Also, Non-Hispanic Blacks continue to be unjustifiably affected by the

obesity epidemic (199). Future epidemiological studies should target at risk populations and identify the causal inference of fear and adolescent obesity within built environments. This information would aid in policy development, structural developments within built environments, and anxiety and obesity interventions.

REFERENCES

1. Prevention CfDca. Overweight and Obesity. 2018. (<https://www.cdc.gov/obesity/data/childhood.html>). (Accessed).
2. CDC. High School Youth Risk Behavior Survey. (<https://nccd.cdc.gov/youthonline/app/Results.aspx?LID=KY>). (Accessed).
3. CDC. Middle School Youth Risk Behavior Survey 2017.
4. Council NR, Population Co. *US health in international perspective: Shorter lives, poorer health*. National Academies Press; 2013.
5. Popkin BM, Duffey K, Gordon-Larsen P. Environmental influences on food choice, physical activity and energy balance. *Physiology & behavior* 2005;86(5):603-13.
6. Handy SL, Boarnet MG, Ewing R, et al. How the built environment affects physical activity: views from urban planning. *American journal of preventive medicine* 2002;23(2):64-73.
7. Papas MA, Alberg AJ, Ewing R, et al. The built environment and obesity. *Epidemiologic reviews* 2007;29(1):129-43.
8. Frank LD, Andresen MA, Schmid TL. Obesity relationships with community design, physical activity, and time spent in cars. *American journal of preventive medicine* 2004;27(2):87-96.
9. Adelman L. Unnatural causes: Is inequality making us sick? *Preventing Chronic Disease* 2007;4(4).
10. Commision LMHR. *Making Louisville Home for Us All: A 20 Year Action Plan for Fair Housing*. The commission; 2013.
11. B U. 2008 - 2012 American Community Survey 2012. (Accessed).
12. Combs R. Ever wonder why Louisville is so segregated? A brief history of West Louisville.; 2016. ((<https://www.facebook.com/notes/ryan-combs/ever-wonder-why-louisville-is-so-segregated-a-brief-history-of-west-louisville/592982694189505/>)). (Accessed).
13. Aubespain M, Clay K, Hudson JB. *Two Centuries of Black Louisville: A Photographic History*. Butler Books; 2011.
14. FBI. Louisville Metro Crime Rate Report (Kentucky). 2019. (<https://www.cityrating.com/crime-statistics/kentucky/louisville-metro.html>). (Accessed).
15. FBI. Homicide. *LMPD Homicide Unit; FBI's Uniform Crime Report Kentucky Vital Statistics*, 2011-2015.
16. Wolff B, Knodel J, Sittitrai W. Focus groups and surveys as complementary research methods: A case example. *Successful focus groups: Advancing the state of the art* 1993:118-36.

17. Set of Analyses by demographic researcher William Frey used the 1990, 2000, and 2010. Census.
18. Census of Population and Housing Summary Tape 3A. In: Characteristics CoPGP, ed. *United States Bureau of the Census*. Washington D.C. United States Department of Commerce, 1990.
19. League LU. The State of African-American Youth in Metropolitan Louisville. A *Preliminary Investigation*: Anthem Paper In, 2000.
20. Ryan Combs PD. Ever wonder why Louisville is so segregated? A brief history of West Louisville. 2016. (<https://www.facebook.com/notes/ryan-combs/ever-wonder-why-louisville-is-so-segregated-a-brief-history-of-west-louisville/592982694189505/>). (Accessed).
21. Bureau USC. 2008-2012 American Community Survey. 2012.
22. Meares WL, Gilderbloom JI, Squires GD, et al. Can renewal happen without removal? Case study of a poor black neighborhood on the rebound. *Community Development* 2015;46(2):111-32.
23. CDC Division of Nutrition PA, and Obesity. Defining Childhood Obesity. 2015. (<https://www.cdc.gov/obesity/childhood/defining.html>). (Accessed).
24. Hill JO, Wyatt HR, Peters JC. Energy balance and obesity. *Circulation* 2012;126(1):126-32.
25. Watters JL, Satia JA, Galanko JA. Associations of psychosocial factors with fruit and vegetable intake among African-Americans. *Public Health Nutrition* 2007;10(07):701-11.
26. Singh GK, Siahpush M, Kogan MD. Rising social inequalities in US childhood obesity, 2003–2007. *Annals of epidemiology* 2010;20(1):40-52.
27. Ogden CL, Carroll MD, Flegal KM. High body mass index for age among US children and adolescents, 2003-2006. *Jama* 2008;299(20):2401-5.
28. Belcher BR, Berrigan D, Dodd KW, et al. Physical activity in US youth: Impact of race/ethnicity, age, gender, & weight status. *Medicine and science in sports and exercise* 2010;42(12):2211.
29. KY. The State of Obesity in Kentucky 2017. (<https://www.stateofobesity.org/states/ky/>). (Accessed).
30. BRFSS. Location: Jefferson County 2017. (<http://www.kentuckyhealthfacts.org/data/location/show.aspx?cat=1,2,3,5,8,11&loc=56>). (Accessed).
31. Watters JL, Satia JA, Galanko JA. Associations of psychosocial factors with fruit and vegetable intake among African-Americans. *Public health nutrition* 2007;10(7):701-11.
32. Jago R, Harrell JS, McMurray RG, et al. Prevalence of abnormal lipid and blood pressure values among an ethnically diverse population of eighth-grade adolescents and screening implications. *Pediatrics* 2006;117(6):2065-73.
33. Leenders N, Sherman WM, Nagaraja H, et al. Evaluation of methods to assess physical activity in free-living conditions. *Medicine and science in sports and exercise* 2001;33(7):1233-40.
34. Jackson RJ, Dannenberg AL, Frumkin H. Health and the built environment: 10 years after. *American journal of public health* 2013;103(9):1542-4.

35. Galvez MP, Pearl M, Yen IH. Childhood obesity and the built environment: A review of the literature from 2008-2009. *Current opinion in pediatrics* 2010;22(2):202.
36. Trang NH, Hong TK, Dibley MJ, et al. Factors associated with physical inactivity in adolescents in Ho Chi Minh City, Vietnam. *Medicine & Science in Sports & Exercise* 2009;41(7):1374-83.
37. Mota J, Almeida M, Santos R, et al. Association of perceived environmental characteristics and participation in organized and non-organized physical activities of adolescents. *Pediatric Exercise Science* 2009;21(2):233-9.
38. Ding D, Sallis JF, Kerr J, et al. Neighborhood environment and physical activity among youth: a review. *American journal of preventive medicine* 2011;41(4):442-55.
39. Dulin-Keita A, Thind HK, Affuso O, et al. The associations of perceived neighborhood disorder and physical activity with obesity among African American adolescents. *BMC public health* 2013;13(1):440.
40. Franzini L, Taylor W, Elliott MN, et al. Neighborhood characteristics favorable to outdoor physical activity: disparities by socioeconomic and racial/ethnic composition. *Health & place* 2010;16(2):267-74.
41. Bishaw A. *Areas with concentrated poverty, 1999*. US Department of Commerce, Economics and Statistics Administration, US Census Bureau Washington, DC; 2005.
42. Cubbin C, Egerter S, Braveman P, et al. Where we live matters for our health: Neighborhoods and health. 2008.
43. Galvez MP, Hong L, Choi E, et al. Childhood obesity and neighborhood food-store availability in an inner-city community. *Academic pediatrics* 2009;9(5):339-43.
44. Kaczynski AT, Robertson-Wilson J, Decloe M. Interaction of perceived neighborhood walkability and self-efficacy on physical activity. *Journal of Physical Activity and Health* 2012;9(2):208-17.
45. Leslie E, Coffee N, Frank L, et al. Walkability of local communities: using geographic information systems to objectively assess relevant environmental attributes. *Health & place* 2007;13(1):111-22.
46. Ramirez LKB, Hoehner CM, Brownson RC, et al. Indicators of activity-friendly communities: an evidence-based consensus process. *American journal of preventive medicine* 2006;31(6):515-24.
47. Saelens BE, Handy SL. Built environment correlates of walking: a review. *Medicine and science in sports and exercise* 2008;40(7 Suppl):S550.
48. Wendel-Vos W, Droomers M, Kremers S, et al. Potential environmental determinants of physical activity in adults: a systematic review. *Obesity reviews* 2007;8(5):425-40.
49. Rosenberg D, Ding D, Sallis JF, et al. Neighborhood Environment Walkability Scale for Youth (NEWS-Y): reliability and relationship with physical activity. *Preventive medicine* 2009;49(2-3):213-8.
50. Saelens BE, Sallis JF, Black JB, et al. Neighborhood-based differences in physical activity: an environment scale evaluation. *American journal of public health* 2003;93(9):1552-8.

51. Yeung J, Wearing S, Hills AP. Child transport practices and perceived barriers in active commuting to school. *Transportation research part A: policy and practice* 2008;42(6):895-900.
52. Teixeira S. Beyond broken windows: Youth perspectives on housing abandonment and its impact on individual and community well-being. *Child Indicators Research* 2016;9(3):581-607.
53. Spelman W. Abandoned buildings: Magnets for crime? *Journal of Criminal Justice* 1993;21(5):481-95.
54. Perkins DD, Taylor RB. Ecological assessments of community disorder: Their relationship to fear of crime and theoretical implications. *Ecological research to promote social change*: Springer, 2002:127-70.
55. Vacant property: Growing number increases communities' cost and challenges. Governemnt Accountability Office, 2011, (Office iGA
56. Sampson RJ, Raudenbush SW. Systematic social observation of public spaces: A new look at disorder in urban neighborhoods. *American journal of sociology* 1999;105(3):603-51.
57. Lovasi GS, Bader MD, Quinn J, et al. Body mass index, safety hazards, and neighborhood attractiveness. *American journal of preventive medicine* 2012;43(4):378-84.
58. Austin MC. Nobody's Home: A look at the West Ends Vacant Properties. *Louisville Magazine* Louisville.com, 2017.
59. Oexle N, Barnes TL, Blake CE, et al. Neighborhood fast food availability and fast food consumption. *Appetite* 2015;92:227-32.
60. Davis B, Carpenter C. Proximity of fast-food restaurants to schools and adolescent obesity. *American Journal of Public Health* 2009;99(3):505-10.
61. Grocery Store Closings in Louisville, Kentucky, 2016. *Food Access by Census Tracts, 2015*. Kentucky Data Center: USDA Economic Research Service, Food Literacy Project 2016.
62. Schneider JDaG. Kroger Closing Old Louisville Store. *The Courier-Journal* Jan 6,2017, 2017.
63. Food Access in Jefferson County, Kentucky 2015. *Food Access by Market Area*. Kentucky State Data Center: USDA Economic Research Service, 2015.
64. Food Access in Jefferson County Census Tracts, Kentucky 2015. *Food Access by Census Tracts*. Kentucky State Data Center: USDA Economic Research Service, 2015.
65. Morland KB, Evenson KR. Obesity prevalence and the local food environment. *Health & place* 2009;15(2):491-5.
66. Smoyer-Tomic KE, Spence JC, Raine KD, et al. The association between neighborhood socioeconomic status and exposure to supermarkets and fast food outlets. *Health & place* 2008;14(4):740-54.
67. Black JL, Macinko J. Neighborhoods and obesity. *Nutrition reviews* 2008;66(1):2-20.
68. Sandy R, Tchernis R, Wilson J, et al. Effects of the built environment on childhood obesity: The case of urban recreational trails and crime. *Economics & Human Biology* 2013;11(1):18-29.

69. Timperio A, Salmon J, Telford A, et al. Perceptions of local neighbourhood environments and their relationship to childhood overweight and obesity. *International journal of obesity* 2005;29(2):170.
70. Jerrett M, McConnell R, Chang CR, et al. Automobile traffic around the home and attained body mass index: a longitudinal cohort study of children aged 10–18 years. *Preventive medicine* 2010;50:S50-S8.
71. Ferreira I, Van Der Horst K, Wendel-Vos W, et al. Environmental correlates of physical activity in youth—a review and update. *Obesity reviews* 2007;8(2):129-54.
72. Frank L, Kerr J, Chapman J, et al. Urban form relationships with walk trip frequency and distance among youth. *American journal of health promotion* 2007;21(4_suppl):305-11.
73. De Vries SI, Bakker I, Van Mechelen W, et al. Determinants of activity-friendly neighborhoods for children: results from the SPACE study. *American journal of health promotion* 2007;21(4_suppl):312-6.
74. Hume C, Salmon J, Ball K. Associations of children's perceived neighborhood environments with walking and physical activity. *American Journal of Health Promotion* 2007;21(3):201-7.
75. Alton D, Adab P, Roberts L, et al. Relationship between walking levels and perceptions of the local neighbourhood environment. *Archives of disease in childhood* 2007;92(1):29-33.
76. Lopez-Zetina J, Lee H, Friis R. The link between obesity and the built environment. Evidence from an ecological analysis of obesity and vehicle miles of travel in California. *Health & place* 2006;12(4):656-64.
77. Forsyth A, Wall M, Choo T, et al. Perceived and police-reported neighborhood crime: linkages to adolescent activity behaviors and weight status. *Journal of Adolescent Health* 2015;57(2):222-8.
78. Lovasi GS, Hutson MA, Guerra M, et al. Built environments and obesity in disadvantaged populations. *Epidemiologic reviews* 2009;31(1):7-20.
79. Diez Roux AV, Mair C. Neighborhoods and health. *Annals of the New York Academy of Sciences* 2010;1186(1):125-45.
80. Gomez JE, Johnson BA, Selva M, et al. Violent crime and outdoor physical activity among inner-city youth. *Preventive medicine* 2004;39(5):876-81.
81. Ries AV, Voorhees CC, Roche KM, et al. A quantitative examination of park characteristics related to park use and physical activity among urban youth. *Journal of Adolescent Health* 2009;45(3):S64-S70.
82. Larson N, Wall M, Story M, et al. Home/family, peer, school, and neighborhood correlates of obesity in adolescents. *Obesity* 2013;21(9):1858-69.
83. Carver A, Timperio A, Crawford D. Playing it safe: The influence of neighbourhood safety on children's physical activity—A review. *Health & place* 2008;14(2):217-27.
84. Burdette AM, Hill TD. An examination of processes linking perceived neighborhood disorder and obesity. *Social science & medicine* 2008;67(1):38-46.
85. Evenson KR, Scott MM, Cohen DA, et al. Girls' perception of neighborhood factors on physical activity, sedentary behavior, and BMI. *Obesity* 2007;15(2):430-45.

86. Davison KK, Birch LL. Childhood overweight: a contextual model and recommendations for future research. *Obesity reviews* 2001;2(3):159-71.
87. Weich S, Burton E, Blanchard M, et al. Measuring the built environment: validity of a site survey instrument for use in urban settings. *Health & place* 2001;7(4):283-92.
88. Govindasamy P, Stewart M, Rutstein S, et al. United Nations Children's Fund. The State of the World's Children 1997. Oxford: Oxford University Press, 1997.
89. Organization WH. Global Strategy on Diet, Physical Activity, and Health. 2017. (http://www.who.int/dietphysicalactivity/factsheet_young_people/en/). (Accessed April 2017).
90. Strong WB, Malina RM, Blimkie CJ, et al. Evidence based physical activity for school-age youth. *The Journal of pediatrics* 2005;146(6):732-7.
91. Troiano RP, Berrigan D, Dodd KW, et al. Physical activity in the United States measured by accelerometer. *Medicine and science in sports and exercise* 2008;40(1):181.
92. CDC. Youth Risk Behavior Surveillance System - Kentucky Results 2017. (<https://nccd.cdc.gov/youthonline/App/Results.aspx?LID=KY>). (Accessed).
93. CDC. High School Youth Risk Behavior Survey 2017. (<https://nccd.cdc.gov/Youthonline/App/Results.aspx?TT=A&OUT=0&SID=HS&QID=QQ&LID=XX&YID=2017&LID2=&YID2=&COL=S&ROW1=N&ROW2=N&HT=QQ&LCT=LL&FS=S1&FR=R1&FG=G1&FA=A1&FI=I1&FP=P1&FSL=S1&FRL=R1&FGL=G1&FAL=A1&FIL=I1&FPL=P1&PV=&TST=False&C1=&C2=&QP=G&DP=1&VA=CI&CS=Y&SYID=&EYID=&SC=DEFAULT&SO=ASC>). (Accessed).
94. Services USDoHaH. Physical Activity Guidelines Advisory Committee report. *Washington,DC* 2008.
95. Prevention CfDa. Physical Activity FAacts. *CDC* 24/7 2015.
96. Davison KK, Lawson CT. Do attributes in the physical environment influence children's physical activity? A review of the literature. *International journal of behavioral nutrition and physical activity* 2006;3(1):19.
97. McMillan TE. Urban form and a child's trip to school: the current literature and a framework for future research. *Journal of Planning Literature* 2005;19(4):440-56.
98. Ding D, Bracy NL, Sallis JF, et al. Is fear of strangers related to physical activity among youth? *American Journal of Health Promotion* 2012;26(3):189-95.
99. Panter JR, Jones AP, Van Sluijs EM. Environmental determinants of active travel in youth: a review and framework for future research. *International journal of behavioral nutrition and physical activity* 2008;5(1):34.
100. Hager ER, Witherspoon DO, Gormley C, et al. The perceived and built environment surrounding urban schools and physical activity among adolescent girls. *Annals of Behavioral Medicine* 2013;45(1):68-75.
101. Brodersen NH, Steptoe A, Boniface DR, et al. Trends in physical activity and sedentary behaviour in adolescence: ethnic and socioeconomic differences. *British journal of sports medicine* 2007;41(3):140-4.
102. Cheadle A, Psaty BM, Curry S, et al. Community-level comparisons between the grocery store environment and individual dietary practices. *Preventive medicine* 1991;20(2):250-61.

103. Ransley J, Donnelly J, Botham H, et al. Use of supermarket receipts to estimate energy and fat content of food purchased by lean and overweight families. *Appetite* 2003;41(2):141-8.
104. Laraia BA, Siega-Riz AM, Kaufman JS, et al. Proximity of supermarkets is positively associated with diet quality index for pregnancy. *Preventive medicine* 2004;39(5):869-75.
105. Darmon N, Ferguson EL, Briend A. A cost constraint alone has adverse effects on food selection and nutrient density: an analysis of human diets by linear programming. *The Journal of nutrition* 2002;132(12):3764-71.
106. Darmon N, Ferguson E, Briend A. Do economic constraints encourage the selection of energy dense diets? *Appetite* 2003;41(3):315-22.
107. Darmon N, Briend A, Drewnowski A. Energy-dense diets are associated with lower diet costs: a community study of French adults. *Public health nutrition* 2004;7(01):21-7.
108. Blitstein JL, Snider J, Evans WD. Perceptions of the food shopping environment are associated with greater consumption of fruits and vegetables. *Public health nutrition* 2012;15(06):1124-9.
109. Control CfD, Prevention. State-specific trends in fruit and vegetable consumption among adults---United States, 2000-2009. *MMWR Morbidity and mortality weekly report* 2010;59(35):1125.
110. Morland K, Wing S, Roux AD, et al. Neighborhood characteristics associated with the location of food stores and food service places. *American journal of preventive medicine* 2002;22(1):23-9.
111. Latham J, Moffat T. Determinants of variation in food cost and availability in two socioeconomically contrasting neighbourhoods of Hamilton, Ontario, Canada. *Health & Place* 2007;13(1):273-87.
112. Morland K, Filomena S. Disparities in the availability of fruits and vegetables between racially segregated urban neighbourhoods. *Public health nutrition* 2007;10(12):1481-9.
113. Powell LM, Slater S, Mirtcheva D, et al. Food store availability and neighborhood characteristics in the United States. *Preventive medicine* 2007;44(3):189-95.
114. Hersey J, Anliker J, Miller C, et al. Food shopping practices are associated with dietary quality in low-income households. *Journal of Nutrition Education* 2001;33:S16-S26.
115. Webber CB, Sobal J, Dollahite JS. Shopping for fruits and vegetables. Food and retail qualities of importance to low-income households at the grocery store. *Appetite* 2010;54(2):297-303.
116. Inagami S, Cohen DA, Finch BK, et al. You are where you shop: grocery store locations, weight, and neighborhoods. *American journal of preventive medicine* 2006;31(1):10-7.
117. Kolahdooz F, Butler JL, Christiansen K, et al. Food and nutrient intake in African American children and adolescents aged 5 to 16 years in Baltimore City. *Journal of the American College of Nutrition* 2016;35(3):205-16.
118. Adair LS, Popkin BM. Are child eating patterns being transformed globally? *Obesity* 2005;13(7):1281-99.

119. Schefske SD, Bellows AC, Byrd-Bredbenner C, et al. Nutrient analysis of varying socioeconomic status home food environments in New Jersey. *Appetite* 2010;54(2):384-9.
120. Franco M, Roux AVD, Glass TA, et al. Neighborhood characteristics and availability of healthy foods in Baltimore. *American journal of preventive medicine* 2008;35(6):561-7.
121. Carson JAS, Michalsky L, Latson B, et al. The cardiovascular health of urban African Americans: diet-related results from the genes, nutrition, exercise, wellness, and spiritual growth (GoodNEWS) trial. *Journal of the Academy of Nutrition and Dietetics* 2012;112(11):1852-8.
122. Rosinger A, Herrick K, Gahche J, et al. Sugar-sweetened Beverage Consumption Among US Youth, 2011–2014. *NCHS data brief* 2017;271:1.
123. Health UDo, Services H. 2015–2020 dietary guidelines for Americans. *Washington (DC): USDA* 2015.
124. Kit BK, Fakhouri TH, Park S, et al. Trends in sugar-sweetened beverage consumption among youth and adults in the United States: 1999–2010. *The American journal of clinical nutrition* 2013;ajcn. 057943.
125. Bassett DR, John D, Conger SA, et al. Trends in physical activity and sedentary behaviors of United States youth. *Journal of physical activity and health* 2015;12(8):1102-11.
126. Epstein LH, Roemmich JN, Paluch RA, et al. Influence of changes in sedentary behavior on energy and macronutrient intake in youth. *The American journal of clinical nutrition* 2005;81(2):361-6.
127. Williams DM, Raynor HA, Ciccolo JT. A review of TV viewing and its association with health outcomes in adults. *American Journal of Lifestyle Medicine* 2008;2(3):250-9.
128. Gortmaker SL, Must A, Sobol AM, et al. Television viewing as a cause of increasing obesity among children in the United States, 1986-1990. *Archives of pediatrics & adolescent medicine* 1996;150(4):356-62.
129. Crespo CJ, Smit E, Troiano RP, et al. Television watching, energy intake, and obesity in US children: results from the third National Health and Nutrition Examination Survey, 1988-1994. *Archives of pediatrics & adolescent medicine* 2001;155(3):360-5.
130. Lowry R, Lee SM, Fulton JE, et al. Healthy people 2010 objectives for physical activity, physical education, and television viewing among adolescents: National trends from the Youth Risk Behavior Surveillance System, 1999– 2007. *Journal of Physical Activity and Health* 2009;6(s1):S36-S45.
131. CDC. High School Youth Risk Behavior Survey 2017. (<https://nccd.cdc.gov/Youthonline/App/Results.aspx?TT=A&OUT=0&SID=HS&QID=QQ&LID=XX&YID=2017&LID2=&YID2=&COL=S&ROW1=N&ROW2=N&HT=QQ&LCT=LL&FS=S1&FR=R1&FG=G1&FA=A1&FI=I1&FP=P1&FSL=S1&FRL=R1&FGL=G1&FAL=A1&FIL=I1&FPL=P1&PV=&TST=False&C1=&C2=&QP=G&DP=1&VA=CI&CS=Y&SYID=&EYID=&SC=DEFAULT&SO=ASC>). (Accessed).
132. Alibegovic AC, Sonne MP, Højbjørre L, et al. Insulin resistance induced by physical inactivity is associated with multiple transcriptional changes in skeletal

- muscle in young men. *American Journal of Physiology-Endocrinology And Metabolism* 2010;299(5):E752-E63.
133. Hamilton MT, Hamilton DG, Zderic TW. Role of low energy expenditure and sitting in obesity, metabolic syndrome, type 2 diabetes, and cardiovascular disease. *Diabetes* 2007;56(11):2655-67.
 134. Voelker DK, Reel JJ, Greenleaf C. Weight status and body image perceptions in adolescents: current perspectives. *Adolescent health, medicine and therapeutics* 2015;6:149.
 135. Harriger JA, Thompson JK. Psychological consequences of obesity: weight bias and body image in overweight and obese youth. Taylor & Francis, 2012.
 136. Calzo JP, Sonnevile KR, Haines J, et al. The development of associations among body mass index, body dissatisfaction, and weight and shape concern in adolescent boys and girls. *Journal of Adolescent Health* 2012;51(5):517-23.
 137. Caccavale LJ, Farhat T, Iannotti RJ. Social engagement in adolescence moderates the association between weight status and body image. *Body image* 2012;9(2):221-6.
 138. Quick V, Eisenberg ME, Bucchianeri MM, et al. Prospective predictors of body dissatisfaction in young adults: 10-year longitudinal findings. *Emerging Adulthood* 2013;1(4):271-82.
 139. Bucchianeri MM, Arikian AJ, Hannan PJ, et al. Body dissatisfaction from adolescence to young adulthood: Findings from a 10-year longitudinal study. *Body image* 2013;10(1):1-7.
 140. Greer KB, Campione-Barr N, Lindell AK. Body talk: Siblings' use of positive and negative body self-disclosure and associations with sibling relationship quality and body-esteem. *Journal of youth and adolescence* 2015;44(8):1567-79.
 141. De La O A, Jordan KC, Ortiz K, et al. Do parents accurately perceive their child's weight status? *Journal of Pediatric Health Care* 2009;23(4):216-21.
 142. Baughcum AE, Chamberlin LA, Deeks CM, et al. Maternal perceptions of overweight preschool children. *Pediatrics* 2000;106(6):1380-6.
 143. Befort CA, Thomas JL, Daley CM, et al. Perceptions and beliefs about body size, weight, and weight loss among obese African American women: a qualitative inquiry. *Health Education & Behavior* 2008;35(3):410-26.
 144. Sutin AR, Terracciano A. Body weight misperception in adolescence and incident obesity in young adulthood. *Psychological science* 2015;26(4):507-11.
 145. Quick V, Nansel TR, Liu D, et al. Body size perception and weight control in youth: 9-year international trends from 24 countries. *International journal of obesity* 2014;38(7).
 146. Lim H, Wang Y. Body weight misperception patterns and their association with health-related factors among adolescents in South Korea. *Obesity* 2013;21(12):2596-603.
 147. Houldcroft L, Haycraft E, Farrow C. Peer and friend influences on children's eating. *Social Development* 2014;23(1):19-40.
 148. Oliver KK, Thelen MH. Children's perceptions of peer influence on eating concerns. *Behavior Therapy* 1996;27(1):25-39.
 149. Salvy S-J, Kieffer E, Epstein LH. Effects of social context on overweight and normal-weight children's food selection. *Eating behaviors* 2008;9(2):190-6.

150. Pinhas-Hamiel O, Dolan LM, Daniels SR, et al. Increased incidence of non-insulin-dependent diabetes mellitus among adolescents. *The Journal of pediatrics* 1996;128(5):608-15.
151. Herman KM, Craig CL, Gauvin L, et al. Tracking of obesity and physical activity from childhood to adulthood: the Physical Activity Longitudinal Study. *Pediatric Obesity* 2009;4(4):281-8.
152. Bleich SN, Ku R, Wang Y. Relative contribution of energy intake and energy expenditure to childhood obesity: a review of the literature and directions for future research. *International journal of obesity* 2011;35(1):1.
153. Katzmarzyk PT, Mason C. The physical activity transition. *Journal of Physical activity and Health* 2009;6(3):269-80.
154. Anderson PM, Butcher KF, Levine PB. Maternal employment and overweight children. *Journal of health economics* 2003;22(3):477-504.
155. Jung H, Chang C. Is Mothers' Work Related to Childhood Weight Changes in the United States? *Journal of Family and Economic Issues* 2016;37(4):581-93.
156. Ziol-Guest KM, Dunifon RE, Kalil A. Parental employment and children's body weight: Mothers, others, and mechanisms. *Social Science & Medicine* 2013;95:52-9.
157. Pesch MH, Appugliese DP, Kaciroti N, et al. Maternal encouragement and discouragement: Differences by food type and child weight status. *Appetite* 2016;101:15-22.
158. Fradkin C, Wallander JL, Elliott MN, et al. Associations between socioeconomic status and obesity in diverse, young adolescents: variation across race/ethnicity and gender. *Health Psychology* 2015;34(1):1.
159. Ogden CL, Carroll MD, Kit BK, et al. Prevalence of obesity and trends in body mass index among US children and adolescents, 1999-2010. *Jama* 2012;307(5):483-90.
160. Singh GK, Kogan MD, Van Dyck PC, et al. Racial/ethnic, socioeconomic, and behavioral determinants of childhood and adolescent obesity in the United States: analyzing independent and joint associations. *Annals of epidemiology* 2008;18(9):682-95.
161. Crouch V. School Meal Programs. 2012.
(<https://education.ky.gov/federal/SCN/Pages/School-Meal-Programs.aspx>).
(Accessed).
162. Lawman HG, Polonsky HM, Vander Veur SS, et al. Breakfast patterns among low-income, ethnically-diverse 4 th-6 th grade children in an urban area. *BMC public health* 2014;14(1):604.
163. Grynbaum M. With classroom breakfasts, a concern that some children eat twice. *The New York Times* 2012.
164. Fulkerson JA, Kubik MY, Story M, et al. Are there nutritional and other benefits associated with family meals among at-risk youth? *Journal of Adolescent Health* 2009;45(4):389-95.
165. Bursac Z, Gauss CH, Williams DK, et al. Purposeful selection of variables in logistic regression. *Source code for biology and medicine* 2008;3(1):17.

166. Bureau USC. American Community Survey. 2011-2015.
(http://ksdc.louisville.edu/research/sponsored_projects/louisville-neighborhood-profiles/). (Accessed 2018).
167. Brener ND, Collins JL, Kann L, et al. Reliability of the youth risk behavior survey questionnaire. *American journal of epidemiology* 1995;141(6):575-80.
168. Brener ND, McManus T, Galuska DA, et al. Reliability and validity of self-reported height and weight among high school students. *Journal of adolescent health* 2003;32(4):281-7.
169. Trost SG, Sallis JF, Pate RR, et al. Evaluating a model of parental influence on youth physical activity. *American journal of preventive medicine* 2003;25(4):277-82.
170. Organization WH. The use and interpretation of anthropometry physical status. Geneva: Report of a WHO study group. 1995.
171. CDC. Developed by the National Center for Health Statistics in Collaboration with the National Center for Chronic Disease Prevention and Health Promotion. 2000.
(<http://www.cdc.gov/growthcharts>). (Accessed).
172. Center KSD. Louisville Neighborhood Profiles 2018.
(http://ksdc.louisville.edu/research/sponsored_projects/louisville-neighborhood-profiles/). (Accessed).
173. USB. Poverty. United States Census Bureau; 2016.
(<https://www.census.gov/topics/income-poverty/poverty/about.html>). (Accessed).
174. Jewell NP. *Statistics for epidemiology*. Chapman and Hall/CRC; 2003.
175. Rohr SL. How well does the SAT and GPA predict the retention of science, technology, engineering, mathematics, and business students. *Journal of College Student Retention: Research, Theory & Practice* 2012;14(2):195-208.
176. Graham MH. Confronting multicollinearity in ecological multiple regression. *Ecology* 2003;84(11):2809-15.
177. Warr M. Fear of crime in the United States: Avenues for research and policy. *Criminal justice* 2000;4(4):451-89.
178. DuBow F, McCabe E, Kaplan G. *Reactions to crime: a critical review of the literature*. US Dept. of Justice, Law Enforcement Assistance Administration, National ...; 1980.
179. Skogan WG. *Disorder and decline: Crime and the spiral of decay in American neighborhoods*. Univ of California Press; 1992.
180. Conklin JE. *The impact of crime*. Macmillan New York; 1975.
181. Grinshteyn EG, Eisenman DP, Cunningham WE, et al. Individual-and neighborhood-level determinants of fear of violent crime among adolescents. *Family & community health* 2016;39(2):103-12.
182. Zani B, Cicognani E, Albanesi C. Adolescents' sense of community and feeling of unsafety in the urban environment. *Journal of community & applied social psychology* 2001;11(6):475-89.
183. Harris NB. *The deepest well: Healing the long-term effects of childhood adversity*. Houghton Mifflin Harcourt; 2018.
184. Compas BE. Psychobiological processes of stress and coping. *Annals of the New York Academy of Sciences* 2006;1094(1):226-34.

185. Desmond SM, Price JH, Hallinan C, et al. Black and white adolescents' perceptions of their weight. *Journal of School Health* 1989;59(8):353-8.
186. Xu F, Greaney ML, Cohen SA, et al. The Association between Adolescent's Weight Perception and Health Behaviors: Analysis of National Health and Nutrition Examination Survey Data, 2011–2014. *Journal of obesity* 2018;2018.
187. Berge JM, Meyer C, MacLehose RF, et al. All in the family: Correlations between parents' and adolescent siblings' weight and weight-related behaviors. *Obesity* 2015;23(4):833-9.
188. Anzman SL, Rollins BY, Birch LL. Parental influence on children's early eating environments and obesity risk: implications for prevention. *International journal of obesity* 2010;34(7):1116.
189. Paeratakul S, White MA, Williamson DA, et al. Sex, race/ethnicity, socioeconomic status, and BMI in relation to self-perception of overweight. *Obesity research* 2002;10(5):345-50.
190. Owen N, Humpel N, Leslie E, et al. Understanding environmental influences on walking: review and research agenda. *American journal of preventive medicine* 2004;27(1):67-76.
191. Giles-Corti B, Timperio A, Bull F, et al. Understanding physical activity environmental correlates: increased specificity for ecological models. *Exercise and sport sciences reviews* 2005;33(4):175-81.
192. Ball K, Timperio AF, Crawford DA. Understanding environmental influences on nutrition and physical activity behaviors: where should we look and what should we count? *International Journal of Behavioral Nutrition and Physical Activity* 2006;3(1):33.
193. Zierold KM, Welsh EC, McGeeney TJ. Attitudes of teenagers towards workplace safety training. *Journal of community health* 2012;37(6):1289-95.
194. Brown J. 1996: Testing in language programs. Upper Saddle River, NJ: Prentice Hall Regents. 1996.
195. Woken D. Advantages of a pilot study. Planning Research Papers 7. *Center for Teaching and Learning Springfield: University of Illinois* <http://www.UIS.EDU/CTL>(Downloaded October, 2012) 2002.
196. CDC. Physical Activity: Built Environment Approaches Combining Transportation System Interventions with Land Use and Environmental Design. 2016. (<https://www.thecommunityguide.org/findings/physical-activity-built-environment-approaches>). (Accessed).
197. Kerker BD, Storfer-Isser A, Szilagyi M, et al. Do pediatricians ask about adverse childhood experiences in pediatric primary care? *Academic pediatrics* 2016;16(2):154-60.
198. CDC. Violence Prevention. US Department of Health & Human Services. (<https://www.cdc.gov/violenceprevention/childabuseandneglect/acestudy/about.html>). (Accessed 2019).
199. Hager ER, Witherspoon DO, Gormley C, et al. The perceived and built environment surrounding urban schools and physical activity among adolescent girls. *Annals of Behavioral Medicine* 2013;45(suppl_1):S68-S75.
200. Goodman E, McEwen BS, Dolan LM, et al. Social disadvantage and adolescent stress. *Journal of Adolescent Health* 2005;37(6):484-92.

201. KSDC. Louisville Neighborhood Profiles 2018.
((http://ksdc.louisville.edu/research/sponsored_projects/louisville-neighborhood-profiles/)). (Accessed).

APPENDIX A

INSTITUTIONAL REVIEW BOARD (IRB)
APPROVED DOCUMENTS, (IRB 17.1180)

Focus Group – Study Protocol

Background/Rationale

In the Youth Risk Behavior Survey, 20.6% of high school students and 12.2% of middle school students in Kentucky reported no physical activity (1, 2). Children and adolescents are more likely to be influenced by their environment than their adult counterparts. If adolescents are not able to engage in physical activity, they are more susceptible to obesity and other chronic illnesses. Youth have less autonomy in their behaviors and exercise routines than adults (3, 4). Several research articles stress the importance of studying physical activity in youth, its relationship to obesity, race, urbanicity, and the built environment. The Louisville Metro area is 70.5% White non-Hispanic, 20.8% Black non-Hispanic, 4.4% Hispanic, 2.2% Asian, and 2.2% other races (5, 6). Overall West Louisville is 78% Black non-Hispanic. The poverty rate in West Louisville is three times the poverty rate of Louisville Metro, which is 16.5% (7, 8). Seventy percent of African-Americans have an overweight or obese body size compared to the US obesity average of 57% (9). Previous studies have also shown that African Americans do not change their dieting habits as readily as other ethnic groups (9). This act may increase the risk of weight-related diseases and increase the level of difficulty in weight loss. The Behavioral Risk Factor Surveillance System's (BRFSS) Prevalence and Trend's Data for Kentucky (2011) showed high overweight and obesity rates. Kentucky is the 10th ranked state for overweight and obese adults (66.2%) (10, 11). According to the Youth Risk Behavior Survey, 15.4% of high schoolers were overweight and 16.5% were obese (12, 15). Among middle schoolers, 17.6% were obese (12, 16).

The SHAPE (Survey of Health and the Perceived Environment) Questionnaire is designed to evaluate the association between the perceived built environment, physical activity, and obesity (body mass index) among adolescents (ages 12-17 years) who reside in West Louisville. The two focus groups will aid in the assessment of the questions that measure factors related to the built environment and physical activity, these factors are key in the promotion of healthier lifestyle within Jefferson county. The questionnaire is derived from a national youth questionnaire and a built environment questionnaire. Although the questionnaire has been validated, questions were added and revised to better fit the study's objective. Therefore, the SHAPE questionnaire has to be evaluated in order to know adolescents' perceptions about the questionnaire.

Objective

Assess the perceptions of a questionnaire designed to evaluate the relationship between health and the perceived environment among adolescents (ages 12-17y) who reside in West Louisville.

Specific Aims

- 1. To recruit a maximum of 20 participants, 7 to 10 females and 7 to 10 males, from a local church organization for the conduct of two focus groups (1 female, 1 male).**

Methods

Location: Bates' Our House

The focus groups will be conducted at a local youth center called Bates' Our House, which is affiliated with Bates Memorial Baptist Church and located at 729 Lampton Street, Louisville, KY 40203 (Smoketown neighborhood). Bates' Our House is a youth organization directed by Reverend Robin Self, Youth Pastor. During the week and two Sundays out of the month, adolescents

participate in after-school activities related to academic enhancement and Bible Study.

Recruitment

The goal is to recruit at least seven females and seven males between the ages of 12-17 years, respectively for each focus group. If seven to ten females and males participate in each focus group, there will be a maximum of 20 adolescents in the study. It is the intention to recruit at least one participant representing a single age. Promotional flyers will be placed in Bates' Our House. Bates' Our House leadership staff (primary source is Youth Pastor, Robin Self) will assist in informing the adolescents about the two focus groups and distribute informed consent documents.

Inclusion Criteria

The inclusion criteria include adolescents who speak English and are literate (can read and write). The participants will be 12-17-year-old adolescents who primarily reside in one of West Louisville neighborhoods. Only one adolescent per household can participate in the focus group.

Exclusion Criteria

The exclusion criteria of the focus group include adolescents who do not speak English and are not literate (can read or write). Children under the age of 12 and teenagers over the age of 17 will be excluded from the study. Also, adolescents who do not primarily reside in one of West Louisville neighborhoods will be excluded from the study.

Direct Recruitment – Informed Consent Document

In this study, there are two ways to obtain informed consent: indirectly from parents who received the informed consent document via adolescents and directly from meeting the parents.

In order to inform adolescents about the focus groups, the co-investigator, Colette Davis will meet with the adolescents on a Wednesday before Bible Study begins and before the Bates' Our House youth meetings, which are held on Sundays after church service. During the initial meeting, Colette Davis will introduce herself to the adolescents, explain the purpose of the focus groups and SHAPE questionnaire, describe the events that will take place in the focus group – which includes taking a questionnaire and expressing their feelings and thoughts about each section of the questionnaire.

Next, Colette Davis will explain the importance of collecting informed consent from their parents in order to participate in the study. The importance of

delivering the document to the parents in an enclosed envelope will be explained. The informed consent document must be returned in the same enclosed envelope, that is sealed. Last, Colette will discuss the place and time of the focus group and mention that Wingstop coupons will be given to adolescents who participate in the focus groups. When explaining the study and its contents to the adolescents, the focus group will be referred to as the discussion group.

Inside the envelope will be the cover page and the informed consent document. The cover letter that is attached to the consent document introduces co-investigator, Colette Davis (See attachment in this IRB application). The cover page informs the parents of the purpose and events of the focus group. The adolescent will return to Bates' Our House with a sealed envelope which contains the informed consent document. Once the documents are returned, they will be kept in a secured location, in a locked cabinet at Bates' Our House until the study team retrieves the documents. The informed consent documents will be examined by the study team to ensure that the parents have signed the documents correctly. If signed correctly, the documents will be placed in a locked cabinet in study team's office.

Indirect Recruitment – Informed Consent Document

The study team will be given time at a booth in order to promote the study. The booth will be set up after teen bible class service on Wednesday and on Sunday before and after church service at Bates' Our House. As parents are entering or exiting the building, Colette Davis will explain the study in detail to the parents and ask for their child's participation. Parents will be informed about the objective and goals of the focus group, the adolescents contribution to the study - which are to give their perceptions and feelings about the SHAPE questionnaire, and the events of the focus group (the adolescents will complete a questionnaire and discuss their feelings toward it), and the place and time of the focus group. Any questions or concerns the parents have will be answered during this time. The importance of the informed consent document will be explained to the parent. The co-investigator will review the document with the parents. Next, the parents will have the option of signing the informed consent at the booth or taking home an enclosed envelope which contains the cover page and informed consent document. They can then return the sealed envelope to the Bates' Our House, where it will be stored in a secure location. All documents collected by the co-investigator will be kept in a secure, locked file cabinet in the study team's office.

Specific Aims (continued)

- 2. To administer the SHAPE (Survey of Health and Perceived Environment) Questionnaire and facilitate a discussion with the adolescents on perceptions of the questions.**

Methods

Assent

When the adolescents come for the focus group, Colette Davis will greet them. Once the group has been settled, Colette will introduce herself and assent the adolescents. The focus group facilitators will review the assent forms with the adolescents. During this time, the facilitator will explain the purpose of the focus groups, the risk and benefits of the focus groups, that the focus groups are voluntary, and that the participants can stop at any time. Additionally, the facilitator will describe that the digital audio recorder will be used to tape the discussion. We will also explain the presence of the laptop, which will additionally be used to record the responses of the adolescents. The laptop is used in the event that the audio-recorder does not record the data. After the facilitator describes the assent, she will ask if the adolescents have any questions or concerns about the group discussion. Assent will be obtained before the SHAPE questionnaire is administered to adolescents. After signing the assent document, the adolescents will choose a mock name to be identified by during focus group. The adolescents will write their names on a name tag (blank sheet of paper), fold it, and place it in front of them on the table. This is another method to de-identify the adolescents; the transcripts from the audio-recorder will only include mock names.

Semi-structured Guide for Focus Group

The focus groups will be facilitated using a semi-structured guide. The semi-structured guide is an attached document in the IRB study protocol application. It is a detailed description of the focus group activities. After the focus groups have ended the transcripts from the focus groups will be evaluated to identify themes in the questionnaire based on the adolescents' perceptions and thoughts. Based on the themes that arose from the transcripts, the questionnaire will be revised.

Thematic Analysis

Because we do not have a priori knowledge of the adolescents' perceptions of the questionnaire, we will analyze the data using inductive thematic analysis. With inductive thematic analysis, themes are developed from the focus group data (17). With this analysis, consistent themes and patterns for each question will be acknowledged and used as the basis for editing the SHAPE questions. In order to generate the data for the analysis, the co-investigator, Colette Davis, will transcribe the audio recordings for analysis. After transcribing the recordings, the study team will meet to agree upon emanate themes that

occurred both within groups and across groups (17). After the main themes of the focus groups are identified and the questionnaire has been edited, the audio recordings will be destroyed from the focus groups. Furthermore, once the SHAPE questionnaire has been revised, the questionnaires that were answered by the focus group participants will be destroyed.

References

1. CFDA P. Physical Activity Facts. CDC 24/7 2015.
2. Kann L, Kinchen S, Shanklin SL, et al. Youth risk behavior surveillance—United States, 2013. 2014.
3. Davison KK, Lawson CT. Do attributes in the physical environment influence children's physical activity? A review of the literature. *International journal of behavioral nutrition and physical activity* 2006;3(1):19.
4. Panter JR, Jones AP, Van Sluijs EM. Environmental determinants of active travel in youth: A review and framework for future research. *International journal of behavioral nutrition and physical activity* 2008;5(1):34.
5. Commision LMHR. *Making Louisville Home for Us All: A 20 Year Action Plan for Fair Housing*. The commission; 2013.
6. USC B. 2008-2012 American Community Survey. 2012.
7. Ryan Combs P. Ever wonder why Louisville is so segregated? A brief history of West Louisville. 2016. ((<https://www.facebook.com/notes/ryan-combs/ever-wonder-why-louisville-is-so-segregated-a-brief-history-of-west-louisville/592982694189505/>)). (Accessed).
8. Aubespain M, Clay K, Hudson JB. *Two Centuries of Black Louisville: A Photographic History*. Butler Books; 2011.
9. Watters JL, Satia JA, Galanko JA. Associations of psychosocial factors with fruit and vegetable intake among African-Americans. *Public Health Nutrition* 2007;10(7):701-11.
10. OPPC KdfPh. Adult Obesity, Physical Activity, and Nutrition in Kentucky 2013:1-11.
11. CDC. BRFSS Behavioral Risk Factor Surveillance System: Prevalence and Trend Data- Physical Activity. In: Trends UP, ed. Stats, 2011.
12. CDC. The 2011 Youth Risk Behavior Survey. In: Health DoAaS, ed, 2011.
13. CDC. Pediatric Nutrition Surveillance System. In: Diviosn of Nutrition PA, and Obesity, ed, 2010.
14. Handy SL, Boarnet MG, Ewing R, et al. How the built environment affects physical activity: views from urban planning. *American journal of preventive medicine* 2002;23(2):64-73.
15. Dulin-Keita A, Thind HK, Affuso O, et al. The associations of perceived neighborhood disorder and physical activity with obesity among African American adolescents. *BMC public health* 2013;13(1):440.
16. Franzini L, Taylor W, Elliott MN, et al. Neighborhood characteristics favorable to outdoor physical activity: disparities by socioeconomic and racial/ethnic composition. *Health & place* 2010;16(2):267-74.
17. Zierold KM, Welsh EC, McGeeney TJ. Attitudes of teenagers towards workplace safety training. *Journal of community health* 2012;37(6):1289-95.

The
S.H.A.P.E Discussion Group
University of Louisville

The purpose of the SHAPE (Survey of Health and the Perceived Environment) discussion group is to understand your feelings towards the SHAPE questionnaire.

SHAPE Questionnaire → Did you understand the question? How do you feel about the question? How would you ask the question?

Who can participate? → Adolescents who are 12 – 17 years old, live in West Louisville, and willing to participate in a research project.

What will you be asked to do? → Complete Questionnaire

Tell us how you feel about the questions.

Relax and have fun!

For participating:

- ✓ You will receive delicious pizza!
- ✓ You will receive Wingstop coupons
- Free boneless wings

Contact Information:

If you have any questions or are interested in participating, please contact:

Colette Davis at (502) 852-0417 or (615) 498-4664

Dr. Stephanie Boone at (502) 852 – 2257

The S.H.A.P.E. Focus Group

University of Louisville
School of Public Health and Information Sciences
485 East Gray Street
Louisville, KY 40208

Dear Parents and Guardians,

My name is Colette Davis and I'm a PhD student at the University of Louisville. I am also a member of Bates Memorial Baptist Church and Young Adult Choir. Dr. Stephanie Boone, assistant professor in the Department of Epidemiology & Population Health, is the principal investigator of this study and a research mentor. I want to conduct a study that will provide insight into adolescents' health in West Louisville. Before the study can be conducted, the study's questionnaire has to be clear and concise. I will have two discussion groups in order to understand adolescents' feelings and perceptions about the questions within the SHAPE (Survey of Health and the Perceived Environment) questionnaire.

Two discussion groups will be held at Bates Memorial Baptist Church. My study team and I are asking for your child's participation in the discussion group. The discussion group will be held in February 2018.

During the discussion group, pizza and refreshments, will be provided. When the discussion group is over, Wingstop coupons will be given to your child for their time and effort during the discussion.

In order for your child to participate in the discussion group, we must receive your consent. The attached informed consent document will provide further details of the discussion groups. If you agree to allow your child to participate in the discussion group, please turn in a signed informed consent document to Bates Memorial Youth leadership staff, Youth Pastor Robin Self. If you have any questions, comments, or concerns, please contact me via email or phone. Thank you so much for your time.

Sincerely,

Colette Davis, PhD (c), MSPH, MS
cpdavi05@louisville.edu
502-852-0417 (office)
615-498-4664 (cell)

Participant Informed Consent Document

THE S.H.A.P.E. STUDY

Investigator(s) name & address: Colette Davis, 485 East Gray Street,
Louisville, KY 40202 Site(s) where study is to be conducted: Bates Memorial
Baptist Church
Phone number for subjects to call for questions: 502-852-0417

Introduction and Background Information

Your child is invited to participate in a discussion group. This study is being conducted by PhD Student Colette Davis and Professors: Stephanie Boone, PhD, Kristina Zierold, PhD, Richard Baumgartner, PhD, and Kathy Baumgartner, PhD. The study is sponsored by the University of Louisville, Department of Epidemiology and Population Health. The study will take place at Bates Memorial Baptist Church, located in Louisville, KY. Approximately 20 participants, 10 males and 10 females will be invited to participate.

Purpose

The objective of the discussion group is to understand adolescents' thoughts and feelings towards the questions within the SHAPE (Survey of Health and the Perceived Environment) study questionnaire. This questionnaire was created to help understand adolescent health in your neighborhood. There are questions about a child's neighborhood environment, engagement in physical activity, dietary intake, use of electronic devices, parent(s) support, and work hours. Before the questionnaire can be administered to adolescents in communities, the study team has to conduct a discussion group to ask adolescents (12 -17 years old), if they understand the questions.

Procedures

During the discussion group, your child will fill out the SHAPE questionnaire. Once your child has completed the questionnaire, your child will be asked about their perceptions of the questionnaire. For example, I will ask your child how he/she feels about a certain question. Your child may respond that he/she feels that the question was wordy, confusing, easy to understand, time consuming, or emotionally sensitive.

The questionnaire is anonymous. Students at your child's youth group between the

ages of 12- 17 will be asked to participate in the discussion group. If your child does not want to complete

the questionnaire or give us their opinion on the questions, your child can choose not to participate at all or can stop participating at any time.

The discussion group should take about 60 – 90 minutes of your child's time. The discussion groups will be audio recorded.

Potential Risks

There are minimal risks in this study. Nervousness, embarrassment, and discomfort may occur while explaining to study team and adolescents their opinion(s) about the questionnaire.

Benefits

There may be no direct benefits to the adolescents participating in this group. However, this discussion group will inform the study team about adolescents' feelings and perceptions regarding the SHAPE study questionnaire. The adolescents' perceptions will help to improve the SHAPE questionnaire, which will be used to understand the health of adolescents who reside in West Louisville.

Compensation

Upon the completion of the discussion group, adolescents will receive Wingstop coupons. Each coupon offers five free boneless wings of any flavor at any Wingstop location.

Confidentiality

Total privacy cannot be guaranteed. Your child's privacy will be protected to the extent permitted by the law. The study team will remind participants to respect the privacy of the fellow participants and not repeat what is said in the discussion group. If the results from this study are published, your child's name will not be made public. While unlikely, the following may look at the study records: The University of Louisville Institutional Review Board, and Human Subjects Protection Program Office Government agencies, such as the Office of Human Research Protections (OHRP).

Security

The following procedures will be used to protect the confidentiality of your child's study records: which includes audio files and completed questionnaires. At the beginning of the discussion group, your child will pick a name and write it on a place card. They will be identified by this name throughout the discussion group. Once the discussion group is completed, the study records will be kept in locked file cabinets in the investigator's locked office. A master key that links the names and questionnaires will be maintained in a separate and secure location. The key will be kept in a locked file cabinet in a locked office of the research team.

The audio tapes from the discussion groups will be transcribed. The tapes and the written transcripts will be kept in locked file cabinets in the research team's office. Only study team members will have access to these materials.

The audio tapes, questionnaires, and transcripts, will be destroyed after the study ends. All electronic files which may include spreadsheets and word documents containing identifiable information which will be password protected. The identifiable information consists of the study participants ages and addresses. The computer in the investigator's office will also have password protection to prevent access by unauthorized users. Only members of the study team will have access to the passwords.

Voluntary Participation

Taking part in this study is voluntary. You may choose to have your child participate by allowing him/her to participate in the discussion group. If you choose not to have your child participate, you do not have to sign and return this informed consent document. If you and your child decide to be in this study, he/she may stop taking part at any time.

Research Subject's Rights, Questions, Concerns, and Complaints

If you have any questions, concerns or complaints about the study or the study's staff, you have three options.

You may contact the principal investigator at 502-852-0417.

If you have any questions about your child's rights as a study subject, questions, concerns, or complaints, you may call the Human Subjects Protection Program office (HSPPO) at 502-852-5188. You may discuss any questions about your child's rights as a subject, in secret, with a member of the Institutional Review Board (IRB) or the HSPPO staff. The IRB is an independent committee composed of members of the University community, staff of the institutions, as well as lay members of the community not connected with these institutions. The IRB has reviewed this study.

If you want to speak to a person outside the University, you may call 1-877-852-1167. You will be given the chance to talk about any questions, concerns, or complaints in secret. This is a 24-hour hot line answered by people who do not work at the University of Louisville.

Acknowledgment and Signatures

This informed consent document is not a contract. This document tells you what will happen during the discussion group if you choose to allow your child to take part. Your signature indicates that the discussion group has been explained to you, that your questions have been answered, and that you will allow your child to take part in the discussion group. You are not giving up any legal rights to which you are entitled by signing this informed consent document. You will be given a copy of this consent form to keep for your records.

Subject Name (Please Print)

Signature of Subject

Date Signed

Printed Name of Legally

Signature of Legally

Date Signed Authorized

Representative (if applicable)

Authorized Representative

Authority of Legally Authorized Representative to act on behalf of Subject

<hr/> Printed Name of Person Explaining Investigator)	<hr/> Signature of Person Explaining Date Signed Consent Form Consent Form (if other than the
<hr/> Printed Name of Investigator	<hr/> Signature of Investigator
	Date Signed

LIST OF INVESTIGATORS	PHONE NUMBERS
Colette Davis, PhD (c)	(502) 852 - 0417
Stephanie Boone, PhD	(502) 852 - 2257
Kristina Zierold, PhD	(502) 852 - 0251
Richard Baumgartner, PhD	(502) 852 - 2038
Kathy Baumgartner, PhD	(502) 852 – 1894

PARTICIPANT ASSENT

Survey of Health and the Perceived Environment (SHAPE) Study

Discussion Group

I am invited to be in a discussion group being done by Colette Davis, PhD Student and Professors: Richard Baumgartner, PhD, Stephanie Boone, PhD, Kristina Zierold, PhD, and Kathy Baumgartner, PhD from the University of Louisville. Anyone who is in a discussion group is called a “participant”. I am invited to be a part of the study because I am 12 to 17 years old and live in West Louisville.

Participating means that I will take part in a survey about my neighborhood, which is the area that is within a 10 – 15-minute walk in any direction of my home. I will answer questions about my neighborhood. I will answer questions about being physically active (activities that cause me to breathe faster). I will answer questions about the food I have eaten over the past seven days, the amount of time I spend with electronics (an example would be a laptop, television, or game system), my parent(s) or guardian(s) support when it comes to exercising, and their work hours. When I finish the questionnaire, we will discuss if I understood the questions and how the questions made me feel in a group setting. My responses during the discussion will be audio recorded.

There may be some risks with this study. These risks are that I may feel uncomfortable explaining to the research team how I feel about the questions. If I feel uncomfortable, I will tell the study team and I can take a break.

This discussion group will last approximately 60 – 90 minutes. There is no benefit to me. However, this study will provide information that will help the study team understand more about adolescent health in my neighborhood.

After I finish the discussion group, I will be given Wingstop coupons to use at any Wingstop location.

My family and the study team will know that I’m in the study. If anyone else is given information about me, they will not know my name. A fake name will be used during the discussion group instead of my name. I have been told about this discussion group and know why it is being done and what I have to do. Taking part in this discussion group is voluntary. My parent(s) or guardian(s) have been informed about this study by a separate letter and I am

being allowed to participate. If I do not want to be in this study or I want to quit after I am already in the study, I will not receive the Wingstop coupons.

By signing below, I agree to participate.

Thank you for your participation.

Printed Name of Subject

Signature of Subject

Date Signed

Printed Name of Parent/Guardian

Printed Name of Investigator

Signature of Investigator

Date Signed

S.H.A.P.E. Focus Group - Semi-Structured Guide

Introduction

First, thank you all so much for agreeing to participate. Thank you for taking the time to join us to talk about the SHAPE questionnaire, which stands for the Survey of Health and the Perceived Environment. My name is Colette Davis and assisting me is Diana Kuo and Chisom Odoh. They will be taking notes, helping with the recording equipment, and the set-up. We are all with the University of Louisville.

Before we can begin the discussion group, everyone has to sign the assent form. We will discuss the assent form with you. *Once the assent forms are signed, begin the discussion group.*

In order to keep all of your comments private on the tape-recorder, we would like for you to create a name. During the discussion group, everyone will refer to you as “Spongebob, Superman, or WonderWoman. You can choose whatever name you like whether it’s a superhero name or regular name. In front of you is a piece of paper and a pencil. On the side of the table is box of markers. Please fold the paper in half and write your new name on it. You may use the markers to write your name in bold letters, if you wish.

IceBreaker Questions

Tell us your name, and answer one of the questions in front of you. (Assistant will pass out icebreaker sheet)

(All participants, moderator, and assistant can answer)

Begin with participants. (Please limit icebreaker responses for each person, 2 minutes max).

- What is your favorite movie and why?
- If you were a superhero, what special powers would you have?

Ground Rules

- Write down Start Time _____ P.M.

Now that you have all completed the ice-breaker, let us go over a few ground rules for the for the discussion section of the focus group.

- ☐ Follow my guidance about time and whose turn it is to talk.
- ☐ Please do not interrupt others while speaking and no personal attacks.
- ☐ When you are finished, please place the questionnaire down on your desk or table. You may leave the room to take a 2-3-minute break. Please be sure not to disturb anyone that is completing the questionnaire.
- ☐ Do you have any questions before we begin? (Answer questions.)
- ☐ You may start now.
- ☐ (Please write down the starting time). Starting Time _____ P.M.

Before We Begin

Before we begin our discussion ...

You were invited to participate in the discussion group because your input is valuable to this study. There are no right or wrong answers, just differing opinions about the questionnaire. Please feel free to share your point of view even if it is different from what others have said. Keep in mind that we are just as interested in negative comments as positive comments, and at times, the negative comments are the most helpful.

You have noticed the audio-recorder. As discussed, we are tape-recording the session because we don't want to miss any of your comments.

Well, let us begin. We have placed name cards on the table in front of you to help us remember each other's names. Let us find out some more about each other by going around the table.

Questions

Starting Time _____ P.M.

In this focus group, we will do an activity called **Think.Pair.Share.**

- ☐ Once, I read out a question, you will think about the answer to the question for thirty seconds.
- ☐ Next, you will share your answer with a partner, which is the person beside you. (If there is an odd number of participants, 3 people can be in

- one group).
- ☐ You will share your answer with your partner for about 30 seconds. Remember, your answers can vary. It does not have to be the same.
- ☐ Next, you will share your answers with the group.
- ☐ We will only use Think.Pair.Share for the first question of each section of the questionnaire.
- ☐ Any questions? Let us Begin.

Questions (continued)

- *Cover Page* (2-3 minutes)
 - After reading the cover page, is there any content that you would change? Why? Why not?
 - Example: PROBE: any words, formats, sentences, colors, etc.
 - Which directions didn't you understand?
 - What do you think about the time it took to answer the questionnaire?
 - PROBE: Was it too long, or too short?
 - PROBE: Did you need more time or less time?
 - Would you change the time that it takes to finish the questionnaire?
- *"My identity" Questions* (2-3 minutes)
 - If you could, what would you change about the "My identity" questions?
 - PROBE: column format, color, questions
 - Let us take a look at #4, How do you feel about being asked your race or ethnicity?
- *"My Height and Weight" Questions* (5 minutes)
 - How did you feel when you were asked about your weight and height?
 - How do you think your peers would feel about this question?
 - PROBE: embarrassed to answer, too hard to answer
 - Let us take a look at #6, How did you feel about being asked to describe your weight?
 - Please look at #7 and #8, How did you feel about being asked to write down your weight and height?
 - What do you think about the examples that were used for the height and weight question?
 - PROBE: too hard, confusing, etc.
 - How would you ask adolescents to write down their weight and height?
- *"My Physical Activity" Questions* (5 -15 minutes)
 - In the next section, I asked about your physical activity levels.
 - Could you all take turns defining physical activity and exercise?
 - What types of physical activity or exercise make you breathe hard?

- Do you think you had problems remembering your physical activity for the past 7 days?
 - PROBE: Why or Why not?
- Which questions took the longest to answer?
- Which words or terms were confusing in the physical activity section?
- “*My Food*” Questions (5 minutes)
 - What problems did you have with this section?
 - Which questions took longest time to answer?
 - Do you think you had problems remembering your physical activity for the past 7 days?
 - Look at #20 and #23, How did it make you feel to be asked whether or not you ate breakfast or dinner at home?
 - PROBE: Would you write these two questions differently?
 - What words or phrases didn’t you understand?
 - Which questions would you word differently?

Before the Break

- Were there any questions that made you feel angry?
- Were there any questions that made you feel sad?
 - PROBE: Which questions?
- Were there any questions that you did not want to answer? Which ones?

Stopping Break – (2-3 minutes)

Record Time
P.M.

- “*My Fun Time*” Questions (2 -3 minutes)
 - Which electronic devices should be included in this section?
 - What kind of questions should I add or take away from this section?
 - What questions did you think were asking about the same thing?
 - PROBE: If there aren’t any questions, please let me know.
- “*My Parent’s Support and their Work Hours*” Questions (2 -3 minutes)
 - How did you feel the questions that asked about for your parent’s support?
 - PROBE: sensitive topic, uncomfortable
 - How do you feel about being asked how often your parents are around on a day to day basis?
 - Look at # 37, How would you write this question?
 - Did you understand how to answer each question?
 - What question would you change in this section?
 - How would you change the table in this section?
- “*My Neighborhood*” Questions (5 minutes)
 - How do you feel about being asked personal questions about where you live?

- Which questions would you delete from this section?
- Please look at #56, how do you feel about being asked questions about people in your neighborhood?
- *End of Discussion Questions* (2-3 minutes)
 - Out of all the things we discussed today, what to you is the most important?
 - If you could ask adolescents about anything else, what would you ask them?

That concludes our focus group. Before you leave, if you have any information that you would like to share that you did not get to say about the focus group or the questionnaire, please feel free to write it on this form. Thank you so much for coming and sharing your thoughts and opinions with us.

End Time
 _____P.M.

Phase 1: Questionnaire Assessment via Focus Groups

Background/Rationale

In the Youth Risk Behavior Survey, 20.6% of high school students and 12.2% of middle school students in Kentucky reported no physical activity (1, 2). Children and adolescents are more likely to be influenced by their environment than their adult counterparts. If adolescents are not able to engage in physical activity, they are more susceptible to obesity and other chronic illnesses. Youth have less autonomy in their behaviors and exercise routines than adults (3, 4). Several research articles stress the importance of studying physical activity in youth, its relationship to obesity, race, urbanicity, and the built environment. The Louisville Metro area is 70.5% White non-Hispanic, 20.8% Black non-Hispanic, 4.4% Hispanic, 2.2% Asian, and 2.2% other races (5, 6). Overall, West Louisville is 78% Black non-Hispanic. The poverty rate in West Louisville is three times the poverty rate of Louisville Metro, which is 16.5% (7, 8). Seventy percent of African-Americans have an overweight or obese body size compared to the US obesity average of 57% (1). Previous studies have also shown that African Americans do not change their dieting habits as readily as other ethnic groups (1). This act may increase the risk of weight-related diseases and increase the level of difficulty in weight loss. The Behavioral Risk Factor Surveillance System's (BRFSS) Prevalence and Trend's Data for Kentucky (2011) showed high overweight and obesity rates. Kentucky is the 10th ranked state for overweight and obese adults (66.2%) (10, 11). According to the Youth Risk Behavior Survey, 15.4% of high schoolers were overweight and 16.5% were obese (12, 15). Among middle schoolers, 17.6% were obese (12, 16).

The SHAPE (Survey of Health and the Perceived Environment) Questionnaire is designed to evaluate the association between the perceived built environment, physical activity, and obesity (body mass index) among adolescents (ages 12-17 years) who reside in West Louisville. The two focus groups will aid in the assessment of the questions that measure factors related to the built environment and physical activity, these factors are key in the promotion of healthier lifestyle within Jefferson county. The questionnaire is derived from a national youth questionnaire and a built environment questionnaire. Although the questionnaire has been validated, questions were added and revised to better fit the study's objective. Therefore, the SHAPE questionnaire has to be evaluated in order to know adolescents' perceptions about the questionnaire.

Objective

Assess the perceptions of a questionnaire designed to evaluate the relationship between health and the perceived environment among adolescents (ages 12-17y) who reside in West Louisville.

Specific Aims

- 1. To recruit a maximum of 20 participants, 7 to 10 females and 7 to 10 males, from a local church organization for the conduct of two focus groups (1 female, 1 male).**

Methods

Location: Bates' Our House

The focus groups will be conducted at a local youth center called Bates' Our House, which is affiliated with Bates Memorial Baptist Church and located at 729 Lampton Street, Louisville, KY 40203 (Smoketown neighborhood). Bates' Our House is a youth organization directed by Reverend Robin Self, Youth Pastor. During the week and two Sundays out of the month, adolescents participate in after-school activities related to academic enhancement and Bible Study.

Recruitment

The goal is to recruit at least seven females and seven males between the ages of 12-17 years, respectively for each focus group. If seven to ten females and males participate in each focus group, there will be a maximum of 20 adolescents in the study. It is the intention to recruit at least one participant representing a single age. Promotional flyers will be placed in Bates' Our House. Bates' Our House leadership staff (primary source is Youth Pastor, Robin Self) will assist in informing the adolescents about the two focus groups and distribute informed consent documents.

Inclusion Criteria

The inclusion criteria include adolescents who speak English and are literate (can read and write). The participants will be 12-17-year-old adolescents who primarily reside in one of West Louisville neighborhoods. Only one adolescent per household can participate in the focus group.

Exclusion Criteria

The exclusion criteria of the focus group include adolescents who do not speak

English and are not literate (can read or write). Children under the age of 12 and teenagers aged 18 and older will be excluded from the study. Also, adolescents who do not primarily reside in one of West Louisville neighborhoods will be excluded from the study.

Direct Recruitment – Informed Consent Document

In this study, there are two ways to obtain informed consent: indirectly from parents who received the informed consent document via adolescents and directly from meeting the parents.

In order to inform adolescents about the focus groups, the co-investigator, Colette Davis will meet with the adolescents on a Wednesday before Bible Study begins and before the Bates' Our House youth meetings, which are held on Sundays after church service. During the initial meeting, Colette Davis will introduce herself to the adolescents, explain the purpose of the focus groups and SHAPE questionnaire, describe the events that will take place in the focus group, – which includes taking a questionnaire and expressing their feelings and thoughts about each section of the questionnaire.

Next, Colette Davis will explain the importance of collecting informed consent from their parents in order to participate in the study. The importance of delivering the document to the parents in an enclosed envelope will be explained. The informed consent document must be returned in the same enclosed envelope, that is sealed. Last, Colette will discuss the place and time of the focus group and mention that a \$5 gift card will be given to adolescents who participate in the focus groups. When explaining the study and its contents to the adolescents, the focus group will be referred to as the discussion group.

Inside the envelope will be the cover page and the informed consent document. The cover letter that is attached to the consent document introduces co-investigator, Colette Davis (See attachment in this IRB application). The cover page informs the parents of the purpose and events of the focus group. The adolescent will return to Bates' Our house with a sealed enveloped which contains the informed consent document. Once the documents are returned, they will be kept in a secured location, in a locked cabinet at Bates' Our House until the study team retrieves the documents. The informed consent documents will be examined by the study team to ensure that the parents have signed the documents correctly. If signed correctly, the documents will be placed in a locked cabinet in study team's office.

Indirect Recruitment – Informed Consent Document

The study team will be given time at a booth in order to promote the study. The booth will be set up after teen bible class service on Wednesday and on Sunday before and after church service at Bates' Our House. As parents are entering or exiting the building, Colette Davis will explain the study in detail to the parents

and ask for their child's participation. Parents will be informed about the objective and goals of the focus group, the adolescents contribution to the study - which are to give their perceptions and feelings about the SHAPE questionnaire, and the events of the focus group (the adolescents will complete a questionnaire and discuss their feelings toward it), and the place and time of the focus group. Any questions or concerns the parents have will be answered during this time. The importance of the informed consent document will be explained to the parent. The co-investigator will review the document with the parents. Next, the parents will have the option of signing the informed consent at the booth or taking home an enclosed envelope which contains the cover page and informed consent document. They can then return the sealed envelope to the Bate's Our House, where it will be stored in a secure location. All documents collected by the co-investigator will be kept in a secure, locked file cabinet in the study team's office.

Specific Aims (continued)

- 2. To administer the SHAPE (Survey of Health and Perceived Environment) Questionnaire and facilitate a discussion with the adolescents on perceptions of the questions.**

Methods

Assent

When the adolescents come for the focus group, Colette Davis will greet them. Once the group has been settled, Colette will introduce herself and assent the adolescents. The focus group facilitators will review the assent forms with the adolescents. During this time, the facilitator will explain the purpose of the focus groups, the risk and benefits of the focus groups, that the focus groups are voluntary, and that the participants can stop at any time. Additionally, the facilitator will describe that the digital audio recorder will be used to tape the discussion. We will also explain the presence of the laptop, which will additionally be used to record the responses of the adolescents. The laptop is used in the event that the audio-recorder does not record the data. After the facilitator describes the assent, she will ask if the adolescents have any questions or concerns about the group discussion. Assent will be obtained before the SHAPE questionnaire is administered to adolescents. After signing the assent document, the adolescents will choose a mock name to be identified by during focus group. The adolescents will write their names on a name tag (blank sheet of paper), fold it, and place it in front of them on the table. This is another method to de-identify the adolescents; the transcripts from the audio-recorder will only include mock names.

Semi-structured Guide for Focus Group

The focus groups will be facilitated using a semi-structured guide.

The semi-structured guide is an attached document in the IRB study protocol application. It is a detailed description of the focus group activities. After the focus groups have ended the transcripts from the focus groups will be evaluated to identify themes in the questionnaire based on the adolescents' perceptions and thoughts. Based on the themes that arose from the transcripts, the questionnaire will be revised.

Thematic Analysis

Because we do not have a priori knowledge of the adolescents' perceptions of the questionnaire, we will analyze the data using inductive thematic analysis. With inductive thematic analysis, themes are developed from the focus group data (17). With this analysis, consistent themes and patterns for each question will be acknowledged and used as the basis for editing the SHAPE questions. In order to generate the data for the analysis, the co-investigator, Colette Davis, will transcribe the audio recordings for analysis. After transcribing the recordings, the study team will meet to agree upon emanate themes that occurred both within groups and across groups (17). After the main themes of the focus groups are identified and the questionnaire has been edited, the audio recordings will be destroyed from the focus groups. Furthermore, once the SHAPE questionnaire has been revised, the questionnaires that were answered by the focus group participants will be destroyed.

Phase 2: Administering the SHAPE Study Questionnaire in West Louisville

Background/Rationale

The purpose of Phase 2 of the SHAPE study is to evaluate the associations between the perceived built environment and physical activity as it relates to adolescent (ages 12-18 years) obesity in West Louisville. The SHAPE Questionnaire was revised based on feedback received from the focus groups and pretesting of the questionnaire in Phase 1. This cross-sectional study provides opportunities to evaluate social and environmental (built environment and physical activity) factors that are key in the promotion of healthier lifestyles within Jefferson County. An epidemiological study with perceived built environment, as an exposure variable, and adolescent obesity as the outcome has novel beginnings in Jefferson County. There is also an urgent need to understand the lifestyle behaviors contributing to the development of obesity in the period of transition from adolescence to adulthood. Obesity in early life is strongly associated with obesity in adulthood. Investigating determinants of obesity in youth may help identify factors early in life that place individuals at risk for chronic conditions in adulthood. Reviewing past literature and analyzing primary data from the adolescents in West Louisville can aid in understanding

the dose-response relationship of the built environment, physical activity, and adolescent obesity. This study will provide data that may help to clarify how the built environment and level of physical activity influences the risk of obesity among adolescents residing in West Louisville. These data will be relevant to community leaders, investors, public policy makers, and residents.

Objective

The objective of this study is to conduct a pilot, cross-sectional epidemiologic study among adolescents (ages 12 – 17) who reside in West Louisville to evaluate the association between the perceived built environment, physical activity, and obesity (body mass index).

Specific Aim 1.

Identify and establish professional relationships with community leaders and program directors of youth organizations and facilities utilized by the youth within West Louisville.

Establish Relationship with Gatekeepers

It is important to establish respectful relationships with community leaders and directors of local youth organizations, also known as gatekeepers. Gatekeepers can be referred to as leaders, coordinators, directors, and owners of youth organizations with formal, decision- making power (18). Also, the youth organizations can include youth programs within community health centers, local non-profit and for-profit youth organizations (i.e. boys and girls clubs, public libraries, youth fairs), and youth religious groups (i.e. churches, synagogues). In order to establish a formal relationship with gatekeepers, members of the SHAPE study (co- investigators) would like to have a face-to-face meeting. Through the verbal consent of gatekeepers (written consent, if suggested by directors and leaders of youth programs), the SHAPE team will begin the process of administering the SHAPE Questionnaire to adolescents age 12-17 years old. In order to optimize the contact between gatekeepers and the SHAPE team, multiple strategies will be utilized.

“High” traffic programs

After composing a comprehensive list of various youth organizations in West Louisville, it is important to first contact “high traffic” programs (18). These are well-known and well- attended, in person programs within the West-Louisville community. Most well-known programs (e.g. Boys and Girls Club, Louisville Central Community Center, YMCA, Baptist Fellowship Center, Louisville Urban League, and Youth for Christ) will include adolescents who reside in multiple neighborhoods, thereby allowing more diversity within the data of a pilot study. Through professional and social networking within the School of Public Health and Information Sciences (SPHIS), the SHAPE team will contact

the gatekeeper of the “high traffic” programs via email or phone, or meet face-to-face, when preferred. Once contact has been established, a formal meeting with a member(s) of the SHAPE team will be requested with the gatekeeper or the gatekeeper’s team.

“Mid to low” traffic programs

The gatekeepers within the West Louisville community can reserve the right to prohibit the administration of the SHAPE Questionnaire to adolescents. If this should occur, it will be important to contact gatekeepers of mid to low traffic programs such as public libraries and youth ministries (18). Through professional and social networking within the School of Public Health and Information Sciences (SPHIS), the SHAPE team will contact the gatekeeper of the “mid to low” traffic programs via email or phone, or meet face-to-face, when preferred. Once contact has been established, a formal meeting with a member(s) of the SHAPE team will be requested with the gatekeeper or the gatekeeper’s team.

Prior Relationships with programs

Through professional networking and public health collaborations, community relationships have been fostered with the Department of Epidemiology and Population Health in the SPHIS and select members of the SHAPE team. Utilizing prior professional relationships will allow the SHAPE team access to the contacts and a formal meeting with select gatekeepers.

Formal Meetings

After contact has been initiated with a community gatekeeper, a formal face-to-face meeting with a member(s) of the SHAPE team will be requested. Although, the preferred method of the meeting is face-to face, if the gatekeeper and SHAPE member(s) are inconvenienced due to time, the meeting could consist of a face-to-face video conference or conference call. At the initial phase of the meeting, the SHAPE team will highlight the main purpose, methods, and public health impact of the study. During the meeting, the IRB approved SHAPE study materials will be explained to the gate keeper(s) of the youth organization. It will be important to highlight that the SHAPE team is conducting research within West-Louisville with the mission of understanding the health of the community.

Specific Aim 2a.

Recruit participants from local youth and community organizations in West Louisville.

Specific Aim 2b.

Administer the SHAPE Questionnaire to adolescents who reside in West Louisville. Methods

Sampling Scheme

The recruitment and selection goal of the study is to survey a maximum of 250 adolescents, 50% male and 50% female, aged 12-17 who reside in West Louisville. In order to do so, the SHAPE team will visit a total of at least 8 “high” or “mid to low” traffic programs. Our goal is to recruit and survey 15 adolescents from each “high” or “mid to low” traffic program. While recruiting at a facility, if more than 15 adolescents would like to participate in the study, they may do so. It’s important for all ages (12-17) to be represented in the study. Because a total of six ages are represented in the study, another recruitment goal is to have at least 16.67% ($\frac{1}{6}$ 17 adolescents) of each represented age. The process of choosing a sample size for a pilot study requires feasibility, details of the statistical plan, and research risks – risks that a specific aim may or may not be achieved due to time constraints (19). Moore et al. notes that small sample size may be appropriate for pilot studies and evaluating the feasibility of a study protocol (19).

Inclusion Criteria

The inclusion criteria consists of adolescents who speak English and are literate (can read and write). The participants will be 12-17-year-old adolescents who primarily reside in one of West Louisville neighborhoods. Only one adolescent per household can participate in the study. The

West Louisville neighborhoods include: Algonquin, California, Chickasaw, Park Duvalle, Park Hill, Parkland, Portland, Russell, and Shawnee.

Exclusion Criteria

Female adolescents who are currently pregnant or have been pregnant in the past 6 months will be excluded because of the associated fluctuations in weight and hormone levels during and after pregnancy.

Recruitment and Assenting Process

Acceptable methods of recruitment may vary depending on the gatekeeper’s approval and recruitment setting. Recruitment flyers may be placed on the bulletin boards or announcement sections of an organization.

Assent will be obtained from each adolescent recruited for the study.

A waiver of signed parental consent is requested for the following reasons.

- (1) The study poses minimal risk to the child and assent will be obtained.
- (2) It may not be practicable to obtain signed parental consent in all recruitment venues for this study; for example, in the classroom (closed environment) or at a health fair (open environment).
- (3) No identifying links will be recorded for either children or their parents/guardians; children are asked to respond to five demographic questions (Q1-Q5).
- (4) Children are not asked to appraise parents/guardians for sensitive issues; they are asked 8 questions (Q30-37) regarding the parent/guardian's support for physical activity, school and after school activities, home activities, adult presence in the home, and a description of parent/guardian body weight.

A parental notification letter will be used in place of parent informed consent and will be provided to assenting adolescent's parents or guardians depending on recruitment venue (closed vs open environment) as described below.

Recruitment Method 1– Closed Environment. Closed environments are synonymous with classroom-like environments in that there is a program instructor(s) present. In this type of environment, information regarding the study is provided in a central location with all adolescent potential participants present and they are informed of the return date when the SHAPE study team will return. In order to inform parents or guardians about the SHAPE study, a parental notification letter will be sent to parents five days before the SHAPE team will administer the questionnaire within a closed environment, when feasible (Parental Notification Letter 1). The gatekeeper, along with the gatekeeper's team (program's staff) will determine the best method to send the parental notification letter to the parents or guardians of adolescents in the program. The letter will be sent via email to the parents or when this is not feasible, adolescents who are interested will be provided a copy of the parental notification letter and study flyer to take home to their parents or guardians. Parents or guardians have the option of calling Colette Davis, an investigator of the SHAPE Study or other investigators if they have any questions or wish to indicate their refusal to allow their child to participate in the study. When the SHAPE team returns to the program facility, they will explain in detail the assent form to those adolescents who are interested in participating in the study. Once the assent form is explained, the SHAPE Questionnaire will be completed by the adolescent participant in a confidential area while being monitored by a member of the SHAPE team.

Recruitment Method 2– Open Environment. In open environments, potential participants are not located centrally but are scattered in different areas of the facility. Open environments may include community centers, public libraries, and health fair events at aforementioned facilities. In order to recruit participants for the study, the SHAPE team will set up a booth in the facility, introduce themselves to the interested parent(s) or guardian(s), if present, and

adolescent(s) and explain the purpose of the SHAPE study and questionnaire.

Parental Notification Process. In the open environment, when a parent(s) or guardian(s) is present, he/she will receive a copy of the parental notification letter explaining the study and questionnaire, and the assent form will be explained to the adolescent (Parental Notification Letter 1). The letter will be given to the parent(s) or guardian(s) by one of the SHAPE team members. If the parent or guardian and adolescent are both interested in participation, and the parent agrees to their child's participation and the adolescent completes the assent form, the questionnaire will be completed by the adolescent participant in an area being monitored by a member of the SHAPE team.

In certain open environments (ex. youth fairs) where the parent(s) or guardian(s) is not present, the parental notification letter will be given to the adolescent to be hand-delivered to their parent(s) or guardian(s) (Parental Notification Letter 2). This letter states that the adolescent has participated in the SHAPE study. The SHAPE team will explain to the adolescent the importance of giving the parental notification letter to their parent. If the adolescent is interested in participation, the assent form will be explained to the adolescent. Next, the questionnaire will be completed by the adolescent participant in an area being monitored by a member of the SHAPE team.

Incentive

The adolescents will be thanked for completing the questionnaire. Incentives will be provided upon completion of the questionnaire. The adolescents will receive a goodie bag filled with snacks.

Storage of Data

Once the adolescents have completed the SHAPE Questionnaire, members of the SHAPE team will collect the completed questionnaires. The assent forms and questionnaires will be placed in a portable, locked cabinet. At the end of each day's recruitment, the signed assent forms and completed questionnaires will be transferred to a locked cabinet in the SHAPE team's office. All completed questionnaires and materials from the SHAPE study will be kept in a locked file cabinet inside of the SHAPE study's office. All data from the questionnaires will be recorded in a database that will be stored on a password-protected computer within the SHAPE team's locked office.

Analytic Methods

Associations between the perceptions of the built environment, levels of physical activity, and the risk for obesity in adolescents residing in West Louisville will be evaluated utilizing descriptive analyses and regression techniques.

References

1. CFDA P. Physical Activity Facts. CDC 24/7 2015.
2. Kann L, Kinchen S, Shanklin SL, et al. Youth risk behavior surveillance—United States, 2013. 2014.
3. Davison KK, Lawson CT. Do attributes in the physical environment influence children's physical activity? A review of the literature. *International journal of behavioral nutrition and physical activity* 2006;3(1):19.
4. Panter JR, Jones AP, Van Sluijs EM. Environmental determinants of active travel in youth: A review and framework for future research. *International journal of behavioral nutrition and physical activity* 2008;5(1):34.
5. Commision LMHR. *Making Louisville Home for Us All: A 20 Year Action Plan for Fair Housing*. The commission; 2013.
6. USC B. 2008-2012 American Community Survey. 2012.
7. Ryan Combs P. Ever wonder why Louisville is so segregated? A brief history of West Louisville. 2016. (<https://www.facebook.com/notes/ryan-combs/ever-wonder-why-louisville-is-so-segregated-a-brief-history-of-west-louisville/592982694189505/>). (Accessed).
8. Aubespain M, Clay K, Hudson JB. *Two Centuries of Black Louisville: A Photographic History*. Butler Books; 2011.
9. Watters JL, Satia JA, Galanko JA. Associations of psychosocial factors with fruit and vegetable intake among African-Americans. *Public Health Nutrition* 2007;10(1):701-11.
10. OPPC KdfPh. Adult Obesity, Physical Activity, and Nutrition in Kentucky 2013:1-11.
11. CDC. BRFSS Behavioral Risk Factor Surveillance System: Prevalence and Trend Data- Physical Activity. In: Trends UP, ed. Stats, 2011.
12. CDC. The 2011 Youth Risk Behavior Survey. In: Health DoAaS, ed, 2011.
13. CDC. Pediatric Nutrition Surveillance System. In: Division of Nutrition PA, and Obesity, ed, 2010.
14. Handy SL, Boarnet MG, Ewing R, et al. How the built environment affects physical activity: views from urban planning. *American journal of preventive medicine* 2002;23(1):64-73.
15. Dulin-Keita A, Thind HK, Affuso O, et al. The associations of perceived neighborhood disorder and physical activity with obesity among African American adolescents. *BMC public health* 2013;13(1):440.
16. Franzini L, Taylor W, Elliott MN, et al. Neighborhood characteristics favorable to outdoor physical activity: disparities by socioeconomic and racial/ethnic composition. *Health & place* 2010;16(1):267-74.
17. Zierold KM, Welsh EC, McGeeney TJ. Attitudes of teenagers towards workplace safety training. *Journal of community health* 2012;37(2):1289-95.
18. Joseph RP, Keller C, Ainsworth BE. Recruiting participants into pilot trials: Techniques for researchers with shoestring budgets. *Californian journal of health promotion* 2016;14(1):81
19. Moore CG, Carter RE, Nietert PJ, et al. Recommendations for planning pilot

studies in clinical and translational research. *Clinical and translational science* 2011;4:332-7.

The S.H.A.P.E. STUDY

The Survey of Health and the Perceived Environment Study

UNIVERSITY OF
LOUISVILLE

SCHOOL OF PUBLIC HEALTH
& INFORMATION SCIENCES

U of L Institutional Review Board
IRB Number 17-1180
IRB Approved Date 07/24/2018

The Purpose of the S.H.A.P.E. Study is to help researchers understand more
about adolescent health in West Louisville neighborhoods.

Who Can Participate?

Adolescents who are 12 – 17 years old and
live in West Louisville.

What Will You Be
Asked to Do?

Complete a Survey

What Will I Receive
for participating?

Goodie Bag filled with
Snacks

How Can I Contact
You?

If you have questions or want to participate, please contact:

Collette Davis at (615) 498-4664 or

cpdavi05@louisville.edu

Dr. Stephanie Boone at (502) 852 – 2257 or

srdenk01@louisville.edu

Less than 20 minutes of your time!

*You don't need to write your
name on the survey..
Shh! Privacy!*

The Survey of Health and the Perceived Environment (SHAPE) Study

Dear Parents and Guardians,

My name is Colette Davis and I am a doctoral student at the University of Louisville in the School of Public Health & Information Sciences. I am interested in understanding the health of adolescents. The Survey of Health and the Perceived Environment (SHAPE) Study is being conducted to examine the association between the perceived built environment, physical activity, and obesity among adolescents who are aged 12 - 17 years and reside in West Louisville. The investigators of the study include the mentors in the school who are on my doctoral committee: Stephanie Boone, PhD (Principal Investigator); Richard Baumgartner, PhD; Kristina Zierold, PhD; and Kathy B. Baumgartner, PhD from the University of Louisville.

Adolescents who are interested and eligible to participate in the SHAPE Study will be invited to complete a questionnaire that includes questions about your child's neighborhood environment, engagement in physical activity, dietary intake, use of electronic devices, and parent or guardian support for physical activity, school and after school activities, home activities, and adult presence in the home, and a description of parent/guardian body weight. The survey takes about 5 to 15 minutes to complete. Upon completion of the survey, your child will receive a 'goodie bag' filled with healthy, low calorie snacks.

The following procedures will be used to protect the confidentiality of your child's study records, which include the assent form and completed questionnaire. An assent form acknowledges the adolescent's willingness to participate in the study; however, your child's name will not be recorded on the questionnaire if they agree to participate. All completed questionnaires are kept in a locked file cabinet inside of the SHAPE Study office. Only study team members will have access to these materials. The computer in the investigator's office is password protected to prevent access by unauthorized users. Only members of the study team will have access to the password.

There are minimal risks in this study. Participation in this study is voluntary. If your child is uncomfortable responding to a question, they are able to skip or record that they prefer to not respond. Once the assent form is explained, the SHAPE Questionnaire will be completed by the adolescent participant in an area being monitored by a member of the SHAPE team.

Parents or guardians have the option of contacting Colette Davis (cpdavi05@louisville.edu, 502- 852-0417 (office phone) or other investigators of the SHAPE Study if they have any questions. If you have

any questions or concerns about the study, please contact me via email or phone.

Sincerely,

Colette Davis, MSPH, MS, Doctoral Candidate

Research Subject's Rights, Questions, Concerns, and Complaints

If you have any questions, concerns or complaints about the study or the study's staff, you have three options.

You may contact the principal investigator at 502-852-0417.

If you have any questions about your child's rights as a study subject, questions, concerns, or complaints, you may call the Human Subjects Protection Program office (HSPPO) at 502-852-5188. You may discuss any questions about your child's rights as a subject, in secret, with a member of the Institutional Review Board (IRB) or the HSPPO staff. The IRB is an independent committee composed of members of the University community, staff of the institutions, as well as lay members of the community not connected with these institutions. The IRB has reviewed this study.

If you want to speak to a person outside the University, you may call 1-877-852-1167. You will be given the chance to talk about any questions, concerns, or complaints in secret. This is a 24-hour hot line answered by people who do not work at the University of Louisville.

LIST OF INVESTIGATORS

PHONE NUMBERS

Colette Davis, PhD (c)

(502) 852 - 0417

Other Investigators can be contacted on the main line for the
Department of Epidemiology & Population Health (502) 852 – 3003.
Population Health (502) 852 – 3003.

Stephanie Boone, PhD

Kristina Zierold, PhD

Richard Baumgartner, PhD

Kathy B. Baumgartner, PhD

The Survey of Health and the Perceived Environment (SHAPE) Study

Dear Parents and Guardians,

My name is Colette Davis and I am a doctoral student at the University of Louisville in the School of Public Health & Information Sciences. I am interested in understanding the health of adolescents. The Survey of Health and the Perceived Environment (SHAPE) Study is being conducted to examine the association between the perceived built environment, physical activity, and obesity among adolescents who are aged 12 - 17 years and reside in West Louisville. The investigators of the study include the mentors in the school who are on my doctoral committee: Stephanie Boone, PhD (Principal Investigator); Richard Baumgartner, PhD; Kristina Zierold, PhD; and Kathy B. Baumgartner, PhD from the University of Louisville.

Adolescents who were interested and eligible to participate in the SHAPE Study completed a questionnaire that included questions about your child's neighborhood environment, engagement in physical activity, dietary intake, use of electronic devices, and parent or guardian support for physical activity, school and after school activities, home activities, and adult presence in the home, and a description of parent/guardian body weight. The survey took about 5 to 15 minutes to complete. Upon completion of the survey, your child received a 'goodie bag' filled with healthy, low calorie snacks.

The following procedures were used to protect the confidentiality of your child's study records, which included the assent form and completed questionnaire. An assent form acknowledges the adolescent's willingness to participate in the study; however, your child's name was not recorded on the questionnaire if they agree to participate. All completed questionnaires are kept in a locked file cabinet inside of the SHAPE Study office. Only study team members have access to these materials. The computer in the investigator's office is password protected to prevent access by unauthorized users. Only members of the study team will have access to the password.

There are minimal risks in this study. Participation in this study was voluntary and has already occurred. If your child was uncomfortable responding to a question, they were able to skip or record that they preferred not to respond. Once the assent form was explained, the SHAPE Questionnaire was completed by the adolescent participant in an area being monitored by a member of the SHAPE team.

Parents or guardians have the option of contacting Colette Davis (cpdavi05@louisville.edu, 502- 852-0417 (office phone) or other investigators of the SHAPE Study if they have any questions. If you have any questions or concerns about the study, please contact me via email or phone.

Sincerely,

Colette Davis, MSPH, MS, Doctoral Candidate

Research Subject's Rights, Questions, Concerns, and Complaints

If you have any questions, concerns or complaints about the study or the study's staff, you have three options.

You may contact the principal investigator at 502-852-0417.

If you have any questions about your child's rights as a study subject, questions, concerns, or complaints, you may call the Human Subjects Protection Program office (HSPPO) at 502-852-5188. You may discuss any questions about your child's rights as a subject, in secret, with a member of the Institutional Review Board (IRB) or the HSPPO staff. The IRB is an independent committee composed of members of the University community, staff of the institutions, as well as lay members of the community not connected with these institutions. The IRB has reviewed this study.

If you want to speak to a person outside the University, you may call 1-877-852-1167. You will be given the chance to talk about any questions, concerns, or complaints in secret. This is a 24-hour hot line answered by people who do not work at the University of Louisville.

LIST OF INVESTIGATORS

PHONE NUMBERS

Colette Davis, PhD (c)

(502) 852 - 0417

Other Investigators can be contacted on the main line for the Department of Epidemiology & Population Health (502) 852 – 3003.

Stephanie Boone, PhD

Kristina Zierold, PhD

Richard Baumgartner, PhD

Kathy B. Baumgartner, PhD

PARTICIPANT ASSENT

Survey of Health and the Perceived Environment (SHAPE) Study

What am I being asked to do?

I am invited to participate in a research study being done by Colette Davis, PhD Student and Professors: Richard Baumgartner, PhD, Stephanie Boone, PhD, Kristina Zierold, PhD, and Kathy Baumgartner, PhD from the University of Louisville. I am invited to be a part of the study because I am 12 - 17 years old and live in West Louisville.

What will I be doing?

I will fill out a survey about my neighborhood, which is the area that is within a 10- 15-minute walk in any direction of my home. I will answer questions about my neighborhood. I will answer questions about being physically active (activities that cause me to breathe faster). I will answer questions about the food I have eaten over the past seven days, the amount of time I spend with electronics (an example would be a laptop, television, or game system), my parent(s) or guardian(s) support when it comes to exercising, and their work hours.

Who will see my answers?

I will not write my name on the survey. All answers that I give will be kept private and will be protected to the extent of the law.

Will the questions upset me?

There may be some risks with this study. These risks are that I may feel uncomfortable answering a question. If I feel uncomfortable, I will tell the study team and I can take a break.

How long will this last?

The time it takes to complete the survey may vary. It may take approximately 5 minutes to 15 minutes. I understand that I can take as much time as needed in completing this survey.

Are there any benefits to participating?

There is no benefit to me. However, this study will provide information that will help the study team understand more about adolescent health in my neighborhood.

Do I have to do this?

It is my choice to volunteer to participate in this survey. I have the right to leave

the study anytime during this process.

Before I begin the survey...

There are three ways in which my parents could have been informed about this study: (1). My parents or guardians were informed about this study by a separate letter from my youth organization; (2) my parents or guardians were informed about this study by a member of the SHAPE team at a booth and given a letter that explains the study; or (3) I informed my parents or guardians about participating in the study by giving them a notification letter.

I understand that I agree to take part in this by completing the SHAPE questionnaire. A SHAPE team member has explained the purpose of the study and what my participation entails. . I understand I will be given a goodie bag filled with snacks once I complete the survey.

Thank you for your participation.

For the Participant:

[Contact Information:](#)

Research Subject's Rights, Questions, Concerns, and Complaints

If you have any questions, concerns or complaints about the study or the study's staff, you have three options.

You may contact the Principal Investigator, Dr. Stephanie Boone, at 502-852-2257. If you have any questions about your rights or your child's rights as a study subject, questions, concerns, or complaints, you may call the Human Subjects Protection Program office (HSPPO) at 502-852- 5188. You may discuss any questions about your rights or your child's rights as a subject, confidentially, with a member of the Institutional Review Board (IRB) or the HSPPO staff. The IRB is an independent committee composed of members of the University community, staff of the institutions, as well as lay members of the community not connected with these institutions. The IRB has reviewed this study.

If you want to speak to a person outside the University, you may call 1-877-852-1167. You will be given the chance to talk about any questions, concerns, or complaints in secret. This is a 24- hour hot line answered by people who do not work at the University of Louisville.

[LIST OF INVESTIGATORS](#)

[PHONE NUMBERS](#)

Colette Davis, PhD (c)

(502) 852 – 0417

Other Investigators can be contacted on the main line for the Department of Epidemiology & Population Health (502) 852 – 3003.

Kristina Zierold, PhD

Richard Baumgartner, PhD

Kathy B. Baumgartner, PhD

THE S.H.A.P.E. STUDY

Survey of Health and the Perceived Environment Study

This questionnaire is about people, places, and things within your neighborhood or the place where you live. We also ask about your health behavior in this questionnaire. The information you give will be used to improve health education for young people like yourself.

Completing the questionnaire is voluntary. The questions that ask about your background will be used to describe students completing this questionnaire.

When you are finished, please turn it in to Colette Davis.

Thank you very much for your help.

SHAPE STUDY**University of Louisville – School of Public Health and Information Sciences**

DO NOT write your name on this questionnaire. Please choose the answer that best represent you and your neighborhood. You will answer **56** questions. Take as much time as you need.

Please see Ms. Colette Davis if you have any questions.

“My Identity” Questions

1. How old are you? A. 12 years oldB. 13 years oldC. 14 years oldD. 15 years oldE. 16 years oldF. 17 years oldG. 18 years old 2. What is your gender? A. FemaleB. Male 3. What grade are you? A. 6th gradeB. 7th gradeC. 8th gradeD. 9th gradeE. 10th gradeF. 11th gradeG. 12th gradeH. Ungraded/Other grade	4. What is your race/ethnicity? (Select all that apply). A. White or CaucasianB. Black or African AmericanC. Hispanic, Latino, Mexican, etc.D. Native American or Alaskan NativeE. AsianF. Native Hawaiian or Pacific IslanderG. Other _____ 5. Where do you live in West Louisville? A. Algonquin – 40208, 40210B. California – 40203, 40210, 40211C. Chickasaw – 402011D. Park Duvalle – 40210, 40211E. Park Hill – 40203, 40208, 40210, 40211F. Parkland – 40211G. Portland – 40202, 40203, 40212H. Russell – 40202, 40203, 40211, 40212I. Shawnee – 40211, 40212J. Other _____

"My Height and Weight" Questions

Please circle the correct answers. These questions ask about your body weight and height.

6. How do you describe your weight?
- A. Very underweight
 - B. Slightly underweight
 - C. About the right weight
 - D. Slightly overweight
 - E. Very overweight
7. Which of the following are you trying to do about your weight?
- A. Lose weight
 - B. Gain weight
 - C. Stay the same weight
 - D. I am not trying to do anything about my weight
8. How tall are you without your shoes on?

Directions: Write your height in the shaded blank boxes. Fill in the matching oval below each number.

Example

Height	
Feet	Inches
5	7
③	⑩
④	①
●	②
⑥	③
⑦	④
	⑤
	⑥
	●
	⑧
	⑨
	⑩
	⑪

Height	
Feet	Inches
③	⑩
④	①
⑤	②
⑥	③
⑦	④
	⑤
	⑥
	⑦
	⑧
	⑨
	⑩
	⑪

9. How much do you weigh without your shoes on?

Directions: Write your weight in the shaded blank boxes. Fill in the matching oval below each number.

Example

Weight Pounds		
1	5	2
①	①	①
●	①	①
②	②	●
③	③	③
	④	④
	●	⑤
	⑥	⑥
	⑦	⑦
	⑧	⑧
	⑨	⑨

Weight Pounds		
①	①	①
①	①	①
②	②	②
③	③	③
	④	④
	⑤	⑤
	⑥	⑥
	⑦	⑦
	⑧	⑧
	⑨	⑨

Before you proceed please answer the following question.

10. Do you have any health conditions that would make it difficult for you to exercise? If so, write it in the space below. If not, please write N/A in the space below.

Please go to the next page.

"My Physical Activity" Questions

Think back on the past week – for seven days. Today is _____ (day of the week), so seven days ago was last _____ (ex. If today is Monday, seven days ago was Monday).

11. How many days did you exercise or participate in physical activity for at least 60 minutes per day or more

Examples: basketball, soccer, running, swimming laps, fast bicycling, fast dancing, or similar aerobic activities?

- A. 0 – 1 day
- B. 2 – 3 days
- C. 4 – 5 days
- D. 5 – 7 days
- E. Don't know

12. For the past 7 days, did you exercise or participate in physical activity for at least 20 minutes per day that made you breathe hard.

- A. 0 – 1 day
- B. 2 – 3 days
- C. 4 – 5 days
- D. 5 – 7 days
- E. Don't know

13. During the school week, how many days do you walk or ride your bike to school.

- A. 0 – 1 day
- B. 2 – 3 days
- C. 4 – 5 days
- D. 5 days
- E. Don't know

"My Food" Questions

The next questions ask about food you ate or drank during the past 7 days.

Think about all the meals and snacks you had from the time you got up until you went to bed.
Be sure to include food you ate at home, school, restaurants, or anywhere else.

<p>14. During the past 7 days, how many times did you eat fruit? (Do not count fruit juice.)</p> <p>A. I did not eat fruit during this time
B. 1 to 3 times per day
C. 4 to 6 times per day
D. 7+ times per day
E. Don't know</p> <p>15. During the past 7 days, how many times did you eat vegetables? (carrots, salads, green beans, etc.)</p> <p>A. I did not eat vegetables during this time
B. 1 to 3 times per day
C. 4 to 6 times per day
D. 7+ times per day
E. Don't know</p> <p>16. During the past 7 days, how many times did you eat fast foods? (McDonalds, Pizza Hut, Indi's Chicken, Taco Bell, KFC, and etc.)</p> <p>A. I did not eat fast foods during this time
B. 1 to 3 times per day
C. 4 to 6 times per day
D. 7+ times per day
E. Don't know</p> | <p>17. During the past 7 days, how many times did you drink a can, bottle, or glass of soda or pop, such as Coke, Pepsi, or Sprite? (Do not count diet soda or diet pop.)</p> <p>A. I did not drink soda during this time
B. 1 to 3 times per day
C. 4 to 6 times per day
D. 7+ times per day
E. Don't know</p> <p>18. During the past 7 days, how many days did you eat junk food (chips, cookies, or cakes, pies, and etc.)</p> <p>A. I did not eat junk food during this time
B. 1 to 3 times per week
C. 4 to 6 times per week
D. 7+ times per week
E. Don't know</p> |
|--|---|

"My Food" Questions (continued)

The next questions ask about meals you might have eaten during the past 7 days
and the food available to you at home and at school.

<p>19. During the past 7 days, on how many days did you eat breakfast or a morning meal at school?</p> <p>A. 0 days
B. 1 day
C. 2 days
D. 3 days
E. 4 days
F. 5 days
G. Don't know</p> <p>20. During the past 7 days, on how many days did you eat breakfast or a morning meal at home?</p> <p>A. 0 days
B. 1 day
C. 2 days
D. 3 days
E. 4 days
F. 5 days
G. 6 days
H. 7 days
I. Don't know</p> <p>21. During the past 7 days, on how many days did you eat lunch at school or home?</p> <p>A. 0 days
B. 1 day
C. 2 days (continued at the top of this page →)</p> | <p>D. 3 days
E. 4 days
F. 5 days
G. 6 days
H. 7 days
I. Don't know</p> <p>22. In an average week when you are in school, on how many days do you bring your own lunch to school from home?</p> <p>A. 0 days
B. 1 day
C. 2 days
D. 3 days
E. 4 days
F. 5 days
G. Don't know</p> <p>23. On how many of the past 7 days did you eat dinner or an evening meal?</p> <p>A. 0 days
B. 1 day
C. 2 days
D. 3 days
E. 4 days
F. 5 days
G. 6 days
H. 7 days
I. Don't know</p> |
|--|---|

"My Food" Questions (continued)

The next questions ask about meals you might have eaten during the past 7 days
and the food available to you at home and at school.

<p>19. During the past 7 days, on how many days did you eat breakfast or a morning meal at school?</p> <p>A. 0 days
B. 1 day
C. 2 days
D. 3 days
E. 4 days
F. 5 days
G. Don't know</p> <p>20. During the past 7 days, on how many days did you eat breakfast or a morning meal at home?</p> <p>A. 0 days
B. 1 day
C. 2 days
D. 3 days
E. 4 days
F. 5 days
G. 6 days
H. 7 days
I. Don't know</p> <p>21. During the past 7 days, on how many days did you eat lunch at school or home?</p> <p>A. 0 days
B. 1 day
C. 2 days (continued at the top of this page →)</p> | <p>D. 3 days
E. 4 days
F. 5 days
G. 6 days
H. 7 days
I. Don't know</p> <p>22. In an average week when you are in school, on how many days do you bring your own lunch to school from home?</p> <p>A. 0 days
B. 1 day
C. 2 days
D. 3 days
E. 4 days
F. 5 days
G. Don't know</p> <p>23. On how many of the past 7 days did you eat dinner or an evening meal?</p> <p>A. 0 days
B. 1 day
C. 2 days
D. 3 days
E. 4 days
F. 5 days
G. 6 days
H. 7 days
I. Don't know</p> |
|--|---|

"My Fun Time" Questions

24. On a school day, how many hours do you play video or computer games. (Include game systems such as Nintendo, Wii, PlayStation, Xbox, computer games, and apps on electronic devices, and etc.
- A. I do not play video or computer games on school day
 - B. Less than 1 hour per day
 - C. 1 hour per day
 - D. 2 hours per day
 - E. 3 hours per day
 - F. 4 hours per day
 - G. 5 or more hours per day
 - H. Don't know
25. On a school day, how many hours do you spend watching TV shows or movies? Include DVDs, videos you watch on a computer, tablet, cellphone, and other devices. (Netflix, YouTube, and other streaming websites.
- A. I do not watch TV on an average school day
 - B. Less than 1 hour per day
 - C. 1 hour per day
 - D. 2 hours per day
 - E. 3 hours per day
 - F. 4 hours per day
 - G. 5 or more hours per day
 - H. Don't know
26. On a school day, how many hours do you spend on social media? (SnapChat, Instagram, Twitter, Facebook, or other Social Media outlets, etc.).
- A. I do not use Social Media on an average school day
 - B. Less than 1 hour per day
 - C. 1 hour per day
 - D. 2 hours per day
 - E. 3 hours per day
 - F. 4 hours per day
 - G. 5 or more hours per day
 - H. Don't know

"My Comfort Level" Questions*Do you agree or disagree with each statement?**(Mark one answer for each statement.)*

When I am physically active...		Disagree	Agree
27.	I find it fun.		
28.	It gives me energy.		
39.	I enjoy the results of working out.		

"My Parent's Support and their Work Hours" Questions*Please answer yes or no to each statement. (Mark one answer for each statement). The next seven questions ask about the adults you live with.)*

(Mark one answer for each statement.)		Yes	No
Within a week, does an adult in your household...			
30.	Encourage you to do physical activities or play sports?		
31.	Exercise or play sports with you?		
32.	Drive you to school-related activities?		
33.	Drive you to events outside of school?		
34.	Eat dinner with you?		
35.	Do any of your parents or guardians work long hours?		
36.	Are any of your parents or guardians home after school?		
The next question asks about you and your parent's body shape. Circle the best representative of your parent's body shape.			
37.	<u>Mom or Female Guardian</u> How would you describe your mom or female guardian's weight? A. Very underweight B. Slightly underweight C. About the right weight D. Slightly overweight E. Very overweight	<u>Dad or Male Guardian</u> How would you describe your dad or male guardian's weight? A. Very underweight B. Slightly underweight C. About the right weight D. Slightly overweight E. Very overweight	

"My Neighborhood" Questions

The next questions ask about your neighborhood. Your neighborhood is the area around your home; it is within a 10 – 15-minute walk in any direction.

Think about the buildings in your neighborhood, the shopping places, the people who live in your neighborhood, the sidewalks, and the parks and gyms. Take your time.

(Mark an "X" for each statement.)

Walking in my neighborhood

		True	False
38.	Stores are easy to walk to in my neighborhood (grocery stores, clothing stores, local stores).		
39.	From my home, it is easy to walk to a bus stop (transit or city bus).		
40.	It is hard to walk to places in my neighborhood because of railroad tracks, the river, or the highway.		

Looking around my neighborhood

41.	There are sidewalks on most of the streets in my neighborhood.		
42.	There are many beautiful things to look at in my neighborhood (e.g., gardens, views).		
43.	There are many nice looking buildings and homes in my neighborhood.		
44.	There are abandoned buildings in my neighborhood.		
45.	There are buildings with graffiti in my neighborhood (writing on side building)		

Places in my neighborhood

46.	There is a super market in my neighborhood (Walmart, Kroger)		
47.	There are recreational facilities or gyms (YMCA, community centers) in my neighborhood.		
48.	There are parks with playgrounds in my neighborhood.		
49.	There are parks with walking trails in my neighborhood.		

ID # _____

<u>"My Neighborhood" Questions continued..</u>			
Traffic in my neighborhood		<i>(Mark an "X" for each statement.)</i>	
		True	False
50.	It is hard to walk in my neighborhood because of so much traffic.		
51.	There are crosswalks and signals to help walkers cross the streets in my neighborhood.		
Crime in my neighborhood			
52.	There is a lot of crime in my neighborhood.		
53.	I do not feel safe in my neighborhood at night.		
54.	I am worried about being outside alone in my neighborhood.		
55.	I am worried about being alone at a park in my neighborhood		

<i>(Mark an "X" for each statement.)</i>		
Please answer yes or no to the following questions.		
56. In my neighborhood, I am afraid of ...	Yes	No
A. People I don't know		
B. Other kids my age		
C. Kids that pick on me		
D. Gangs		
E. Homeless people		
F. Drug Dealers		
G. Adults outside of my household		

THANK YOU FOR ANSWERING THE
 QUESTIONS.
 YOUR PARTICIPATION HAS
 HELPED THIS RESEARCH

APPENDIX B

Variable Categories

Table B1: Variable Categories, SHAPE Study

Demographic Variables	Categories	Definition	SSQ¹ Variables
Gender gen	0 = Female 1 = Male	What is your gender?	gender
Age new_age (<i>categorical</i>) age_cont (<i>continuous</i>)	1 = 12 – 13 years 2 = 14 – 15 years 3 = 16 – 17 years	How old are you?	age_cat
Grade grader	0 = 6 th grade 1 = 7 th grade 2 = 8 th grade 3 = 9 th grade 4 = 10 th grade 5 = 11 th grade 6 = 12 th grade	What grade are you?	grader
new_grade	1 = 6 th – 8 th grade 2 = 9 th – 12 th grade	What grade are you?	grader
Ethnicity Ethnicity new_ethnic	0 = Black 1 = White 2 = Hispanic 3 = White-Black 4 = Hispanic-Black 5 = Native American – Black 0 = Black 1 = Non-Black	What is your race/ethnicity? What is your race/ethnicity?	race ethnicity
Neighborhood new_locate	1 = Southeast Region/Parkhill & Algonquin 2 = Eastern Region/California & Russell 3 = Southwestern Region/Chickasaw, Parkland & Park Duvalle 4 = Northwest Region/Shawnee & Portland	Where do you live in West Louisville?	location
new_region	1 = Eastern Region 2 = Western Region 3 = Other	Where do you live in West Louisville?	location
Median Household Income new_mhi new_money	1 = < \$20,000 2 = > \$20,000 1 = < \$25,000 2 = > \$25,000	Median household income within each neighborhood	Ses ² (201)

Covariates	Categories	Definition	SSQ Variables
Perceptions of Weight per_weight	0 = About the right weight 1 = Underweight 2 = Overweight	How do you describe your weight?	y_weight
Weight Goals try	1 = Not trying/stay the same weight 2 = Lose weight 3 = Gain weight	Which of the following are you trying to do about your weight?	try_wght
Health Conditions Health	0 = No health conditions 1 = Asthma	Do you have any health conditions that would make it difficult for you to exercise? If so, write it in the space below. If not, please respond with N/A	Health_condi tions
Ride bike to school Biker	0 = 0 – 3 days 1 = 4 – 5 days	How many days do you walk or ride your bike to school?	bike_sch
Fruit & Veggie Scale fv_scale	0 = inadequate fruit & veggie intake per week 1 = adequate fruit & veggie intake per week	1. During the past 7 days, how many times did you eat fruit? 2. During the past 7 days, how many times did you eat vegetables?	<u>Fruitveggie</u> fruit_Re veggie_Re
Unhealthy Food Scale Unhealthy_scale	0 = None to limited amounts of unhealthy foods per week 1 = Many unhealthy foods per week	1. During the past 7 days, how many times did you eat fast foods? 2. During the past 7 days, did you drink a can, bottle, or glass or soda or pop? 3. During the past 7 days, how many days did you eat junk food?	<u>Unhealthy</u> Fastfood_Re Sodas_Re Junkfood_Re
Meals at Home Scale m_scale_new	0 = 0 – 3 meals at home per week 1 = 4 – 7 meals at home per week	1. During the past 7 days, on how many days did you eat breakfast or a morning meal at home? 2. During the past 7 days, on how many days did you eat lunch at school or home? 3. On how many of the past 7 days did you eat dinner or an evening meal?	<u>Meals Home</u> Dinner_ lunch_ break_home
School Meals Scale School_scale	0 = 0 – 2 days eating certain meals at school 1 = 3 – 5 days eating certain meals at school	1. During the past 7 days, on how many days did you eat breakfast or a morning meal at school? 2 In an average week, when you are in school, on how many days do you bring your own lunch to school from home?	<u>Schoolfood</u> breakfast lun_school
Fun scale fun_scale_new	0 = 0 – 3 hours per day 1 = 4 + hours per day	1. On a school day, how many hours do you play video or computer games? 2. On a school day, how many hours do you spend watching TV shows or movies? 3. On a school day, how many hours	<u>Fun</u> games_ watchtv social

		do you spend on social media?	
Comfort Scale Comfort_scale_new	0 = Mild to moderately comfortable working out 1 = Comfortable working out	When I am physical active: 1. I find it fun 2. It gives me energy 3. I enjoy the result of working out	<u>Comfort</u> enjoy, energy fun
Support Scale Supp_scale_new	0 = low-to-mid parental support 1 = high parental support	Within a week, does an adult in your household: 1. Encourage you to do physical activities or play sports? 2. Exercise or play sports with you? 3. Drive you to school related activities? 4. Drive you to events outside of school? 5. Eat dinner with you? 6. Do any of your parents or guardians work long hours? 7. Are any of your parents or guardians home after school?	<u>Support</u> encourage play drive event eat hours home
Mom's Weight mom_new	1 = underweight 2 = normal weight 3 = overweight	How would you describe your mom or female guardian's weight?	momwght
Dad's Weight dad_new	1 = underweight 2 = normal weight 3 = overweight	How would you describe your dad or male guardian's weight?	dadwght
Main Effect	Categories	Definition	SSQ Variables
Physical Activity 60 mins p60_new	0 = 0 – 3 days 1 = 4 – 7 days	How many days did you exercise or participate in physical activity for at least 60 minutes per day or more?	ph60_act, exer_60
Physical Activity 20 mins p20_new	0 = 0 – 3 days 1 = 4 – 7 days	For the past 7 days, did you exercise or participate in physical activity for at least 20 minutes per day that made you breath hard?	ph20_act, exer_20
Walkability walk_scale	1 = hard/difficult 2 = medium 3 = easy	1. Stores are easy to walk to in my neighborhood. 2. From my home, it is easy to walk to a bus stop. 3. It is hard to walk to places in my neighborhood because of railroad tracks, the river or the highway.	<u>Walk</u> store transit rail_alter

Aesthetics aes_scale	0 = not aesthetically pleasing 1 = mildly aesthetically pleasing 2 = aesthetically pleasing	1. There are sidewalks on most of the streets in my neighborhood. 2. There are many beautiful things to look at in my neighborhood. 3. There are abandoned buildings in my neighborhood. 4. There are buildings with graffiti in my neighborhood.	<u>Aesthetics</u> side graff_alternie aban_alter beauty
Accessibility Places_scale	0 = limited neighborhood facilities 1 = some neighborhood facilities 2 = most neighborhood facilities	1. There is a super market in my neighborhood. 2. There are recreational facilities or gyms in my neighborhood. 3. There are parks with playgrounds in my neighborhood. 4. There are parks with walking trails in my neighborhood.	<u>Places</u> mart gym park trail
Traffic Traffic_scale	0 = traffic in my neighborhood 1 = no traffic in my neighborhood	1. It is hard to walk in my neighborhood because of so much traffic. 2. There are crosswalks & signals to help walkers cross the streets in my neighborhood.	<u>Traffic</u> walktr_alter cross
Crime Crime_scale	0 = no crime in my neighborhood 1 = crime in my neighborhood	In my neighborhood, I am afraid of: 1. People I don't know 2. Other kids my age 3. Kids that pick on me 4. Gangs 5. Homeless people 6. Drug dealers 7. Adults outside of my household	<u>Crime</u> a lot safe alone parkcr
Afraid Scale Afraid_scale	0 = not afraid of people in the neighborhood 1 = moderately afraid of people in the neighborhood 2 = afraid of people in the neighborhood	In my neighborhood, I am afraid of: 1. People I don't know 2. Other kids my age 3. Kids that pick on me 4. Gangs 5. Homeless people 6. Drug dealers 7. Adults outside of my household	<u>Afraid</u> ppl kids pick gang hme drug adult
Outcome	Categories	Definition	SSQ Variables
Body Mass Index bmi_calc	1 = underweight 2 = normal weight 3 = overweight 4 = obesity	How tall are you without your shoes on? How much do you weight without your shoes on?	bmi_cat ³ (171) bmi_calc
Abnormal versus Normal new_bmi	0 = normal weight 1 = overweight/ obese weight		

¹ SSQ, SHAPE Study Questionnaire

² Based on U.S. Census Bureau, 2011-2015 & American Community Survey

² BMI Percentile Calculator for Child & Teen (CDC 2018)

APPENDIX C

SPECIFIC AIM 1

Description of Demographics

Table C1: Demographic Characteristics, Stratified by Gender, SHAPE Study (n=145).

Characteristics¹	Female (n=94) N (%)³	Male (n=51) N (%)	p-value²
Age (years)			0.25
12 – 13	42(60.9)	27(39.1)	
14 – 15	28(65.1)	15(34.9)	
16 – 17	24 (72.7)	9 (27.3)	
Age (continuous)	Mean ± SD	Mean ± SD	0.41
	14.0 ± 1.7	13.8 ± 1.7	
Grade			0.19
6 th – 8 th	40(58.8)	28(41.2)	
9 th – 12 th	52(69.3)	23(30.7)	
Ethnicity			0.07
Black	84(63.2)	49(36.8)	
Non-Black	9(90.0)	1(10.0)	
Neighborhood Region⁴			0.40
Eastern Region	39(68.4)	18(31.6)	
Western Region	41(65.1)	22(34.9)	
Other	14(58.3)	10(4.7)	
Median Household Income⁵			0.36
Less than \$25,000	49(70.0)	21(30.0)	
More than \$25,000	31(62.0)	19(38.0)	

¹ Participants were restricted to those who have the outcome of the given analysis.

² The p-value presented for each categorical variable is the Chi-Square statistic and Fisher's Exact Test; p-value for continuous variables based on ANOVA.

³ Numbers may not add to 100% due to rounding or missing data.

⁴ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

⁵ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table C2: Demographic Characteristics, Stratified by Physical Activity (60 mins per day), SHAPE Study (n=126).

Characteristics^{1,2}	0 – 3 days (n= 62) N (%)⁴	4 – 7 days (n= 64) N (%)	p-value³
Gender			<.0001
Female	50(63.3)	29(36.7)	
Male	12(25.5)	35(74.5)	
Age (years)			0.78
12 – 13	29(46.0)	34(53.97)	
14 – 15	22(64.7)	12(35.3)	
16 – 17	11(37.9)	18(62.1)	
Age (continuous)	Mean ± SD 13.9±1.6	Mean ± SD 13.9±1.9	0.91
Grade			0.65
6 th – 8 th	30(47.6)	33(52.4)	
9 th – 12 th	31(51.7)	29(42.3)	
Ethnicity			0.23
Black	56(47.9)	61(52.1)	
Non-Black	5(71.4)	2(28.6)	
Neighborhoods⁵			0.10
Eastern Region	21(42.0)	29(58.0)	
Western Region	29(51.8)	27(48.2)	
Other	12(63.2)	7(36.9)	
Median Household Income⁶			0.14
Less than \$25,000	25(41.0)	36(59.0)	
More than \$25,000	25(55.6)	20(44.4)	

¹ Physical activity based on response to questions on: the number of days in the previous 7 days that a participant exercised or participated in physical activity for at least 60 minutes per day.

² Participants were restricted to those who have the outcome of the given analysis.

³ The p-value presented for each categorical valuable is the Chi-Square statistic and Fisher's Exact Test; p-value for continuous variables based on ANOVA.

⁴ Numbers may not add to 100% due to rounding or missing data.

⁵ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

⁶ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table C3: Demographic Characteristics, Stratified by Physical Activity (20 mins per day), SHAPE Study (n=121).

Characteristics ^{1,2}	0 – 3 days (n= 74) N (%) ⁴	4 – 7 days (n= 47) N (%)	p-value ³
Gender			0.06
Female	52(67.5)	25(32.5)	
Male	22(50.0)	22(50.0)	
Age (years)			0.73
12 – 13	34(60.7)	22(39.3)	
14 – 15	24(66.7)	12(33.3)	
16 – 17	16(55.2)	13(44.8)	
Age (continuous)	Mean ± SD 13.9±1.6	Mean ± SD 14.0±1.9	0.78
Grade			0.87
6 th – 8 th	35(61.4)	22(38.6)	
9 th – 12 th	39(62.9)	23(37.1)	
Ethnicity			0.17
Black	67(59.8)	45(40.2)	
Non-Black	6(85.7)	1(14.3)	
Neighborhoods⁵			0.52
Eastern Region	28(56.0)	22(44.0)	
Western Region	34(68.0)	16(32.0)	
Other	12(60.0)	8(40.0)	
Median Household Income⁶			0.54
Less than \$25,000	37(59.7)	25(40.3)	
More than \$25,000	25(65.8)	13(34.2)	

¹ Physical activity based on response to questions on: the number of days in the previous 7 days that a participant exercised or participated in physical activity for at least 20 minutes per day.

² Participants were restricted to those who have the outcome of the given analysis.

³ The p-value presented for each categorical variable is the Chi-Square statistic; p-value for continuous variables based on ANOVA.

⁴ Numbers may not add to 100% due to rounding or missing data.

⁵ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

⁶ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table C4: Demographic Characteristics, Stratified by Body Mass Index, SHAPE Study (n=145).

Characteristics^{1,2}	Under-weight (n= 9)	Normal (n= 57)	Over-weight (n=30)	Obesity (n=49)	p-value³
	N (%) ⁴	N (%)	N (%)	N (%)	
Gender					0.49
Female	6(6.4)	36(38.3)	17(18.1)	35(37.2)	
Male	3(5.9)	21(41.2)	13(25.5)	14(27.5)	
Age (years)					0.18
12 – 13	5(7.3)	30(43.5)	16(23.2)	18(26.1)	
14 – 15	2(4.7)	15(35.9)	8(18.6)	18(41.9)	
16 – 17	2(6.1)	12(36.4)	6(18.2)	13(39.4)	
Age (continuous)	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	0.62
	13.6 ± 1.7	13.9 ± 1.7	13.7 ± 1.6	14.1 ± 1.6	
Grade					0.04
6 th – 8 th	5(7.35)	31(45.6)	15(22.1)	17(25.0)	
9 th – 12 th	4(5.3)	25(33.32)	14(18.7)	32(42.7)	
Ethnicity					0.54
Black	9(6.8)	52(39.10)	28(21.1)	44(33.1)	
Non-Black	0(0.0)	4(40.0)	2(20.0)	4(40.0)	
Neighborhoods ⁵					0.15
Eastern Region	4(7.0)	27(47.4)	9(15.8)	17(29.8)	
Western Region	5(7.9)	20(31.8)	17(27.0)	21(33.3)	
Other	0(0.0)	10(41.7)	4(16.7)	10(41.7)	
Median Household Income ⁶					0.54
Less than \$25,000	5(7.1)	32(45.7)	10(14.3)	23(32.9)	
More than \$25,000	4(8.0)	15(30.0)	16(32.0)	15(30.0)	

¹ Weight percentiles defined as: underweight (less than or equal to 5th percentile), normal weight (between 5th and 85th percentile); overweight (between 85th and 95th percentile), and obese (greater than or equal to 95th percentile).

² Participants were restricted to those who have the outcome of the given analysis.

³ The p-value presented for each categorical variable is the Chi-Square statistic; p-value for continuous variables based on ANOVA.

⁴ Numbers may not add to 100% due to rounding or missing data.

⁵ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

⁶ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table C5: Demographic Characteristics, Stratified by Walkability in the Neighborhood, SHAPE STUDY (n =154).

Characteristics^{1,2}	Easy (n= 99)	Medium (n= 39)	Hard (n= 16)	p-value³
	N (%) ⁴	N (%)	N (%)	
Gender				0.87
Female	63(65.6)	23(24.0)	10(10.4)	
Male	36(62.1)	16(27.6)	6(10.3)	
Age (years)				0.74
12 – 13	47(61.8)	21(27.6)	8(10.5)	
14 – 15	29(64.4)	13(28.9)	3(6.7)	
16 – 17	23(69.7)	5(15.2)	5(15.2)	
Age (continuous)	Mean ± SD	Mean ± SD	Mean ± SD	0.50
	13.9 ± 1.7	13.6 ± 1.5	13.9 ± 2.0	
Grade				0.36
6 th – 8 th	47(62.7)	19(25.3)	9(12.0)	
9 th – 12 th	52(68.4)	18(23.7)	6(7.9)	
Ethnicity				0.50
Black	93(65.5)	34(23.9)	15(10.6)	
Non-Black	5(50.0)	4(40.0)	1(10.0)	
Neighborhoods⁵				0.06
Eastern Region	34(58.6)	14(24.1)	10(17.2)	
Western Region	46(66.7)	17(24.6)	6(8.7)	
Other	18(69.2)	8(30.8)	0(0.0)	
Median Household Income⁶				0.23
Less than \$25,000	42(59.2)	18(25.4)	11(15.5)	
More than \$25,000	38(67.9)	13(23.2)	5(8.9)	

¹ Walkability based on response to questions (yes/no) on: stores are easy to walk to in my neighborhood (grocery stores, clothing stores, local stores); from my home, it is easy to walk to a bus stop (transit or city bus); it is hard to walk to places in my neighborhood because of railroad tracks, the river, or the highway.

² Participants were restricted to those who have the outcome of the given analysis.

³ The p-value presented for each categorical valuable is the Chi-Square statistic; p-value for continuous variables based on ANOVA.

⁴ Numbers may not add to 100% due to rounding or missing data.

⁵ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

⁶ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table C6: Demographic Characteristics, Stratified by Aesthetics in the Neighborhood, SHAPE STUDY (n =153).

Characteristics^{1,2}	Not Pleasing (n= 53)	Mildly Pleasing (n= 48)	Most Pleasing (n=52)	p-value ³
	N (%) ⁴	N (%)	N (%)	
Gender				0.78
Female	36(37.5)	26(27.1)	34(35.4)	
Male	17(29.8)	22(38.6)	18(31.6)	
Age (years)				0.97
12 – 13	24(31.6)	27(35.5)	25(32.9)	
14 – 15	17(37.8)	14(31.1)	14(31.1)	
16 – 17	12(37.5)	7(21.9)	13(40.6)	
Age (continuous)	Mean ± SD	Mean ± SD	Mean ± SD	0.33
	13.9 ± 1.8	13.5 ± 1.5	14.0 ± 1.8	
Grade				0.62
6 th – 8 th	25(33.3)	27(36.0)	23(30.7)	
9 th – 12 th	26(34.7)	20(26.7)	29(38.7)	
Ethnicity				0.43
Black	49(34.5)	46(32.4)	47(33.1)	
Non-Black	3(30.0)	2(20.0)	5(50.0)	
Neighborhoods ⁵				0.002
Eastern Region	29(50.0)	15(25.9)	14(24.2)	
Western Region	18(26.1)	26(37.7)	25(36.2)	
Other	6(23.1)	7(26.9)	13(50.0)	
Median Household Income ⁶				0.06
Less than \$25,000	34(47.9)	16(22.5)	21(29.6)	
More than \$25,000	13(23.2)	25(44.6)	18(32.1)	

¹ Aesthetics based on response to questions (yes/no) on: sidewalks are on most of the streets in my neighborhood; there are many beautiful things to look at in my neighborhood (e.g. gardens, views); there are many nice-looking buildings and homes in my neighborhood; there are abandoned building in my neighborhood; there are buildings with graffiti in my neighborhood.

² Participants were restricted to those who have the outcome of the given analysis.

³ The p-value presented for each categorical valuable is the Chi-Square statistic; p-value for continuous variables based on ANOVA.

⁴ Numbers may not add to 100% due to rounding or missing data.

⁵ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

⁶ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table C7: Demographic Characteristics, Stratified by Accessibility in the Neighborhood, SHAPE STUDY (n =153).

Characteristics^{1,2}	Limited Facilities (n= 49)	Some Facilities (n= 57)	Most Facilities (n=47)	p-value³
	N (%) ⁴	N (%)	N (%)	
Gender				0.87
Female	32(33.3)	34(35.4)	30(31.3)	
Male	17(29.8)	23(40.4)	17(29.8)	
Age (years)				0.40
12 – 13	24(31.6)	27(35.5)	25(32.9)	
14 – 15	13(28.9)	17(37.8)	15(33.3)	
16 – 17	12(37.5)	13(40.6)	7(22.9)	
Age (continuous)	Mean ± SD	Mean ± SD	Mean ± SD	0.73
	13.9 ± 1.8	13.9 ± 1.6	13.7 ± 1.6	
Grade				0.91
6 th – 8 th	24(32.0)	28(37.3)	23(30.7)	
9 th – 12 th	23(30.7)	29(38.7)	23(30.7)	
Ethnicity				0.38
Black	46(32.4)	54(38.0)	42(29.6)	
Non-Black	3(30.0)	2(20.0)	5(50.0)	
Neighborhoods⁵				0.61
Eastern Region	21(36.2)	24(41.4)	13(22.4)	
Western Region	18(26.1)	23(33.3)	28(40.6)	
Other	10(38.5)	10(38.5)	6(23.1)	
Median Household Income⁶				0.07
Less than \$25,000	24(33.8)	30(42.3)	17(23.9)	
More than \$25,000	15(26.8)	17(30.4)	24(42.9)	

¹ Facilities based on response to questions (true/false) on: there is a super market in my neighborhood (Walmart, Kroger); there are a recreational facilities or gyms (YMCA, community centers) in my neighborhood; there are parks with playgrounds in my neighborhood; there are parks with my walking trails in my neighborhood.

² Participants were restricted to those who have the outcome of the given analysis.

³ The p-value presented for each categorical valuable is the Chi-Square statistic; p-value for continuous variables based on ANOVA.

⁴ Numbers may not add to 100% due to rounding or missing data.

⁵ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

⁶ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table C8: Demographic Characteristics, Stratified by Traffic in the Neighborhood, SHAPE STUDY (n =153).

Characteristics^{1,2}	No traffic in my neighborhood (n= 81) N (%)⁴	Traffic in my neighborhood (n=72) N (%)	p-value³
Gender			0.20
Female	47(49.0)	49(51.0)	
Male	34(59.7)	23(40.4)	
Age (years)			0.29
12 – 13	38(50.0)	38(50.0)	
14 – 15	27(60.0)	18(40.0)	
16 – 17	16(50.0)	16(50.0)	
Age (continuous)	Mean ± SD 13.8 ± 1.6	Mean ± SD 13.8± 1.7	0.86
Grade			0.74
6 th – 8 th	39(52.0)	36(48.0)	
9 th – 12 th	41(54.7)	34(45.3)	
Ethnicity			0.13
Black	78(54.9)	64(45.1)	
Non-Black	3(30.0)	7(70.0)	
Neighborhoods⁵			0.37
Eastern Region	28(48.3)	30(51.7)	
Western Region	38(55.1)	31(44.9)	
Other	15(57.7)	11(42.3)	
Median Household Income⁶			0.69
Less than \$25,000	33(46.5)	38(53.5)	
More than \$25,000	28(50.0)	28(50.0)	

¹ Traffic based on response to questions (true/false) on: It is hard to walk in my neighborhood because of so much traffic; there are crosswalks and signals to help walkers cross the streets in my neighborhood.

² Participants were restricted to those who have the outcome of the given analysis.

³ The p-value presented for each categorical valuable is the Chi-Square statistic; p-value for continuous variables based on ANOVA.

⁴ Numbers may not add to 100% due to rounding or missing data.

⁵ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

⁶ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table C9: Demographic Characteristics, Stratified by Crime in the Neighborhood, SHAPE STUDY (n =153).

Characteristics^{1,2}	No Crime (n= 63) N (%)⁴	Crime (n=90) N (%)	p-value³
Gender			0.01
Female	32(33.3)	64(66.7)	
Male	31(54.4)	26(45.6)	
Age (years)			0.20
12 – 13	28(36.8)	48(63.2)	
14 – 15	19(42.2)	26(57.8)	
16 – 17	16(50.0)	16(50.0)	
Age (continuous)	Mean ± SD	Mean ± SD	0.10
	14.1 ± 1.7	13.6± 1.7	
Grade			0.14
6 th – 8 th	27(36.0)	48(64.0)	
9 th – 12 th	36(48.0)	39(52.0)	
Ethnicity			0.47
Black	59(41.6)	83(58.5)	
Non-Black	3(30.0)	7(70.0)	
Neighborhoods⁵			0.33
Eastern Region	24(41.4)	34(58.6)	
Western Region	24(34.8)	45(65.2)	
Other	15(57.7)	11(42.3)	
Median Household Income⁶			0.42
Less than \$25,000	29(40.9)	42(59.2)	
More than \$25,000	19(33.9)	37(66.1)	

¹ Crime based on response to questions (true/false) on: there is a lot of crime in my neighborhood; I do not feel safe in my neighborhood at night; I am worried about being outside alone in my neighborhood; I am worried about being alone at a park in my neighborhood.

² Participants were restricted to those who have the outcome of the given analysis.

³ The p-value presented for each categorical valuable is the Chi-Square statistic; p-value for continuous variables based on ANOVA.

⁴ Numbers may not add to 100% due to rounding or missing data.

⁵ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

⁶ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table C10: Demographic Characteristics, Stratified by Afraid of Different Types of People within the Neighborhood, SHAPE STUDY (n =153).

Characteristics^{1,2}	Not Afraid (n=37)	Moderately Afraid (n= 64)	Afraid (n=52)	p-value³
	N (%)⁴	N (%)	N (%)	
Gender				0.02
Female	16(16.7)	44(45.8)	36(37.5)	
Male	21(36.8)	20(35.1)	16(28.1)	
Age (years)				0.05
12 – 13	16(21.1)	29(38.2)	31(40.8)	
14 – 15	9(20.0)	23(51.1)	13(28.9)	
16 – 17	12(37.5)	12(37.5)	8(25.0)	
Age (continuous)	Mean ± SD	Mean ± SD	Mean ± SD	0.05
	14.3 ± 1.9	13.9 ± 1.6	13.4 ± 1.6	
Grade				0.09
6 th – 8 th	16(21.3)	28(37.3)	31(41.3)	
9 th – 12 th	21(28.0)	34(45.3)	20(26.7)	
Ethnicity				0.20
Black	34(23.9)	62(43.7)	46(32.4)	
Non-Black	2(20.0)	2(20.0)	6(60.0)	
Neighborhoods⁵				0.78
Eastern Region	16(27.6)	19(32.8)	23(39.7)	
Western Region	15(21.8)	33(47.8)	21(30.4)	
Other	6(23.1)	12(46.2)	8(30.8)	
Median Household Income⁶				0.27
Less than \$25,000	17(23.9)	25(35.2)	29(40.9)	
More than \$25,000	14(25.0)	27(48.2)	15(26.8)	

¹ Afraid based on response to questions (true/false) on: I am afraid of: there is a lot of people I don't know, other kids my age, kids that pick on me, gangs, homeless people, drug dealers, adults outside of my household.

² Participants were restricted to those who have the outcome of the given analysis.

³ The p-value presented for each categorical valuable is the Chi-Square statistic; p-value for continuous variables based on ANOVA.

⁴ Numbers may not add to 100% due to rounding or missing data.

⁵ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

⁶ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table C11: Demographic Characteristics, Stratified by the Covariate ‘Perceptions of Weight among Adolescents’, SHAPE STUDY (n =153).

Characteristics^{1,2}	Normal weight (n= 110) N (%)	Over-weight (n=43) N (%)	p-value ³
Gender			0.11
Female	64(67.4)	31(32.6)	
Male	46(79.3)	12(20.7)	
Age (years)			0.04
12 – 13	62(81.6)	14(18.4)	
14 – 15	26(59.1)	18(40.9)	
16 – 17	22(66.7)	11(33.3)	
Age (continuous)	Mean ± SD 13.7 ± 1.7	Mean ± SD 14.2 ± 1.6	0.08
Grade			0.03
6 th – 8 th	60(80.0)	15(20.0)	
9 th – 12 th	48(64.0)	27(36.0)	
Ethnicity			0.87
Black	102(72.3)	39(27.7)	
Non-Black	7(70.0)	3(30.0)	
Neighborhoods⁵			0.69
Eastern Region	44(77.2)	13(22.8)	
Western Region	46(66.7)	23(33.3)	
Other	20(76.9)	6(23.1)	
Median Household Income⁶			0.43
Less than \$25,000	52(74.3)	18(25.7)	
More than \$25,000	38(67.9)	18(32.1)	

¹ Perceptions about weight based on response to question on: how the participant describes their weight as very underweight, slightly underweight, about the right weight, slightly overweight, and very overweight.

² Participants were restricted to those who have the outcome of the given analysis.

³ The p-value presented for each categorical variable is the Chi-Square statistic; p-value for continuous variables based on ANOVA.

⁴ Numbers may not add to 100% due to rounding or missing data

⁵ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

⁶ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table C12: Demographic Characteristics, Stratified by the Covariate ‘Weight Goals among Adolescents’, SHAPE STUDY (n =153).

Characteristics ^{1,2}	Lose Weight (n=68)	Stay the same weight (n= 52)	Gain Weight (n=33)	p-value ³
	N (%) ⁴	N (%)	N (%)	
Gender				0.04
Female	50(52.6)	33(34.7)	12(12.6)	
Male	18(31.0)	19(32.8)	21(36.2)	
Age (years)				0.66
12 – 13	30(40.0)	28(37.3)	17(22.7)	
14 – 15	24(53.3)	10(22.2)	11(24.4)	
16 – 17	14(42.4)	14(42.4)	5(15.2)	
Age (continuous)	Mean ± SD	Mean ± SD	Mean ± SD	0.92
	13.9 ± 1.6	13.8 ± 1.9	13.8 ± 1.6	
Grade				0.63
6 th – 8 th	30(40.5)	27(36.5)	17(23.0)	
9 th – 12 th	38(50.0)	22(29.0)	16(21.1)	
Ethnicity				0.23
Black	62(44.0)	47(33.3)	32(22.7)	
Non-Black	4(40.0)	5(50.0)	1(10.0)	
Neighborhoods⁵				0.45
Eastern Region	27(46.6)	20(34.5)	11(19.0)	
Western Region	33(47.8)	23(47.8)	13(18.8)	
Other	7(28.0)	9(36.0)	9(36.0)	
Median Household Income⁶				0.55
Less than \$25,000	34(47.9)	25(35.2)	12(16.9)	
More than \$25,000	26(46.4)	18(32.1)	12(21.4)	

¹ Weight goals based on response to question: which of the following are you trying to do about your weight? The responses were lose weight, gain weight, stay the same weight, and I am not trying to do anything about my weight.

² Participants were restricted to those who have the outcome of the given analysis.

³ The p-value presented for each categorical valuable is the Chi-Square statistic; p-value for continuous variables based on ANOVA.

⁴ Numbers may not add to 100% due to rounding or missing data

⁵ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

⁶ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table C13: Demographic Characteristics, Stratified by the Covariate ‘Fruit and Veggie Intake’, SHAPE STUDY (n =139).

Characteristics^{1,2}	Inadequate Fruit and Veggie Intake (n= 84)	Adequate Fruit and Veggie Intake (n=55)	p-value³
	N (%) ⁴	N (%)	
Gender			0.46
Female	57(62.6)	34(37.4)	
Male	27(56.3)	21(43.8)	
Age (years)			0.79
12 – 13	42(61.8)	26(38.2)	
14 – 15	23(59.0)	16(41.0)	
16 – 17	19(59.4)	13(40.6)	
Age (continuous)	Mean ± SD	Mean ± SD	0.99
	13.9± 1.7	13.9± 1.7	
Grade			0.28
6 th – 8 th	44(65.7)	23(34.3)	
9 th – 12 th	39(56.5)	30(43.5)	
Ethnicity			0.89
Black	12(40.0)	78(60.0)	
Non-Black	3(37.5)	5(62.5)	
Neighborhoods⁵			0.15
Eastern Region	36(67.9)	17(32.1)	
Western Region	36(56.3)	28(43.8)	
Other	11(52.4)	(47.7)	
Median Household Income⁶			0.88
Less than \$25,000	41(62.1)	25(37.9)	
More than \$25,000	31(60.8)	20(39.2)	

¹ Fruit and vegetable intake based on response to questions: during the past 7 days, how many times did you eat fruit; and during the past 7 days, how many times did you eat vegetables; (carrots, salads, green beans, etc.) The responses were I did not eat it during this time, 1 to 3 times per day, 4 to 6 times per day, 7+ times per day and don’t know.

² Participants were restricted to those who have the outcome of the given analysis.

² The p-value presented for each categorical variable is the Chi-Square statistic; p-value for continuous variables based on ANOVA.

³ Numbers may not add to 100% due to rounding or missing data

⁴ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

⁵ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table C14: Demographic Characteristics, Stratified by the Covariate ‘Unhealthy Food’, SHAPE STUDY (n =154).

Characteristics^{1,2}	None to Limited (n=82)	Many (n=72)	p-value³
	N (%)⁴	N (%)	
Gender			0.19
Female	55(57.3)	41(42.7)	
Male	27(46.6)	31(53.5)	
Age (years)			0.41
12 – 13	45(59.2)	31(40.8)	
14 – 15	19(42.2)	26(57.8)	
16 – 17	18(54.6)	15(45.5)	
Age (continuous)	Mean ± SD	Mean ± SD	0.59
	13.8± 1.9	13.9± 1.5	
Grade			0.02
6 th – 8 th	47(62.7)	28(37.3)	
9 th – 12 th	33(43.4)	43(56.6)	
Ethnicity			0.08
Black	72(50.7)	70(49.3)	
Non-Black	8(80.0)	2(20.0)	
Neighborhoods⁵			0.64
Eastern Region	34(58.6)	24(41.4)	
Western Region	32(46.4)	37(53.6)	
Other	15(58.7)	11(42.3)	
Median Household Income⁶			0.97
Less than \$25,000	37(52.1)	34(47.9)	
More than \$25,000	29(52.8)	27(48.2)	

¹ Unhealthy food based on responses to questions: during the past 7 days, how many times did you eat fast foods; during the past 7 days, how many times did you drink a can, bottle, or glass of soda or pop, such as Coke, Pepsi, or Sprite; and during the past 7 days, how many days did you eat junk food (chips, cookies, or cakes, pies, and etc. The responses were I did not eat it at this time, 1 to 3 times per day, 4 to 6 times per day, 7+ times per day, and don't know.

² Participants were restricted to those who have the outcome of the given analysis.

³ The p-value presented for each categorical valuable is the Chi-Square statistic; p-value for continuous variables based on ANOVA.

⁴ Numbers may not add to 100% due to rounding or missing data

⁵ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

⁶ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table C15: Demographic Characteristics, Stratified by the Covariate ‘Meals at Home’, SHAPE STUDY (n =152).

Characteristics^{1,2}	0 - 3 meals at home (n=50)	4 - 7 meals at home (n=102)	p-value³
	N (%) ⁴	N (%)	
Gender			0.74
Female	30(31.9)	64(62.1)	
Male	20(34.5)	38(65.5)	
Age (years)			0.07
12 – 13	20(27.0)	54(73.0)	
14 – 15	15(33.3)	30(66.7)	
16 – 17	15(45.5)	18(54.6)	
Age (continuous)	Mean ± SD	Mean ± SD	0.14
	14.1± 1.7	13.7± 1.7	
Grade			0.09
6 th – 8 th	20(27.0)	54(73.0)	
9 th – 12 th	30(40.0)	45(60.0)	
Ethnicity			0.61
Black	45(32.1)	95(67.9)	
Non-Black	4(40.00)	6(60.0)	
Neighborhoods⁵			0.89
Eastern Region	20(34.5)	38(65.5)	
Western Region	20(29.9)	47(70.2)	
Other	10(38.5)	16(61.5))	
Median Household Income⁶			0.62
Less than \$25,000	24(33.8)	47 (66.2)	
More than \$25,000	16(29.6)	38(70.4)	

¹ Meals at home based on responses to questions: during the past 7 days, on how many days did you eat breakfast or a morning meal at home; during the past 7 days, on how many days did you eat lunch at school or home; and on how many of the past 7 days did you eat dinner or an evening meal. The responses were 0 days, 1 day, 2 days, 3 days, 4 days, 5 days, 6 days, 7 days, and don’t know.

² Participants were restricted to those who have the outcome of the given analysis.

³ The p-value presented for each categorical valuable is the Chi-Square statistic; p-value for continuous variables based on ANOVA.

⁴ Numbers may not add to 100% due to rounding or missing data

⁵ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

⁶ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table C16: Demographic Characteristics, Stratified by the Covariate ‘Meals at School’, SHAPE STUDY (n =149).

Characteristics^{1,2}	0 - 2 days at school (n=103)	3-5 meals at home (n=46)	p-value³
	N (%)⁴	N (%)	
Gender			0.23
Female	61(65.6)	32(34.4)	
Male	42(75.0)	14(25.0)	
Age (years)			0.30
12 – 13	47(64.4)	26(35.6)	
14 – 15	32(74.4)	11(25.6)	
16 – 17	24(72.7)	9(27.3)	
Age (continuous)	Mean ± SD	Mean ± SD	0.14
	14.0± 1.7	13.51± 1.8	
Grade			0.29
6 th – 8 th	47(66.7)	26(35.6)	
9 th – 12 th	54(74.0)	19(26.0)	
Ethnicity			0.54
Black	95(69.3)	42(30.7)	
Non-Black	6(60.0)	4(40.0)	
Neighborhoods⁵			0.41
Eastern Region	40(71.4)	16(28.6)	
Western Region	46(69.7)	20(30.3)	
Other	16(61.5)	10(38.5)	
Median Household Income⁶			0.59
Less than \$25,000	50(72.5)	19(27.5)	
More than \$25,000	36(67.9)	17(32.1)	

¹ Meals at school based on responses to questions: during the past 7 days, on how many days did you eat breakfast or a morning meal at school; and during the past 7 days, on how many days did you eat lunch at school or home. The responses were 0 days, 1 day, 2 day, 3 days, 4 days, 5 days, and don’t know.

² Participants were restricted to those who have the outcome of the given analysis.

³ The p-value presented for each categorical valuable is the Chi-Square statistic; p-value for continuous variables based on ANOVA.

⁴ Numbers may not add to 100% due to rounding or missing data

⁵ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

⁶ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table C17: Demographic Characteristics, Stratified by the Covariate ‘Comfortability Working Out’, SHAPE STUDY (n =154).

Characteristics^{1,2}	Mild to Moderately Comfort (n=35)	Comfortable (n=119)	p-value³
	N (%)⁴	N (%)	
Gender			0.47
Female	20(20.8)	76(79.2)	
Male	15(25.9)	43(74.1)	
Age (years)			0.44
12 – 13	20(26.3)	56(73.7)	
14 – 15	8(17.8)	37(82.2)	
16 – 17	7(21.2)	26(78.8)	
Age (continuous)	Mean ± SD	Mean ± SD	0.55
	13.7± 1.6	13.9± 1.73	
Grade			0.53
6 th – 8 th	18(24.0)	57(76.0)	
9 th – 12 th	15(19.7)	61(80.3)	
Ethnicity			0.07
Black	35(24.7)	107(75.4)	
Non-Black	0(0.0)	10(100.0)	
Neighborhoods⁵			0.05
Eastern Region	8(13.8)	50(86.2)	
Western Region	19(27.5)	50(72.5)	
Other	8(30.8)	18(69.2)	
Median Household Income⁶			0.03
Less than \$25,000	10(14.1)	61(85.9)	
More than \$25,000	17(30.4)	39(69.6)	

¹ Comfortability based on responses to questions (agree/disagree): I find it fun. It gives me energy. I enjoy the results of working out.

² Participants were restricted to those who have the outcome of the given analysis.

³ The p-value presented for each categorical variable is the Chi-Square statistic; p-value for continuous variables based on ANOVA.

⁴ Numbers may not add to 100% due to rounding or missing data

⁵ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

⁶ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table C18: Demographic Characteristics, Stratified by the Covariate ‘Fun Scale’, SHAPE STUDY (n =148).

Characteristics^{1,2}	0 -3 hours per day (n=102)	4 +hours per day (n=46)	p-value³
	N (%) ⁴	N (%)	
Gender			0.05
Female	58(63.0)	34(37.0)	
Male	44(78.6)	12(26.1)	
Age (years)			0.31
12 – 13	48(65.8)	25(34.3)	
14 – 15	29(69.1)	13(30.9)	
16 – 17	25(75.8)	8(24.2)	
Age (continuous)	Mean ± SD	Mean ± SD	0.22
	14.0± 1.8	13.6± 1.5	
Grade			0.40
6 th – 8 th	48(65.8)	25(34.3)	
9 th – 12 th	52(72.2)	20(27.8)	
Ethnicity			0.71
Black	95(68.8)	43(31.2)	
Non-Black	5(62.5)	3(37.5)	
Neighborhoods⁵			0.85
Eastern Region	38(70.4)	16(29.6)	
Western Region	45(67.2)	22(32.8)	
Other	18(69.2)	8(30.8)	
Median Household Income⁶			0.68
Less than \$25,000	47(70.2)	20(29.9)	
More than \$25,000	36(66.7)	18(33.3)	

¹ Fun scale based on responses to questions: on a school day, how many hours do you play video or computer games; on a school day, how many hours do you spend watching TV shows or movies; and on a school day, how many hours do you spend on social media. The responses were I do not play use a particular device or social media on an average school day, 1 hour per day, 2 hours per day, 3 hours per day, 4 hours per day, 5 or more hours per day, and don't know.

² Participants were restricted to those who have the outcome of the given analysis.

³ The p-value presented for each categorical valuable is the Chi-Square statistic; p-value for continuous variables based on ANOVA.

⁴ Numbers may not add to 100% due to rounding or missing data

⁵ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

⁶ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table C19: Demographic Characteristics, Stratified by the Covariate ‘Parental Support’, SHAPE STUDY (n =154).

Characteristics^{1,2}	Low to mid support (n=71) N (%)⁴	High Support (n=83) N (%)	p-value³
Gender			0.45
Female	42(43.8)	51(56.2)	
Male	29(50.0)	29(50.0)	
Age (years)			0.87
12 – 13	36(47.4)	40(52.6)	
14 – 15	18(40.0)	27(60.0)	
16 – 17	17(51.5)	16(48.5)	
Age (continuous)	Mean ± SD 13.9± 1.7	Mean ± SD 13.8± 1.7	0.96
Grade			0.47
6 th – 8 th	37(49.3)	38(50.7)	
9 th – 12 th	33(43.4)	43(256.6)	
Ethnicity			0.91
Black	66(46.5)	76(53.5)	
Non-Black	4(40.0)	6(60.0)	
Neighborhoods⁵			0.67
Eastern Region	28(48.3)	30(51.7)	
Western Region	28(40.6)	41(59.4)	
Other	15(47.7)	11(42.3)	
Median Household Income⁶			0.19
Less than \$25,000	35(49.3)	36(50.7)	
More than \$25,000	21(37.5)	35(62.5)	

¹ Parental Support based on responses to questions (yes/no): encourage you to do physical activities or play sports; exercise or play sports with you; drive you to school-related activities; eat dinner with you; do any of your parents or guardians work long hours; and are any of your parents or guardians home after school.

² Participants were restricted to those who have the outcome of the given analysis.

³ The p-value presented for each categorical valuable is the Chi-Square statistic; p-value for continuous variables based on ANOVA.

⁴ Numbers may not add to 100% due to rounding or missing data

⁵ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

⁶ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table C20: Demographic Characteristics, Stratified by Missing/Present Outcome Variable (Normal weight *versus* Overweight/Obese), SHAPE Study (n=154).

Characteristics^{1,2}	Missing Outcome (n= 9) N (%)⁴	Present Outcome (n=145) N (%)	p-value³
Gender			0.01
Female	2(2.1)	94(97.9)	
Male	7(12.1)	51(87.9)	
Age (years)			0.05
12 – 13	7(9.2)	69(90.8)	
14 – 15	2(4.4)	43(95.6)	
16 – 17	0(0.0)	19(100.0)	
Age (continuous)	Mean±SD 12.44±0.9	Mean±SD 13.92±1.7	0.01
Grade			0.02
6 th – 8 th	7(9.3)	68(90.7)	
9 th – 12 th	1(1.3)	75(51.7)	
Ethnicity			0.41
Black	9(6.3)	133(93.7)	
Non-Black	0(0.0)	10(100.0)	
Neighborhoods⁵			0.16
Eastern Region	1(1.7)	57(92.3)	
Western Region	6(8.7)	63(91.3)	
Other	2(7.7)	24(92.3)	
Median Household Income⁶			0.02
Less than \$25,000	1(1.4)	70(98.6)	
More than \$25,000	6(10.7)	50(89.3)	

¹ Missing outcome was based on the missing variables from body mass index variable (normal weight versus overweight/obese). Present outcome was based on participants who responded to the body mass index variable.

² Participants were restricted to those who have the outcome of the given analysis.

³ The p-value presented for each categorical variable is the Chi-Square statistic; p-value for continuous variables based on ANOVA.

⁴ Numbers may not add to 100% due to rounding or missing data.

⁵ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

⁶ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

**Table C21: Risk Factors Stratified by Missing/Present Outcome Variable:
(Overweight/Obese *versus* Normal Weight), SHAPE Study (n=154).**

Characteristics^{1,2}	Missing Outcome (n= 9) N (%)⁴	Present Outcome (n= 145) N (%)	p-value³
Physical Activity (60 minutes)⁵			0.76
0 - 3 days	4(6.5)	58(93.6)	
4 - 7 days	5(7.8)	59(92.2)	
Missing	0(0.0)	28(100.0)	
Physical Activity (20 minutes)⁵			0.74
0 - 3 days	6(7.5)	74(92.5)	
4 - 7 days	3(6.0)	47(94.0)	
Missing	0(0.0)	24(100.0)	
Walkability Scale⁶			0.05
Easy	3(3.0)	96(97.0)	
Medium	4(10.3)	35(89.7)	
Hard	2(12.5)	14(87.5)	
Aesthetics Scale⁶			0.39
Not aesthetically pleasing	1(1.9)	52(98.1)	
Mildly aesthetically pleasing	5(10.4)	43(89.6)	
Aesthetically pleasing	3(5.8)	49(94.2)	
Missing	0(0.0)	1(100.0)	
Facilities Scale⁶			0.70
Limited facilities	4(8.2)	45(91.84)	
Some facilities	2(3.5)	55(96.5)	
Most facilities	3(6.4)	44(93.6)	
Missing	0(0.0)	1(100.0)	
Traffic Scale⁶			0.87
No Traffic	5(6.2)	76(93.8)	
Traffic	4(5.6)	68(94.4)	
Missing	0(0.0)	1(100.0)	
Crime Scale⁶			0.23
No crime	2(3.2)	61(96.8)	
Crime	7(7.8)	83(92.2)	
Missing	0(0.0)	1(100.0)	
Afraid Scale⁶			0.15
Not Afraid	0(0.0)	37(100.0)	
Moderately Afraid	5(7.8)	59(92.2)	
Afraid	4(7.7)	48(92.3)	
Missing	0(0.0)	1(100.0)	
Perceptions of Weight⁷			0.69
Normal weight	7(6.4)	103(93.6)	
Overweight	2(4.6)	41(95.4)	
Missing	0(0.0)	1(100.0)	
Weight Goals⁷			0.32
Lose weight	3(4.4)	65(95.6)	
Stay the same/nothing	2(3.8)	50(96.2)	
Gain weight	3(9.1)	30(90.9)	
Missing	1(100.0)	0(0.0)	
Fruit and Veggie Scale⁷			0.90
Inadequate intake	5(6.0)	79(94.0)	

Adequate intake	3(5.5)	52(94.6)	
Missing	1(6.7)	14(93.3)	
Unhealthy Scale⁷			0.58
Limited to no unhealthy foods	4(4.9)	78(95.1)	
Many unhealthy foods	5(6.9)	67(93.1)	
Meals at Home Scale⁷			0.97
0 – 3 days	3(6.0)	47(94.0)	
4 – 7 days	6(5.9)	96(94.1)	
Missing	0(0.0)	2(100.0)	
Meals at School Scale⁷			0.09
0 – 2 days	4(3.9)	99(96.1)	
3 – 5 days	5(10.9)	41(89.1)	
Missing	0(0.0)	5(100.0)	
Fun Scale⁷			0.88
0 - 3 hours per day	6(5.9)	96(94.1)	
4 + hours per day	3(6.5)	43(93.5)	
Missing	0(0.0)	6(100.0)	
Comfort Scale⁷			0.43
Mild to moderately comfortable	3(8.6)	32(91.4)	
Comfortable working out	6(5.0)	113(95.0)	
Support Scale⁷			0.91
Low-mid parental support	4(5.6)	67(94.4)	
High parental support	5(6.0)	78(94.0)	
Perception of Mom's weight⁷			0.72
Normal weight	6(5.8)	98(94.2)	
Overweight	2(4.4)	44(95.6)	
Missing	1(25.0)	3(75.0)	
Perception of Dad's weight⁷			0.35
Normal weight	7(6.7)	98(93.3)	
Overweight	1(2.6)	37(97.4)	
Missing	1(9.1)	10(90.1)	

¹ Missing outcome was based on the missing variables from body mass index variable (normal weight versus overweight/obese). Present outcome was based on participants who responded to the body mass index variable.

² Participants were restricted to those who have the outcome of the given analysis.

³ The p-value presented for each categorical variable is the Chi-Square statistic.

⁴ Numbers may not add to 100% due to rounding or missing data.

⁵ Physical activity based on response to questions on: the number of days in the previous 7 days that a participant exercised or participated in physical activity for at least 60 or 20 minutes per day.

⁶ Walkability based on response to questions on the ability to walk to certain places within an adolescents' neighborhood. Aesthetics based on response to questions on whether or not there are pleasing/displeasing neighborhood features. Facilities based on response to questions on whether recreational or food facilities in the neighborhood. Traffic based on response to questions on whether traffic and traffic control exist in neighborhoods. Crime based on response to questions about crime in the neighborhood. Afraid based on response to questions on whether adolescents' are afraid of people in the neighborhood.

⁷ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Unhealthy food based on responses to questions about fast food, junk food, and beverage consumption within past 7 days. Meals at home based on responses to questions on eating breakfast, lunch, and dinner at home within past 7 days. Meals at school based on responses to questions on eating breakfast, lunch, and dinner at school within past 7 days. Fun scale based on responses to questions on hours adolescents spend on social media, watching television, and playing video games. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out. Parental

Support based on responses to questions on parental support for physical activities, school activities, and support within the home. Mom and dad's weight based on responses to questions on how adolescents perceive their mom and dad's weight.

Table C22. Unadjusted Logistic Regression Model Results for Overweight/Obese versus Normal Weight (n=154).

Demographics¹⁻³	Odds Ratio	95 % CI⁵	p-value ⁴
Gender			
Male	1.00		
Female	1.10	0.56 – 2.18	0.78
Age (years)			0.47
12 – 13	1.00		
14 – 15	1.57	0.72 – 3.40	0.25
16 – 17	1.40	0.60 – 3.22	0.43
Age (continuous)	1.04	0.85 – 1.26	0.69
Grade			0.08
6 th – 8 th	1.00		
9 th – 12 th	1.78	0.91 – 3.47	0.08
Ethnicity			
Black	1.00		
Non-Black	1.27	0.34 – 4.71	0.72
Neighborhoods⁶			0.25
Eastern Region	1.00		
Western Region	1.81	0.87 – 3.74	0.11
Other	1.68	0.63 – 4.37	0.30
Median Household Income⁷			
Less than \$25,000	1.00		
More than \$25,000	1.83	0.87 – 3.83	0.11
Perceptions of Weight⁸			
Normal weight	1.00		
Overweight	68.40	9.04 – 517.61	<.0001
Weight goals⁸			<0.001
Stay the same/nothing	1.00		
Lose weight	10.67	4.37 – 26.05	<0.001
Gain weight	0.59	0.21 – 1.65	0.32
Fruit and Veggie Scale⁸			
Inadequate intake	1.00		
Adequate intake	1.85	0.89 – 3.79	0.10
Unhealthy Scale⁸			
Limited to no unhealthy foods	1.00		
Many unhealthy foods	0.85	0.43 – 1.62	0.61
Meals at Home Scale⁸			
0 – 3 days	1.55	0.76 – 3.1	0.23
4 – 7 days	1.00		
Meals at School Scale⁸			
0 – 2 days	1.00		
3 – 5 days	1.22	0.59 – 2.56	0.59
Fun Scale⁸			
0 - 3 hours per day	1.47	0.71 – 3.02	0.29
4 + hours per day	1.00		
Comfort Scale⁸			
Mild to moderately comfortable	1.53	0.68 – 3.41	0.30

Demographics ¹⁻³	Odds Ratio	95 % CI ⁵	p-value ⁴
Comfortable working out	1.00		
Support Scale⁸			
Low-mid parental support	1.06	0.54 – 2.03	0.86
High parental support	1.00		
Perception of Mom's weight⁸			
Normal weight	1.00		
Overweight	2.01	0.96 – 4.22	0.06
Perception of Dad's weight⁸			
Normal weight	1.00		
Overweight	3.98	1.70 – 9.31	0.0015
Physical Activity (60 mins)⁹			
0 - 3 days	1.19	0.57 – 2.46	0.64
4 – 7 days	1.00		
Physical Activity (20 mins)⁹			
0 – 3 days	1.13	0.54 – 2.35	0.75
4 – 7 days	1.00		
Walkability Scale¹⁰			0.65
Easy	1.64	0.51 – 6.22	
Medium	1.78	0.53 – 5.01	
Hard	1.00		
Aesthetics Scale¹⁰			0.95
Not aesthetically pleasing	1.12	0.51 – 2.44	0.78
Mildly aesthetically pleasing	1.02	0.45 – 2.31	0.96
Aesthetically pleasing	1.00		
Accessibility Scale¹⁰			0.54
Limited facilities	1.05	0.45 – 2.40	
Some facilities	1.50	0.67 – 3.33	
Most facilities	1.00		
Traffic Scale¹⁰			
No Traffic	1.00		
Traffic	0.81	0.42 – 1.57	0.54
Crime Scale¹⁰			
No Crime	1.25	0.64 – 2.43	0.51
Crime	1.00		
Afraid Scale¹⁰			0.02
Not Afraid	1.00		
Moderately Afraid	2.22	0.95 – 5.17	
Afraid	0.75	0.31 – 1.78	

¹ Each variable entered into simple logistic regression model separately.

² Participants were restricted to those who have the outcome of the given analysis.

³ Weight percentiles defined as: underweight (less than or equal to 5th percentile), normal weight(between 5th and 85th percentile); overweight (between 85th and 95th percentile), and obese (greater than or equal to 95th percentile).

⁴ The p-value presented for each categorical valuable is the Chi-Square statistic.

⁵ 95% CI, 95% Confidence Interval

⁶ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

⁷ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland

(\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

- ⁸ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents' ate fruit and vegetables within past 7 days. Unhealthy food based on responses to questions about fast food, junk food, and beverage consumption within past 7 days. Meals at home based on responses to questions on eating breakfast, lunch, and dinner at home within past 7 days. Meals at school based on responses to questions on eating breakfast, lunch, and dinner at school within past 7 days. Fun scale based on responses to questions on hours adolescents' spend on social media, watching television, and playing video games. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out. Parental Support based on responses to questions on parental support for physical activities, school activities, and support within the home. Mom and dad's weight based on responses to questions on how adolescents' perceive their mom and dad's weight.
- ⁹ Physical activity based on response to questions on: the number of days in the previous 7 days that a participant exercised or participated in physical activity for at least 60 or 20 minutes per day.
- ¹⁰ Walkability based on response to questions on the ability to walk to certain places within an adolescents' neighborhood. Aesthetics based on response to questions on whether or not there are pleasing/displeasing neighborhood features. Facilities based on response to questions on whether recreational or food facilities in the neighborhood. Traffic based on response to questions on whether traffic and traffic control exist in neighborhoods. Crime based on response to questions about crime in the neighborhood. Afraid based on response to questions on whether adolescent' are afraid of people in the neighborhood.

APPENDIX D

SPECIFIC AIM 2

Adolescents' Perception of their Built Environment and Physical Activity

Table D1. Purposeful Selection Logistic Regression Models - Odds Ratios for Walkability Scale in Relation to Overweight/Obesity (n=145).

Unadjusted Model^{1,2}	Odds Ratio	95% CI³	p-value⁴
Walkability			0.64
Easy	1.64	0.53 - 5.09	0.38
Medium	1.78	0.50 - 6.22	0.36
Difficult	1.00		
Adjusted Model	Odds Ratio	95% CI	p-value
Walkability			0.63
Easy	1.66	0.53 - 5.14	0.38
Medium	1.80	0.51 - 6.29	0.36
Difficult	1.00		
Gender			
Male	1.00		
Female	1.12	0.56 - 2.22	0.74
Walkability			0.66
Easy	1.63	0.51 - 5.11	0.40
Medium	1.77	0.49 - 6.32	0.38
Difficult	1.00		
Gender			
Male	1.00		
Female	1.09	0.54 - 2.17	0.81
Age (years)			
12 – 13			
14 – 15	1.52	0.70 - 3.31	0.28
12 – 13	1.43	0.61 - 3.34	0.40
Walkability			0.86
Easy	1.38	0.42 - 4.47	0.59
Medium	1.35	0.36 - 5.04	0.64
Difficult	1.00		
Gender			
Male	1.00		
Female	1.02	0.50 - 2.05	0.96
Age (years)			
12 – 13			
14 – 15	0.34	0.03 - 3.24	0.35
12 – 13	0.29	0.02 - 3.12	0.31
Grade			
6 th – 8 th	1.00		
9 th -12 th	5.15	0.54 - 48.94	0.15

¹ Walkability based on response to questions (yes/no) on: stores are easy to walk to in my neighborhood (grocery stores, clothing stores, local stores); from my home, it is easy to walk to a bus stop (transit or city bus); it is hard to walk to places in my neighborhood because of railroad tracks, the river, or the highway.

² Participants were restricted to those who have the outcome of the given analysis.

³ 95% CI, 95% Confidence Interval.

⁴ The p-value presented for each categorical variable is the Chi-Square statistic.

Table D2. Final Adjusted Model for Walkability Scale in Relation to Overweight/Obesity (n=145).

Adjusted Model^{1,2}	Odds Ratio	95% CI³	p-value⁴
Walkability			
Easy	1.37	0.42 - 4.47	0.59
Medium	1.35	0.36 - 5.03	0.64
Difficult	1.00		
Age (years)			
12 – 13			
14 – 15	0.34	0.03 - 3.21	0.34
12 – 13	0.29	0.02 - 3.10	0.30
Grade			
6 th – 8 th	1.00		
9 th – 12 th	5.18	0.55 - 48.69	0.15

¹ Walkability based on response to questions (yes/no) on: stores are easy to walk to in my neighborhood (grocery stores, clothing stores, local stores); from my home, it is easy to walk to a bus stop (transit or city bus); it is hard to walk to places in my neighborhood because of railroad tracks, the river, or the highway.

² Participants were restricted to those who have the outcome of the given analysis.

³ 95% CI, 95% Confidence Interval.

⁴ The p-value presented for each categorical variable is the Chi-Square statistic.

Table D3. Purposeful Selection Logistic Regression Models - Odds Ratio for Aesthetics Scale in Relation to Overweight/Obesity (n=145).

Unadjusted Model^{1,2}	Odds Ratio	95% CI³	p-value⁴
Aesthetics			0.95
Not Aesthetically	1.12	0.50 - 2.44	0.78
Mildly Aesthetically	1.02	0.44 - 2.31	0.96
Aesthetically Pleasing	1.00		
Adjusted Model	Odds Ratio	95% CI	p-value
Aesthetics			0.95
Not Aesthetically	1.11	0.51 - 2.45	0.77
Mildly Aesthetically	1.03	0.45 - 2.35	0.93
Aesthetically Pleasing	1.00		
Gender			
Male	1.00		
Female	1.14	0.57 - 2.28	0.70
Aesthetics			0.96
Not Aesthetically	1.12	0.50 - 2.46	0.77
Mildly Aesthetically	1.05	0.45 - 2.41	0.90
Aesthetically Pleasing	1.00		
Gender			
Male	1.00		
Female	1.12	0.55 - 2.24	0.75
Age (years)			
12 – 13			
14 – 15	1.56	0.72 - 3.39	0.25
12 – 13	1.30	0.55 - 3.06	0.53
Aesthetics			0.86
Not Aesthetically	1.24	0.55 - 2.80	0.59
Mildly Aesthetically	1.12	0.48 - 2.61	0.78
Aesthetically Pleasing	1.00		
Gender			
Male	1.00		
Female	1.05	0.51 - 2.14	0.88
Age (years) (years)			
12 -13	1.00		
14 – 15	0.32	0.03 - 3.12	0.33
16 – 17	0.26	0.02 - 2.75	0.26
Grade			
6 th – 8 th	1.00		
9 th – 12 th	5.51	0.57 - 52.70	0.13

¹ Aesthetic based on response to questions (yes/no) on: sidewalks are on most of the streets in my neighborhood; there are many beautiful things to look at in my neighborhood (e.g. gardens, views); there are many nice looking buildings and homes in my neighborhood; there are abandoned building in my neighborhood; there are buildings with graffiti in my neighborhood.

² Participants were restricted to those who have the outcome of the given analysis.

³ 95% CI, 95% Confidence Interval

⁴ The p-value presented for each categorical variable is the Chi-Square statistic.

Table D4. Final Adjusted Model for Aesthetics Scale in Relation to Overweight/Obesity (n=145).

Adjusted Model^{1,2}	Odds Ratio	95% CI³	p-value⁴
Aesthetics			
Not Aesthetically Pleasing	1.24	0.55 - 2.80	0.59
Mildly Aesthetically Pleasing	1.11	0.48 - 2.59	0.79
Aesthetically Pleasing	1.00		
Age (years)			
12 – 13	1.00		
14 – 15	0.32	0.03 - 3.07	0.32
16 – 17	0.26	0.02 - 2.73	0.26
Grade			
6 th – 8 th	1.00		
9 th – 12 th	5.59	0.59 - 52.98	0.13

¹ Aesthetic based on response to questions (yes/no) on: sidewalks are on most of the streets in my neighborhood; there are many beautiful things to look at in my neighborhood (e.g. gardens, views); there are many nice looking buildings and homes in my neighborhood; there are abandoned building in my neighborhood; there are buildings with graffiti in my neighborhood.

² Participants were restricted to those who have the outcome of the given analysis.

³ 95% CI, 95% Confidence Interval

⁴ The p-value presented for each categorical variable is the Chi-Square statistic.

Table D5. Purposeful Selection Logistic Regression Models - Odds Ratio for Accessibility Scale in Relation to Overweight/Obesity (n=145).

Unadjusted Model^{1,2}	Odds Ratio	95% CI³	p-value⁴
Accessibility Scale			0.54
Limited neighborhood facilities	1.04	0.45 - 2.40	0.91
Some neighborhood facilities	1.50	0.67 - 3.33	0.32
Most neighborhood facilities	1.00		
<hr/>			
Adjusted Model	Odds Ratio	95% CI	p-value
Accessibility Scale			0.52
Limited neighborhood facilities	1.05	0.45 - 2.40	0.91
Some neighborhood facilities	1.51	0.68 - 3.38	0.30
Most neighborhood facilities	1.00		
Gender			
Male	1.00		
Female	1.17	0.58 - 2.34	0.65
<hr/>			
Accessibility Scale			0.54
Limited neighborhood facilities	1.05	0.45 - 2.41	0.91
Some neighborhood facilities	1.49	0.66 - 3.36	0.32
Most neighborhood facilities	1.00		
Gender			
Male	1.00		
Female	1.14	0.57 - 2.31	0.70
Age (years)			
12 – 13	1.00		
14 – 15	1.55	0.71 - 3.37	0.26
16 – 17	1.27	0.54 - 3.00	0.57
<hr/>			
Accessibility Scale			0.84
Limited neighborhood facilities	1.13	0.47 - 2.67	0.78
Some neighborhood facilities	1.65	0.72 - 3.75	0.23
Most neighborhood facilities	1.00		
Gender			
Male	1.00		
Female	1.07	0.53 - 2.19	0.83
Age (years)			
12 – 13	1.00		
14 – 15	0.30	0.03 - 2.91	0.30
16 – 17	0.23	0.02 - 2.48	0.22
Grade			
6 th – 8 th	1.00		
9 th – 12 th	5.93	0.61 - 56.83	0.12

¹ Facilities based on response to questions (true/false) on: there is a super market in my neighborhood (Walmart, Kroger); there are a recreational facilities or gyms (YMCA, community centers) in my neighborhood; there are parks with playgrounds in my neighborhood; there are parks with my walking trails in my neighborhood.

² Participants were restricted to those who have the outcome of the given analysis.

³ 95% CI, 95% Confidence Interval

⁴ The p-value presented for each categorical variable is the Chi-Square statistic.

Table D6. Final Adjusted Model for Accessibility Scale in Relation to Overweight/Obesity (n=145).

Adjusted Model^{1,2}	Odds Ratio	95% CI³	p-value⁴
Accessibility Scale			
Limited neighborhood facilities	1.13	0.47 - 2.67	0.78
Some neighborhood facilities	1.64	0.72 - 3.73	0.23
Most neighborhood facilities	1.00		
Age (years)			
12 – 13	1.00		
14 – 15	0.30	0.03 - 2.85	0.29
16 – 17	0.23	0.02 - 2.45	0.22
Grade			
6 th – 8 th	1.00		
9 th – 12 th	6.04	0.63 - 57.39	0.11

¹ Facilities based on response to questions (true/false) on: there is a super market in my neighborhood (Walmart, Kroger); there are a recreational facilities or gyms (YMCA, community centers) in my neighborhood; there are parks with playgrounds in my neighborhood; there are parks with my walking trails in my neighborhood.

² Participants were restricted to those who have the outcome of the given analysis.

³ 95% CI, 95% Confidence Interval

⁴ The p-value presented for each categorical variable is the Chi-Square statistic.

Table D7. Purposeful Selection Logistic Regression Models - Odds Ratio for Traffic Scale in Relation to Overweight/Obesity (n=145).

Unadjusted Model^{1,2}	Odds Ratio	95% CI³	p-value⁴
Traffic Scale			
No traffic	1.00		
Traffic	0.81	0.42 - 1.57	0.54
Adjusted Model	Odds Ratio	95% CI	p-value
Traffic Scale			
No Traffic	1.00		
Traffic	0.79	0.41 - 1.54	0.50
Gender			
Male	0.85	0.42 – 1.70	0.64
Female	1.00		
Traffic Scale			
No Traffic	1.00		
Traffic	0.82	0.42 - 1.61	0.57
Gender			
Male	0.87	0.43 – 1.76	0.70
Female	1.00		
Age (years)			
12 – 13	1.00		
14 – 15	1.53	0.70 - 3.33	0.28
16 – 17	1.29	0.55 - 3.03	0.54
Traffic Scale			
No Traffic	1.00		
Traffic	0.73	0.37 - 1.45	0.38
Gender			
Male	0.91	0.45 – 1.86	0.80
Female	1.00		
Age (years)			
12 – 13	1.00		
14 – 15	0.31	0.03 - 3.00	0.32
16 – 17	0.25	0.02 - 2.69	0.26
Grade			
6 th – 8 th	1.00		
9 th – 12 th	5.57	0.58 - 53.17	0.14

¹ Traffic based on response to questions (true/false) on: It is hard to walk in my neighborhood because of so much traffic; there are crosswalks and signals to help walkers cross the streets in my neighborhood.

² Participants were restricted to those who have the outcome of the given analysis.

³ 95% CI, 95% Confidence Interval

⁴ The p-value presented for each categorical variable is the Chi-Square statistic.

Table D8. Final Adjusted Model for Traffic Scale in Relation to Overweight/Obesity (n=145).

Adjusted Model^{1,2}	Odds Ratio	95% CI³	p-value⁴
Traffic Scale			
No Traffic	1.00		
Traffic	0.74	0.37 - 1.46	0.39
Age (years)			
12 – 13	1.00		
14 – 15	0.31	0.03 - 2.94	0.30
16 – 17	0.25	0.02 - 2.65	0.25
Grade			
6 th – 8 th	1.00		
9 th – 12 th	5.70	0.60 - 53.96	0.13

¹ Traffic based on response to questions (true/false) on: It is hard to walk in my neighborhood because of so much traffic; there are crosswalks and signals to help walkers cross the streets in my neighborhood.

² Participants were restricted to those who have the outcome of the given analysis.

³ 95% CI, 95% Confidence Interval

⁴ The p-value presented for each categorical variable is the Chi-Square statistic.

Table D9. Purposeful Selection Logistic Regression Models - Odds Ratio for Crime Scale in Relation to Overweight/Obesity (n=145).

Unadjusted Model^{1,2}	Odds Ratio	95% CI³	p-value⁴
Crime Scale			
No Crime	1.25	0.64 – 2.44	0.51
Crime	1.00		
Adjusted Model	Odds Ratio	95% CI	p-value
Crime Scale			
No Crime	1.31	0.66 – 2.60	0.44
Crime	1.00		
Gender			
Male	1.00	0.40 – 1.67	0.58
Female	1.00		
Crime Scale			
No Crime	1.27	0.64 – 2.55	0.50
Crime	1.00	0	
Gender			
Male	0.84	0.41 – 1.73	0.64
Female	1.00		
Age (years)			
12 – 13	1.00		
14 – 15	1.54	0.71 - 3.34	0.27
16 – 17	1.25	0.53 - 2.95	0.60
Crime Scale			
No Crime	1.22	0.60 – 2.48	0.59
Crime	1.00		
Gender			
Male	0.90	0.44 – 1.88	0.79
Female	1.00		
Age (years)			
12 – 13	1.00		
14 – 15	0.35	0.03 - 3.35	0.36
16 – 17	0.27	0.02 - 2.89	0.28
Grade			
6 th – 8 th	1.00		
9 th – 12 th	5.01	0.52 - 47.83	0.16

¹ Crime based on response to questions (true/false) on: there is a lot of crime in my neighborhood; I do not feel safe in my neighborhood at night; I am worried about being outside alone in my neighborhood; I am worried about being alone at a park in my neighborhood.

² Participants were restricted to those who have the outcome of the given analysis.

³ 95% CI, 95% Confidence Interval

⁴ The p-value presented for each categorical variable is the Chi-Square statistic.

Table D10. Final Adjusted Model for Crime Scale in Relation to Overweight/Obesity (n=145).

Adjusted Model^{1,2}	Odds Ratio	95% CI³	p-value⁴
Crime Scale			
No Crime	1.19	0.60 – 2.36	0.62
Crime	1.00		
Age (years)			
12 – 13	1.00		
14 – 15	0.34	0.03 - 3.25	0.35
16 – 17	0.26	0.02 - 2.84	0.27
Grade			
6 th – 8 th	1.00		
9 th – 12 th	5.16	0.54 - 48.63	0.15

¹ Crime based on response to questions (true/false) on: there is a lot of crime in my neighborhood; I do not feel safe in my neighborhood at night; I am worried about being outside alone in my neighborhood; I am worried about being alone at a park in my neighborhood.

² Participants were restricted to those who have the outcome of the given analysis.

³ 95% CI, 95% Confidence Interval

⁴ The p-value presented for each categorical variable is the Chi-Square statistic.

Table D11. Purposeful Selection Logistic Regression Models - Odds Ratio for Afraid Scale in Relation to Overweight/Obesity (n=145).

Unadjusted Model^{1,2}	Odds Ratio	95% CI³	p-value⁴
Afraid Scale			0.02
Not Afraid	1.00		
Moderately Afraid	2.22	0.95 - 5.17	0.06
Afraid	0.75	0.31 - 1.78	0.52
Adjusted Model	Odds Ratio	95% CI	p-value
Afraid Scale			0.02
Not Afraid	1.00		
Moderately Afraid	2.15	0.90 - 5.14	0.08
Afraid	0.72	0.29 - 1.78	0.48
Gender			
Male	0.90	0.43 - 1.88	0.78
Female	1.00		
Afraid Scale			0.02
Not Afraid	1.00		
Moderately Afraid	2.15	0.89 - 5.20	0.08
Afraid	0.76	0.30 - 1.89	0.55
Gender			
Male	0.93	0.44 - 1.96	0.84
Female	1.00		
Age (years)			
12 - 13			
14 - 15	1.37	0.62 - 3.06	0.42
16 - 17	1.25	0.51 - 3.04	0.61
Afraid Scale			0.04
Not Afraid	1.00		
Moderately Afraid	2.14	0.87 - 5.25	0.09
Afraid	0.79	0.31 - 2.01	0.62
Gender			
Male	1.00	0.03 - 2.83	0.99
Female	1.00		
Age (years)			
12 - 13			
14 - 15	0.29	0.03 - 2.82	0.29
16 - 17	0.25	0.02 - 2.70	0.25
Grade			
6 th - 8 th	1.00		
9 th - 12 th	5.41	0.57 - 51.19	0.14

¹ Afraid based on response to questions (true/false) on: I am afraid of: there is a lot of people I don't know, other kids my age, kids that pick on me, gangs, homeless people, drug dealers, adults outside of my household.

² Participants were restricted to those who have the outcome of the given analysis.

³ 95% CI, 95% Confidence Interval

⁴ The p-value presented for each categorical variable is the Chi-Square statistic.

Table D12. Final Adjusted Model for Afraid Scale in Relation to Overweight/Obesity (n=145).

Adjusted Model^{1,2}	Odds Ratio	95% CI³	p-value⁴
Afraid Scale			0.04
Not Afraid	1.00		
Moderately Afraid	2.14	0.90 - 5.10	0.08
Afraid	0.79	0.32 - 1.93	0.61
Age (years) (years)			
12 – 13	1.00		
14 – 15	0.29	0.03 - 2.81	0.28
16 – 17	0.25	0.02 - 2.70	0.25
Grade			
6 th – 8 th	1.00		
9 th – 12 th	5.42	0.58 - 50.74	0.13

¹ Afraid based on response to questions (true/false) on: I am afraid of: there is a lot of people I don't know, other kids my age, kids that pick on me, gangs, homeless people, drug dealers, adults outside of my household.

² Participants were restricted to those who have the outcome of the given analysis.

³ 95% CI, 95% Confidence Interval

⁴ The p-value presented for each categorical variable is the Chi-Square statistic.

Table D13. Purposeful Selection Logistic Regression Models - Odds Ratio for the Built Environment in Relation to Overweight/Obesity (n=145).

Adjusted Model^{1,2}	Odds Ratio	95% CI³	p-value⁴
Walk Scale⁵			
Easy	1.06	0.30 - 3.74	0.91
Medium	1.20	0.29 - 4.86	0.79
Difficult	1.00		
Traffic Scale⁵			
No Traffic	1.00		
Traffic	0.72	0.35 - 1.46	0.36
Afraid Scale⁵			
Not Afraid	1.00		
Moderately Afraid	2.10	0.87 - 5.04	0.09
Afraid	0.77	0.31 - 1.93	0.58
Accessibility Scale⁵			
Limited neighborhood facilities	1.23	0.49 - 3.09	0.65
Some neighborhood facilities	1.45	0.62 - 3.39	0.38
Most neighborhood facilities	1.00		
Age (years)			
12 – 13	1.00		
14 – 15	0.24	0.02 - 2.33	0.21
16 – 17	0.21	0.01 - 2.30	0.20
Grade			
6 th – 8 th	1.00		
9 th – 12 th	6.54	0.67 - 63.05	0.10

¹ Built environment defined as aspects within the neighborhood (1) walkability scale; (2) aesthetics scale; (3) accessibility scale; (4) traffic scale; (5) crime scale; (6) afraid scale.

² Participants were restricted to those who have the outcome of the given analysis.

³ 95% CI, 95% Confidence Interval

⁴ The p-value presented for each categorical variable is the Chi-Square statistic.

⁵ Walkability based on response to questions on the ability to walk to certain places within an adolescents' neighborhood. Facilities based on response to questions on whether recreational or food facilities in the neighborhood. Traffic based on response to questions on whether traffic and traffic control exist in neighborhoods. Afraid based on response to questions on whether adolescent' are afraid of people in the neighborhood.

Table D14. Multivariable Logistic Regression for Perceptions of the Built Environment in Relation to Overweight/Obesity, SHAPE Study (n=145).

Adjusted Model^{1,2}	Odds Ratio	95% CI³	p-value⁴
Traffic Scale⁵			
Traffic	0.71	0.35 - 1.42	0.33
No Traffic	1.00		
Afraid Scale⁵			
Not Afraid	1.00		
Moderately Afraid	2.18	0.91 - 5.20	0.07
Afraid	0.79	0.32 - 1.94	0.61
Age			
12 – 13 years old	1.00		
14 – 15 years old	0.26	0.02 - 2.53	0.24
16 – 17 years old	0.23	0.02 - 2.48	0.22
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	5.94	0.63 - 56.12	0.11

¹ Built environment defined as aspects within the neighborhood (1) walkability scale; (2) aesthetics scale; (3) accessibility scale; (4) traffic scale; (5) crime scale; (6) afraid scale.

² Participants were restricted to those who have the outcome of the given analysis.

³ 95% CI, 95% Confidence Interval

⁴ The p-value presented for each categorical variable is the Chi-Square statistic.

⁵ Traffic based on response to questions on whether traffic and traffic control exist in neighborhoods.
Afraid based on response to questions on whether adolescent' are afraid of people in the neighborhood.

Table D15. Purposeful Selection Logistic Regression Models - Odds Ratio for Physical Activity (60 minutes) Levels in Relation to Overweight/Obesity (n=145).

Unadjusted Model^{1,2}	Odds Ratio	95% CI³	p-value⁴
Physical Activity			
0 – 3 days per week	1.19	0.57 - 2.46	0.63
4 – 7 days per week	1.00		
Adjusted Model	Odds Ratio	95% CI	p-value
Physical Activity			
0 – 3 days per week	1.13	0.52 - 2.47	0.74
4 – 7 days per week	1.00		
Gender			
Female	1.14	0.50 - 2.59	0.74
Male	1.00		
Physical Activity			
0 – 3 days per week	1.15	0.52 - 2.56	0.72
4 – 7 days per week	1.00		
Gender			
Female	1.06	0.46 - 2.43	0.89
Male	1.00		
Age (years)			
12 – 13	1.00		
14 – 15	1.64	0.67 - 3.98	0.27
12 – 13	1.64	0.65 - 4.14	0.28
Physical Activity			
0 – 3 days per week	1.06	0.47 - 2.39	0.88
4 – 7 days per week	1.00		
Gender			
Female	1.09	0.47 - 2.54	0.82
Male	1.00		
Age (years)			
12 – 13	1.00		
14 – 15	<0.00	<0.00 - >999.99	0.95
12 – 13	<0.00	<0.00 - >999.99	0.95
Grade			
6 th – 8 th	1.00		
9 th – 12 th	>999.99	<0.00 - >999.99	0.95
Physical Activity			
0 – 3 days per week	0.65	0.24 - 1.75	0.40
4 – 7 days per week	1.00		
Gender			
Female	0.72	0.27- 1.90	0.51
Male	1.00		
Age (years)			
12 – 13	1.00		
14 – 15	<0.00	<0.00 - >999.99	0.94
12 – 13	<0.00	<0.00 - >999.99	0.94
Grade			
6 th – 8 th	1.00		
9 th – 12 th	>999.99	<0.00 - >999.99	0.94
Perceptions of Weight⁵			
Normal weight	1.00		
Overweight	64.55	7.99 – 521.52	<0.0001

Adjusted Model	Odds Ratio	95% CI	p-value
Physical Activity			
0 – 3 days per week	0.62	0.20 - 1.84	0.39
4 – 7 days per week	1.00		
Gender			
Female	0.37	0.11 - 1.20	0.09
Male	1.00		
Age (years)			
12 – 13	1.00		
14 – 15	<0.00	<0.00 - >999.99	0.94
12 – 13	<0.00	<0.00 - >999.99	0.94
Grade			
6 th – 8 th	1.00		
9 th – 12 th	>999.99	<0.00 - >999.99	0.94
Perceptions of Weight⁵			
Normal weight	1.00		
Overweight	21.08	2.40- 190.82	0.0061
Weight Goals⁵			
Not try/Stay the same	1.00		
Lose weight	5.82	1.76 - 19.22	0.00
Gain weight	0.43	0.10 - 1.79	0.24
Physical Activity			
0 – 3 days per week	0.68	0.21 - 2.20	0.33
4 – 7 days per week	1.00		
Gender			
Female	0.38	0.11 - 1.35	0.52
Male	1.00		
Age (years)			
12 – 13	1.00		
14 – 15	<0.00	<0.00 - >999.99	0.13
12 – 13	<0.00	<0.00 - >999.99	0.94
Grade			
6 th – 8 th	1.00		
9 th – 12 th	>999.99	<0.00 - >999.99	0.94
Perceptions of Weight⁵			
Normal weight	1.00		
Overweight	27.99	2.89 – 271.55	0.0041
Weight Goals⁵			
Not try/Stay the same	1.00		
Lose weight	5.01	1.40 - 17.87	0.00
Gain weight	0.36	0.08 - 1.58	0.17
Fruit and Veggie Scale⁵			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	3.26	1.08 - 9.78	0.04
Physical Activity			
0 – 3 days per week	0.66	0.20 - 2.19	0.50
4 – 7 days per week	1.00		
Gender			
Female	0.44	0.12 - 1.58	0.21
Male	1.00		

Adjusted Model	Odds Ratio	95% CI	p-value
Age (years)			
12 – 13	1.00		
14 – 15	<0.00	<0.00 - >999.99	0.94
12 – 13	<0.00	<0.00 - >999.99	0.94
Grade			
6 th – 8 th	1.00		
9 th – 12 th	>999.99	<0.00 - >999.99	0.94
Perceptions of Weight⁵			
Normal weight	1.00		
Overweight	34.06	3.39- 342.23	0.0027
Weight Goals⁵			
Not try/Stay the same			
Lose weight	4.49	1.25 - 16.11	0.02
Gain weight	0.37	0.08 - 1.75	0.21
Fruit and Veggie Scale⁵			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	3.69	1.17 - 11.56	0.02
Comfort Scale⁵			
Comfortable	1.00		
Mild to Moderately comfortable	2.86	0.75 - 10.89	0.12
Physical Activity			
0 – 3 days per week	0.61	0.17 - 2.10	0.43
4 – 7 days per week	1.00		
Gender			
Female	0.48	0.13 - 1.79	0.27
Male	1.00		
Age (years)			
12 – 13	1.00		
14 – 15	<0.00	<0.00 - >999.99	0.94
12 – 13	<0.00	<0.00 - >999.99	0.94
Grade			
6 th – 8 th	1.00		
9 th – 12 th	>999.99	<0.00 - >999.99	0.94
Perceptions of Weight⁵			
Normal weight	1.00		
Overweight	34.57	3.42 – 349.63	0.0027
Weight Goals⁵			
Not try/Stay the same	1.00		
Lose weight	4.27	1.18 - 15.39	0.02
Gain weight	0.35	0.07 - 1.70	0.19
Fruit and Veggie Scale⁵			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	3.53	1.12 - 11.13	0.03
Comfort Scale⁵			
Comfortable	1.00		
Mild to Moderately comfortable	2.72	0.71 - 10.41	0.14
Fun Scale⁵			
0 – 3 hours per day	0.75	0.21 - 2.70	0.66
4 + hours per day	1.00		

¹ Physical activity based on response to questions on: the number of days in the previous 7 days that a participant exercised or participated in physical activity for at least 60 minutes per day.

- ² Participants were restricted to those who have the outcome of the given analysis.
- ³ 95% CI, 95% Confidence Interval
- ⁴ The p-value presented for each categorical variable is the Chi-Square statistic.
- ⁵ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out. Fun scale based on responses to questions on hours adolescents spend on social media, watching television, and playing video games.

Table D16. Purposeful Selection Logistic Regression Models - Odds Ratio for Physical Activity (20 minutes) Levels in Relation to Overweight/Obesity (n=145).

Unadjusted Model^{1,2}	Odds Ratio	95% CI³	p-value⁴
Physical Activity			
0 – 3 days per week	1.13	0.54 - 2.34	0.74
4 – 7 days per week	1.00		
Adjusted Model	Odds Ratio	95% CI	p-value
Physical Activity			
0 – 3 days per week	1.15	0.54 - 2.42	0.70
4 – 7 days per week	1.00		
Gender			
Female	0.87	0.41 - 1.86	0.73
Male	1.00		
Physical Activity			
0 – 3 days per week	0.78	0.34 - 1.81	0.57
4 – 7 days per week	1.00		
Gender			
Female	0.79	0.33 - 1.90	0.60
Male	1.00		
Age (years)			
12 – 13	1.77	0.71 - 4.44	0.21
14 – 15	1.96	0.74 - 5.16	0.17
16 – 17	1.00		
Physical Activity			
0 – 3 days per week	0.84	0.37 - 1.92	0.68
4 – 7 days per week	1.00		
Gender			
Female	0.836	0.36 - 1.94	0.67
Male	1.00		
Age (years)			
12 – 13	1.00		
14 – 15	<0.00	<0.00 - >999.99	0.95
12 – 13	<0.00	<0.00 - >999.99	0.95
Grade			
6 th – 8 th	1.00		
9 th – 12 th	>999.99	<0.00 - >999.99	0.95
Physical Activity			
0 – 3 days per week	0.97	0.39 - 2.45	0.96
4 – 7 days per week	1.00		
Gender			
Female	0.45	0.17 - 1.12	0.08
Male	1.00		
Age (years)			
12 – 13	1.00		
14 – 15	<0.00	<0.00 - >999.99	0.94
12 – 13	<0.00	<0.00 - >999.99	0.94
Grade			
6 th – 8 th	1.00		

Adjusted Model	Odds Ratio	95% CI	p-value
9 th – 12 th	>999.99	<0.00 - >999.99	0.93
Perceptions of Weight⁵			
Normal weight	1.00		
Overweight	61.68	7.720 – 492.71	0.0001
Physical Activity			
0 – 3 days per week	0.76	0.27 - 2.10	0.60
4 – 7 days per week	1.00		
Gender			
Female	0.22	0.07 - 0.70	0.01
Male	1.00		
Age (years)			
12 – 13	1.00		
14 – 15	<0.00	<0.00 - >999.99	0.95
12 – 13	<0.00	<0.00 - >999.99	0.95
Grade			
6 th – 8 th	1.00		
9 th – 12 th	>999.99	<0.001 - >999.99	0.95
Perceptions of Weight⁵			
Normal weight	1.00		
Overweight	19.58	2.19 – 174.65	0.007
Weight Goals⁵			
Not try/Stay the same	1.00		
Lose weight	6.07	1.74 - 21.14	0.00
Gain weight	0.46	0.12 - 1.80	0.26
Physical Activity			
0 – 3 days per week	0.92	0.31 - 2.72	0.89
4 – 7 days per week	1.00		
Gender			
Female	0.22	0.06 - 0.76	0.01
Male	1.00		
Age (years)			
12 – 13	1.00		
14 – 15	<0.00	<0.00 - >999.99	0.95
12 – 13	<0.00	<0.00 - >999.99	0.95
Grade			
6 th – 8 th	1.00		
9 th – 12 th	>999.99	<0.00 - >999.99	0.95
Perceptions of Weight⁵			
Normal weight	1.00		
Overweight	21.66	2.23 – 206.01	0.007
Weight Goals⁵			
Not try/Stay the same	1.00		
Lose weight	6.08	1.63 - 22.67	0.00
Gain weight	0.35	0.08 - 1.51	0.16
Fruit and Veggie Scale5			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	3.03	1.02 - 8.96	0.04
Physical Activity			
0 – 3 days per week	0.88	0.29 - 2.63	0.82
4 – 7 days per week	1.00		

Adjusted Model	Odds Ratio	95% CI	p-value
Gender			
Female	0.23	0.06 - 0.80	0.02
Male			
Age (years)			
12 – 13			
14 – 15	<0.00	<0.00 - >999.99	0.95
12 – 13	<0.00	<0.00 - >999.99	0.95
Grade			
6 th – 8 th			
9 th – 12 th	>999.99	<0.00 - >999.99	0.95
Perceptions of Weight⁵			
Normal weight	1.00		
Overweight	23.13	2.40 – 22.58	0.006
Weight Goals⁵			
Not try/Stay the same			
Lose weight	5.57	1.46 - 21.17	0.01
Gain weight	0.34	0.07 - 1.51	0.15
Fruit and Veggie Scale⁵			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	3.08	1.03 - 9.15	0.04
Comfort Scale⁵			
Comfortable	1.00		
Mild to Moderately comfortable	1.49	0.40 - 5.54	0.54
Physical Activity			
0 – 3 days per week	0.86	0.284 - 2.636	0.79
4 – 7 days per week	1.00		
Gender			
Female	0.24	0.07 - 0.86	0.02
Male	1.00		
Age (years)			
12 – 13	1.00		
14 – 15	<0.00	<0.001 - >999.999	0.95
12 – 13	<0.00	<0.001 - >999.999	0.95
Grade			
6 th – 8 th	1.00		
9 th – 12 th	>999.99	<0.001 - >999.999	0.95
Perceptions of Weight⁵			
Normal weight	1.00		
Overweight	23.06	2.40 – 221.82	0.006
Weight Goals⁵			
Not try/Stay the same	1.00		
Lose weight	5.42	1.42 - 20.72	0.01
Gain weight	0.34	0.07 - 1.52	0.16
Fruit and Veggie Scale⁵			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	3.03	1.02 - 9.00	0.04
Comfort Scale⁵			
Comfortable	1.00		
Mild to Moderately comfortable	1.48	0.399 - 5.518	0.55

Adjusted Model	Odds Ratio	95% CI	p-value
Fun Scale⁵			
0 – 3 hours per day	0.96	0.282 - 3.329	0.95
4 + hours per day	1.00		

¹ Physical activity based on response to questions on: the number of days in the previous 7 days that a participant exercised or participated in physical activity for at least 20 minutes per day.

² Participants were restricted to those who have the outcome of the given analysis.

³ 95% CI, 95% Confidence Interval

⁴ The p-value presented for each categorical variable is the Chi-Square statistic.

⁵ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out. Fun scale based on responses to questions on hours adolescents spend on social media, watching television, and playing video games.

Table D17. Purposeful Selection Logistic Regression Models - Odds Ratio for Perceptions of Walkability, Physical Activity Levels (60 minutes) and Association with Overweight/Obesity (n=145).

Unadjusted Model¹⁻³	Odds Ratio	95% CI⁴	p-value⁵
Physical Activity			
0 – 3 days per week	1.18	0.57 - 2.46	0.64
4 – 7 days per week	1.00		
Walkability			
Easy	1.16	0.31 - 4.33	0.82
Medium	1.08	0.25 - 4.61	0.91
Difficult	1.00		

Adjusted Model	Odds Ratio	95% CI	p-value
Physical Activity			
0 – 3 days per week	1.13	0.52 - 2.46	0.75
4 – 7 days per week	1.00		
Walkability			
Easy	1.18	0.31 - 4.45	0.79
Medium	1.10	0.25 - 4.76	0.89
Difficult	1.00		
Gender			
Female	1.15	0.50 - 2.62	0.73
Male	1.00		
Physical Activity			
0 – 3 days per week	0.70	0.27 - 1.82	0.47
4 – 7 days per week	1.00		
Walkability			
Easy	0.93	0.16 - 5.19	0.93
Medium	1.43	0.22 - 8.99	0.70
Difficult	1.00		
Gender			
Female	0.74	0.29 - 1.95	0.56
Male	1.00		
Perceptions of Weight⁶			
Normal weight	1.00		
Overweight	73.46	9.10 – 593.00	<0.001
Physical Activity			
0 – 3 days per week	0.70	0.25 - 1.99	0.51
4 – 7 days per week	1.00		
Walkability			
Easy	0.72	0.10 - 5.24	0.75
Medium	1.55	0.19 - 12.16	0.67
Difficult	1.00		
Gender			
Female	0.42	0.13 - 1.32	0.14
Male	1.00		
Perceptions of Weight⁶			
Normal weight	1.00		
Overweight	25.86	29.6 – 225.81	0.0033

Adjusted Model	Odds Ratio	95% CI	p-value
Weight Goals⁶			
Not try/Stay the same	1.00		
Lose weight	6.07	1.80 - 20.48	0.00
Gain weight	0.50	0.12 - 1.98	0.32
Physical Activity			
0 – 3 days per week	0.78	0.25 - 2.41	0.66
4 – 7 days per week	1.00		
Walkability			
Easy	0.57	0.06 - 5.37	0.62
Medium	1.18	0.11 - 12.24	0.88
Difficult	1.00		
Gender			
Female	0.40	0.11 - 1.43	0.15
Male	1.00		
Perceptions of Weight⁶			
Normal weight	1.00		
Overweight	30.68	3.24 – 290.23	0.0028
Weight Goals⁶			
Not try/Stay the same	1.00		
Lose weight	5.68	1.48 - 21.73	0.01
Gain weight	0.37	0.08 - 1.64	0.19
Fruit and Veggie Scale⁶			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	3.47	1.15 - 10.47	0.02
Physical Activity			
0 – 3 days per week	0.78	0.24 - 2.44	0.67
4 – 7 days per week	1.00		
Walkability			
Easy	0.64	0.06 - 5.91	0.69
Medium	1.24	0.12 - 12.47	0.85
Difficult	1.00		
Gender			
Female	0.44	0.12 - 1.63	0.22
Male	1.00		
Perceptions of Weight⁶			
Normal weight	1.00		
Overweight	35.40	3.63 – 345.35	0.00
Weight Goals⁶			
Not try/Stay the same	1.00		
Lose weight	5.05	1.32 - 19.31	0.01
Gain weight	0.39	0.08 - 1.77	0.22
Fruit and Veggie Scale⁶			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	3.93	1.25 - 12.33	0.01
Comfort Scale⁶			
Comfortable	1.00		
Mild to Moderately comfortable	2.32	0.63 - 8.45	0.20

¹ Walkability based on response to questions (yes/no) on: stores are easy to walk to in my neighborhood (grocery stores, clothing stores, local stores); from my home, it is easy to walk to a bus stop (transit or

city bus); it is hard to walk to places in my neighborhood because of railroad tracks, the river, or the highway.

² Physical activity based on response to question: How many days, did you exercise or participate in physical activity for at least 60 minutes per day or more? (1) 0- 3 days (2) 4 – 7 days.

³ Participants were restricted to those who have the outcome of the given analysis.

⁴ 95% CI, 95% Confidence Interval

⁵ The p-value presented for each categorical variable is the Chi-Square statistic.

⁶ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out.

Table D18. Purposeful Selection Logistic Regression Models - Odds Ratio for Perceptions of Aesthetics, Physical Activity Levels (60 minutes) , and Association with Overweight/Obesity (n=145).

Unadjusted Model¹⁻³	Odds Ratio	95% CI⁴	p-value⁵
Physical Activity			
0 – 3 days per week	1.21	0.58 - 2.52	0.60
4 – 7 days per week	1.00		
Aesthetics Scale			
Not Aesthetically Pleasing	0.98	0.41 - 2.34	0.97
Mildly Aesthetically Pleasing	0.61	0.24 - 1.55	0.30
Aesthetically Pleasing	1.00		
Adjusted Model	Odds Ratio	95% CI	p-value
Physical Activity			
0 – 3 days per week	1.15	0.52 - 2.51	0.72
4 – 7 days per week	1.00		
Aesthetics Scale			
Not Aesthetically Pleasing	0.99	0.41 - 2.34	0.98
Mildly Aesthetically Pleasing	0.61	0.24 - 1.57	0.31
Aesthetically Pleasing	1.00		
Gender			
Female	1.17	0.51 - 2.68	0.70
Male	1.00		
Physical Activity			
0 – 3 days per week	0.70	0.27 - 1.83	0.47
4 – 7 days per week	1.00		
Aesthetics Scale			
Not Aesthetically Pleasing	0.82	0.28 - 2.41	0.72
Mildly Aesthetically Pleasing	0.52	0.17 - 1.64	0.27
Aesthetically Pleasing	1.00		
Gender			
Female	0.70	0.27 - 1.85	0.48
Male	1.00		
Perceptions of Weight⁶			
Normal weight	1.00		
Overweight	70.01	8.58 – 571.43	<0.0001
Physical Activity			
0 – 3 days per week	0.71	0.25 - 1.97	0.50
4 – 7 days per week	1.00		
Aesthetics Scale			
Not Aesthetically Pleasing	0.73	0.22 - 2.34	0.59
Mildly Aesthetically Pleasing	0.49	0.12 - 1.63	0.23
Aesthetically Pleasing	1.00		
Gender			
Female	0.38	0.12 - 1.25	0.11
Male	1.00		
Perceptions of Weight⁶			
Normal weight	1.00		
Overweight	26.54	2.96 – 238.22	0.0034

Adjusted Model	Odds Ratio	95% CI	p-value
Weight Goals			
Not try/Stay the same	1.00		
Lose weight	5.42	1.69 - 17.24	0.00
Gain weight	0.49	0.12 - 1.70	0.31
Physical Activity			
0 – 3 days per week	0.72	0.23 - 2.27	0.56
4 – 7 days per week	1.00		
Aesthetics Scale			
Not Aesthetically Pleasing	1.13	0.32 - 4.02	0.85
Mildly Aesthetically Pleasing	0.59	0.14 - 2.22	0.41
Aesthetically Pleasing	1.00		
Gender			
Female	0.42	0.12 - 1.46	0.17
Male	1.00		
Perceptions of Weight⁶			
Normal weight	1.00		
Overweight	29.57	3.09 – 283.00	0.00033
Weight Goals⁶			
Not try/Stay the same	1.00		
Lose weight	4.73	1.34 - 16.71	0.01
Gain weight	0.35	0.08 - 1.46	0.15
Fruit and Veggie Scale⁶			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	4.13	1.32 - 12.81	0.01
Physical Activity			
0 – 3 days per week	0.71	0.23 - 2.20	0.54
4 – 7 days per week	1.00		
Aesthetics Scale			
Not Aesthetically Pleasing	1.12	0.32 - 4.03	0.86
Mildly Aesthetically Pleasing	0.51	0.12 - 2.08	0.35
Aesthetically Pleasing	1.00		
Gender			
Female	0.46	0.13 - 1.64	0.23
Male	1.00		
Perceptions of Weight⁶			
Normal weight	1.00		
Overweight	32.98	3.38 – 321.44	0.0026
Weight Goals⁶			
Not try/Stay the same	1.00		
Lose weight	4.42	1.24 - 15.69	0.02
Gain weight	0.36	0.08 - 1.60	0.78
Fruit and Veggie Scale⁶			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	4.91	1.46 - 16.43	0.01
Comfort Scale⁶			
Comfortable	1.00		
Mild to Moderately comfortable	2.57	0.72 - 9.25	0.15

¹ Aesthetic based on response to questions (yes/no) on: sidewalks are on most of the streets in my neighborhood; there are many beautiful things to look at in my neighborhood (e.g. gardens, views); there

are many nice looking buildings and homes in my neighborhood; there are abandoned building in my neighborhood; there are buildings with graffiti in my neighborhood.

² Physical activity based on response to question: How many days, did you exercise or participate in physical activity for at least 60 minutes per day or more? (1) 0- 3 days (2) 4 – 7 days.

³ Participants were restricted to those who have the outcome of the given analysis.

⁴ 95% CI, 95% Confidence Interval

⁵ The p-value presented for each categorical variable is the Chi-Square statistic.

⁶ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out.

Table D19. Final Adjusted Model for Perception of Aesthetics and Physical Activity (60 minutes) in Relation to Overweight/Obesity (n=145).

Adjusted Model^{1 - 3}	Odds Ratio	95% CI⁴	p-value⁵
Physical Activity			
0 – 3 days per week	0.70	0.23 - 2.20	0.55
4 – 7 days per week	1.00		
Aesthetics Scale			
Not Aesthetically Pleasing	1.12	0.31 - 4.03	0.86
Mildly Aesthetically Pleasing	0.51	0.12 - 2.08	0.35
Aesthetically Pleasing	1.00		
Gender			
Female	0.46	0.13 - 1.64	0.23
Male	1.00		
Perceptions of Weight⁶			
Normal weight	1.00		
Overweight	32.98	3.38 – 321.44	0.0026
Weight Goals⁶			
Not try/Stay the same	1.00		
Lose weight	4.42	1.24 - 15.69	0.02
Gain weight	0.36	0.08 - 1.60	0.17
Fruit and Veggie Scale⁶			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	4.91	1.46 - 16.43	0.01
Comfort Scale⁶			
Comfortable	1.00		
Mild to Moderately comfortable	2.57	0.72 - 9.25	0.15

¹ Aesthetic based on response to questions (yes/no) on: sidewalks are on most of the streets in my neighborhood; there are many beautiful things to look at in my neighborhood (e.g. gardens, views); there are many nice looking buildings and homes in my neighborhood; there are abandoned building in my neighborhood; there are buildings with graffiti in my neighborhood.

² Physical activity based on response to question: How many days, did you exercise or participate in physical activity for at least 60 minutes per day or more? (1) 0- 3 days (2) 4 – 7 days.

³ Participants were restricted to those who have the outcome of the given analysis.

⁴ 95% CI, 95% Confidence Interval

⁵ The p-value presented for each categorical variable is the Chi-Square statistic.

⁶ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out.

Table D20. Purposeful Selection Logistic Regression Models - Odds Ratio for Perceptions of Accessibility, Physical Activity levels (60 minutes), and its Association to Overweight/Obesity (n=145).

Unadjusted Model¹⁻³	Odds Ratio	95% CI⁴	p-value⁵
Physical Activity			
0 – 3 days per week	1.265	0.60 - 2.64	0.53
4 – 7 days per week	1.00		
Accessibility Scale			
Limited neighborhood facilities	0.885		
Some neighborhood facilities	1.433	0.33 - 2.31	0.80
Most neighborhood facilities	1.00	0.60 - 3.39	0.41
Adjusted Model	Odds Ratio	95% CI	p-value
Physical Activity			
0 – 3 days per week	1.18	0.54 - 2.59	0.67
4 – 7 days per week	1.00		
Accessibility Scale			
Limited neighborhood facilities	0.87	0.33 - 2.30	0.79
Some neighborhood facilities	1.44	0.60 - 3.41	0.40
Most neighborhood facilities	1.00		
Gender			
Female	1.23	0.53 - 2.81	0.62
Male	1.00		
Physical Activity			
0 – 3 days per week	0.66	0.25 - 1.73	0.39
4 – 7 days per week	1.00		
Accessibility Scale			
Limited neighborhood facilities	0.36	0.10 - 1.36	0.13
Some neighborhood facilities	1.22	0.45 - 3.32	0.69
Most neighborhood facilities	1.00		
Gender			
Female	0.72	0.28 – 1.88	0.51
Male			
Perceptions of Weight⁶			
About the right weight	1.00		
Overweight	90.50	10.32 – 793.58	<.0001
Physical Activity			
0 – 3 days per week	0.71	0.25 - 2.00	0.52
4 – 7 days per week	1.00		
Accessibility Scale			
Limited neighborhood facilities	0.43	0.10 - 1.76	0.24
Some neighborhood facilities	1.56	0.52 - 4.74	0.43
Most neighborhood facilities	1.00		
Gender			
Female	0.39	0.13 - 1.22	0.11
Male			

Adjusted Model	Odds Ratio	95% CI	p-value
Perceptions of Weight⁶			
Normal weight	1.00		
Overweight	34.24	3.49 – 335.65	0.0024
Weight Goals⁶			
Not try/Stay the same	1.00		
Lose weight	4.63	1.44 – 14.90	0.01
Gain weight	0.37	0.10 - 1.40	0.14
Physical Activity			
0 – 3 days per week	0.77	0.25 - 2.38	0.65
4 – 7 days per week	1.00		
Accessibility Scale			
Limited neighborhood facilities	0.54	0.12 - 2.51	0.44
Some neighborhood facilities	1.79	0.53 - 6.09	0.35
Most neighborhood facilities	1.00		
Gender			
Female	0.39	0.11 - 1.33	0.13
Male	1.00		
Perception of Weight⁶			
Normal weight	1.00		
Overweight	35.10	3.45- 357.09	0.0026
Weight Goals⁶			
Not try/Stay the same	1.00		
Lose weight	4.73	1.31 - 17.24	0.02
Gain weight	0.31	0.07 - 1.29	0.10
Fruit and Veggie Scale⁶			
Inadequate fruit and veggie intake	1.00		
Adequate fruit and veggie intake	3.72	1.25 – 11.05	0.02
Physical Activity			
0 – 3 days per week	0.76	0.25 - 2.36	0.64
4 – 7 days per week	1.00		
Accessibility Scale			
Limited neighborhood facilities	0.56	0.12 - 2.59	0.46
Some neighborhood facilities	1.59	0.46 - 5.53	0.47
Most neighborhood facilities	1.00		
Gender			
Female	0.42	0.12 - 1.48	0.18
Male	1.00		
Perceptions of Weight⁶			
About the right weight	1.00		
Overweight	38.37	3.66- 3402.08	0.0023
Weight Goals⁶			
Not try/Stay the same	1.00		
Lose weight	4.36	1.20 - 15.85	0.02
Gain weight	0.34	0.07 - 1.42	0.13
Fruit and Veggie Scale⁶			
Inadequate fruit and veggie intake	1.00		
Adequate fruit and veggie intake	4.04	1.32 - 12.39	0.01

Adjusted Model	Odds Ratio	95% CI	p-value
Comfort Scale⁶			
Comfortable	1.00		
Mild to Moderately comfortable	2.00	0.54 - 7.40	0.30

¹ Facilities based on response to questions (true/false) on: there is a super market in my neighborhood (Walmart, Kroger); there are a recreational facilities or gyms (YMCA, community centers) in my neighborhood; there are parks with playgrounds in my neighborhood; there are parks with my walking trails in my neighborhood.

² Physical activity based on response to question: How many days, did you exercise or participate in physical activity for at least 60 minutes per day or more? (1) 0- 3 days (2) 4 – 7 days.

³ Participants were restricted to those who have the outcome of the given analysis.

⁴ 95% CI, 95% Confidence Interval

⁵ The p-value presented for each categorical variable is the Chi-Square statistic.

⁶ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out.

Table D21. Final Adjusted Model for Perception of Accessibility and Physical Activity (60 minutes) in Relation to Overweight/Obesity (n=145).

Adjusted Model¹⁻³	Odds Ratio	95% CI⁴	p-value⁵
Physical Activity			
0 – 3 days per week	1.16	0.40 - 3.33	0.78
4 – 7 days per week	1.00		
Accessibility Scale			
Limited neighborhood facilities	1.07	0.29 - 3.89	0.90
Some neighborhood facilities	2.06	0.61 - 6.86	0.23
Most neighborhood facilities	1.00		
Gender			
Female	0.53	0.15 - 1.84	0.31
Male	1.00		
Weight Goals⁶			
Not try/Stay the same	1.00		
Lose weight	13.72	4.31 - 43.67	<.00
Gain weight	0.30	0.07 - 1.24	0.09
Fruit and Veggie Scale⁶			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	2.94	1.03 - 8.42	0.04
Comfort Scale⁶			
Comfortable	1.00		
Mild to Moderately comfortable	1.78	0.53 - 5.96	0.34

¹ Facilities based on response to questions (true/false) on: there is a super market in my neighborhood (Walmart, Kroger); there are a recreational facilities or gyms (YMCA, community centers) in my neighborhood; there are parks with playgrounds in my neighborhood; there are parks with my walking trails in my neighborhood.

² Physical activity based on response to question: How many days, did you exercise or participate in physical activity for at least 60 minutes per day or more? (1) 0- 3 days (2) 4 – 7 days.

³ Participants were restricted to those who have the outcome of the given analysis.

⁴ 95% CI, 95% Confidence Interval

⁵ The p-value presented for each categorical variable is the Chi-Square statistic.

⁶ Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out.

Table D22. Purposeful Selection Logistic Regression Models - Odds Ratio for Perceptions of Traffic and Physical Activity Levels (60 minutes) and Association with Overweight/Obesity (n=145).

Unadjusted Model¹⁻³	Odds Ratio	95% CI⁴	p-value⁵
Physical Activity			
0 – 3 days per week	1.25	0.60 - 2.61	0.54
4 – 7 days per week	1.00		
Traffic Scale			
No Traffic	1.00		
Traffic	0.86	0.41 - 1.81	0.70
Adjusted Model	Odds Ratio	95% CI	p-value
Physical Activity			
0 – 3 days per week	1.17	0.53 - 2.56	0.68
4 – 7 days per week	1.00		
Traffic Scale			
No Traffic	1.00		
Traffic	0.84	0.40 - 1.79	0.66
Gender			
Female	1.22	0.53 - 2.80	0.63
Male	1.00		
Physical Activity			
0 – 3 days per week	0.70	0.28 - 1.85	0.45
4 – 7 days per week	1.00		
Traffic Scale			
No Traffic	1.00		
Traffic	0.80	0.26 - 1.75	0.62
Gender			
Female	0.75	0.31 - 2.12	0.56
Male	1.00		
Perceptions of Weight⁶			
Normal weight	1.00		
Overweight	66.85	8.31 – 537.88	<0.0001
Physical Activity			
0 – 3 days per week	0.71	0.26 – 1.99	0.52
4 – 7 days per week	1.00		
Traffic Scale			
No Traffic	1.00		
Traffic	0.71	0.27 – 1.93	0.50
Gender			
Female	0.43	0.14 – 1.32	0.14
Male	1.00		
Perceptions of Weight⁶			
About the right weight	1.00		
Overweight	25.71	2.92 – 226.81	0.0035
Weight Goals⁶			
Not try/Stay the same	1.00		
Lose weight	5.03	1.61 - 15.77	0.00

Adjusted Model	Odds Ratio	95% CI	p-value
Gain weight	0.42	0.12 - 1.55	0.19
Physical Activity			
0 – 3 days per week	0.73	0.24 - 2.24	0.58
4 – 7 days per week	1.00		
Traffic Scale			
No Traffic	1.00		
Traffic	0.67	0.23 – 1.94	0.46
Gender			
Female	0.43	0.13 - 1.48	0.18
Male	1.00		
Perceptions of Weight⁶			
About the right weight	1.00		
Overweight	31.54	3.01 – 300.66	0.0027
Weight Goals⁶			
Not try/Stay the same	1.00		
Lose weight	4.46	1.29 - 15.44	0.02
Gain weight	0.32	0.08 - 1.34	0.12
Fruit and Veggie Scale⁶			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	3.88	1.34 - 11.28	0.13
Physical Activity			
0 – 3 days per week	0.72	0.23 - 2.26	0.58
4 – 7 days per week	1.00		
Traffic Scale			
No Traffic	1.00		
Traffic	0.68	0.23 - 1.98	0.47
Gender			
Female	0.47	0.14 - 1.64	0.24
Male	1.00		
Perceptions of Weight⁶			
Normal weight	1.00		
Overweight	35.25	3.61 – 344.38	0.0022
Weight Goals⁶			
Not try/Stay the same	1.00		
Lose weight	4.12	1.18 - 14.35	0.03
Gain weight	0.33	0.08 - 1.46	0.15
Fruit and Veggie Scale⁶			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	4.38	1.44 - 13.29	0.00
Comfort Scale⁶			
Comfortable	1.00		
Mild to Moderately comfortable	2.39	0.67 - 8.48	0.18

¹ Traffic based on response to questions (true/false) on: It is hard to walk in my neighborhood because of so much traffic; there are crosswalks and signals to help walkers cross the streets in my neighborhood.

² Physical activity based on response to question: How many days, did you exercise or participate in physical activity for at least 60 minutes per day or more? (1) 0- 3 days (2) 4 – 7 days.

³ Participants were restricted to those who have the outcome of the given analysis.

⁴ 95% CI, 95% Confidence Interval

⁵ The p-value presented for each categorical variable is the Chi-Square statistic.

- ⁶ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out.

Table D23. Purposeful Selection Logistic Regression Models - Odds Ratio for Perceptions of Crime and Physical Activity Levels (60 minutes) and Association with Overweight/Obesity (n=145).

Unadjusted Model¹⁻³	Odds Ratio	95% CI⁴	p-value⁵
Physical Activity			
0 – 3 days per week	1.23	0.59 - 2.55	0.57
4 – 7 days per week	1.00		
Crime Scale			
No Crime	1.26	0.61 – 2.63	0.54
Crime	1.00		

Adjusted Model	Odds Ratio	95% CI	p-value
Physical Activity			
0 – 3 days per week	1.13	0.52 - 2.48	0.74
4 – 7 days per week	1.00		
Crime Scale			
No Crime	1.33	0.62 – 2.82	0.47
Crime	1.00		
Gender			
Female	1.28	0.55 - 2.98	0.56
Male	1.00		
Physical Activity			
0 – 3 days per week	0.65	0.25 - 1.68	0.38
4 – 7 days per week	1.00		
Crime Scale			
No Crime	1.00	0.65 -4.02	0.30
Crime	1.00		
Gender			
Female	0.81	0.31 - 2.10	0.66
Male	1.00		
Perceptions of Weight⁶			
Normal weight	1.00		
Overweight	70.95	8.72 – 50577.27	<0.0001
Physical Activity			
0 – 3 days per week	0.70	0.25 – 1.97	0.50
4 – 7 days per week	1.00		
Crime Scale			
No Crime	1.17	0.43 – 3.20	0.76
Crime	1.00		
Gender			
Female	0.43	0.14 - 1.37	0.15
Male	1.00		
Perceptions of Weight⁶			
Normal weight	1.00		
Overweight	25.74	2.89 – 229.19	0.0036
Weight Goals⁶			
Not try/Stay the same	1.00		
Lose weight	4.91	1.56 - 15.46	0.00

Adjusted Model	Odds Ratio	95% CI	p-value
Gain weight	0.44	0.12 - 1.65	0.22
Physical Activity			
0 – 3 days per week	0.75	0.24 - 2.29	0.61
4 – 7 days per week	1.00		
Crime Scale			
No Crime	1.06	0.36 – 3.16	0.91
Crime	1.00		
Gender			
Female	0.42	0.12 - 1.51	0.19
Male	1.00		
Perceptions of Weight⁶			
Normal weight	1.00		
Overweight	29.68	3.15 – 279.53	0.0030
Weight Goals⁶			
Not try/Stay the same	1.00		
Lose weight	4.41	1.27 - 15.29	0.02
Gain weight	0.34	0.08 - 1.41	0.14
Fruit and Veggie Scale⁶			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	3.72	1.28 - 10.80	0.01
Physical Activity			
0 – 3 days per week	0.74	0.24 - 2.30	0.61
4 – 7 days per week	1.00		
Crime Scale			
No Crime	1.10	0.36 – 3.33	0.87
Crime	1.00		
Gender			
Female	0.47	0.13 - 1.73	0.26
Male	1.00		
Perceptions of Weight⁶			
Normal weight	1.00		
Overweight	33.79	3.48 – 328.49	0.0024
Weight Goals⁶			
Not try/Stay the same	1.00		
Lose weight	4.08	1.17 - 14.24	0.03
Gain weight	0.35	0.08 - 1.55	0.17
Fruit and Veggie Scale⁶			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	4.17	1.37 - 12.68	0.01
Comfort Scale⁶			
Comfortable	1.00		
Mild to Moderately comfortable	2.43	0.68 – 8.68	0.17

¹ Crime based on response to questions (true/false) on: there is a lot of crime in my neighborhood; I do not feel safe in my neighborhood at night; I am worried about being outside alone in my neighborhood; I am worried about being alone at a park in my neighborhood.

² Physical activity based on response to question: How many days, did you exercise or participate in physical activity for at least 60 minutes per day or more? (1) 0- 3 days (2) 4 – 7 days.

³ Participants were restricted to those who have the outcome of the given analysis.

⁴ 95% CI, 95% Confidence Interval

⁵ The p-value presented for each categorical variable is the Chi-Square statistic.

- ⁶ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out.

Table D24. Final Adjusted Model for Perception of Crime and Physical Activity (60 minutes) in Relation to Overweight/Obesity (n=145).

Adjusted Model¹⁻³	Odds Ratio	95% CI⁴	p-value⁵
Physical Activity			
0 – 3 days per week	0.70	0.26 – 1.88	0.47
4 – 7 days per week	1.00		
Crime Scale			
No Crime	1.56	0.59 – 4.16	0.37
Crime	1.00		
Perceptions of Weight⁶			
Normal weight	1.00		
Overweight	93.71	10.77 – 815.72	<.0001
Fruit and Veggie Scale⁶			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	4.17	1.51 – 11.53	0.00
Comfort Scale⁶			
Comfortable	1.00		
Mild to Moderately comfortable	3.19	0.95 – 10.69	0.06

¹ Crime based on response to questions (true/false) on: there is a lot of crime in my neighborhood; I do not feel safe in my neighborhood at night; I am worried about being outside alone in my neighborhood; I am worried about being alone at a park in my neighborhood.

² Physical activity based on response to question: How many days, did you exercise or participate in physical activity for at least 60 minutes per day or more? (1) 0- 3 days (2) 4 – 7 days.

³ Participants were restricted to those who have the outcome of the given analysis.

⁴ 95% CI, 95% Confidence Interval

⁵ The p-value presented for each categorical variable is the Chi-Square statistic.

⁶ Perceptions about weight based on response to question on how the participant describes their weight. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out.

Table D25. Purposeful Selection Logistic Regression Models - Odds Ratio for Perceptions of Fear and Physical Activity Levels (60 minutes) and Association with Overweight/Obesity (n=145).

Unadjusted Model¹⁻³	Odds Ratio	95% CI⁴	p-value⁵
Physical Activity			
0 – 3 days per week	1.02	0.46 - 2.24	0.95
4 – 7 days per week	1.00		
Afraid Scale			
Not Afraid	1.00		
Moderately Afraid	2.86	1.09 - 7.49	0.0
Afraid	0.58	0.22 - 1.54	0.282
Adjusted Model	Odds Ratio	95% CI	p-value
Physical Activity			
0 – 3 days per week	0.93	0.40 - 2.15	0.87
4 – 7 days per week	1.00		
Afraid Scale			
Not Afraid	1.00		
Moderately Afraid	2.73	1.03 - 7.24	0.04
Afraid	0.54	0.20 - 1.48	0.23
Gender			
Female	1.31	0.54 - 3.22	0.54
Male	1.00		
Physical Activity			
0 – 3 days per week	0.59	0.22 - 1.61	0.30
4 – 7 days per week	1.00		
Afraid Scale			
Not Afraid	1.00		
Moderately Afraid	2.66	0.87 - 8.12	0.08
Afraid	0.39	0.11 - 1.37	0.14
Gender			
Female	0.77	0.28 - 2.12	0.61
Male			
Perceptions of Weight⁶			
About the right weight	1.00		
Overweight	82.50	9.50 – 716.43	<0.0001
Physical Activity			
0 – 3 days per week	0.57	0.18 - 1.74	0.32
4 – 7 days per week	1.00		
Afraid Scale			
Not Afraid	1.00		
Moderately Afraid	3.17	0.91 - 11.06	0.07
Afraid	0.33	0.08 - 1.33	0.12
Gender			
Female	0.37	0.11 - 1.22	0.10
Male	1.00		
Perceptions of Weight⁶			
About the right weight	1.00		
Overweight	30.0	3.03 – 296.30	0.0036

Adjusted Model	Odds Ratio	95% CI	p-value
Weight Goals			
Not try/Stay the same	1.00		
Lose weight	5.29	1.49 - 18.72	0.00
Gain weight	0.30	0.07 - 1.25	0.10
Physical Activity			
0 – 3 days per week	0.72	0.22 - 2.39	0.59
4 – 7 days per week	1.00		
Afraid Scale			
Not Afraid	1.00		
Moderately Afraid	2.65	0.67 - 10.52	0.17
Afraid	0.25	0.06 - 1.12	0.07
Gender			
Female	0.31	0.08 - 1.22	0.10
Male	1.00		
Perceptions of Weight⁶			
Normal weight	1.00		
Overweight	31.74	3.00 – 335.48	0.00
Weight Goals⁶			
Not try/Stay the same	1.00		
Lose weight	4.57	1.14 - 18.28	0.03
Gain weight	0.22	0.05 - 1.02	0.05
Fruit and Veggie Scale⁶			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	2.72	0.87 - 8.53	0.09
Physical Activity			
0 – 3 days per week	0.73	0.21 - 2.51	0.62
4 – 7 days per week	1.00		
Afraid Scale			
Not Afraid	1.00		
Moderately Afraid	2.18	0.51 - 9.29	0.29
Afraid	0.17	0.03 - 0.90	0.04
Gender			
Female	0.39	0.09 - 1.59	0.19
Male	1.00		
Perceptions of Weight⁶			
Normal weight	1.00		
Overweight	45.06	3.70 – 548.24	0.00
Weight Goals⁶			
Not try/Stay the same	1.00		
Lose weight	3.71	0.88 - 15.72	0.07
Gain weight	0.24	0.05 - 1.16	0.08
Fruit and Veggie Scale⁶			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	3.02	0.92 - 9.91	0.07
Comfort Scale⁶			
Comfortable	1.00		
Mild to Moderately comfortable	4.07	0.80 – 20.74	0.09

¹ Afraid based on response to questions (true/false) on: I am afraid of: there is a lot of people I don't know, other kids my age, kids that pick on me, gangs, homeless people, drug dealers, adults outside of my household.

- ² Physical activity based on response to question: How many days, did you exercise or participate in physical activity for at least 60 minutes per day or more? (1) 0- 3 days (2) 4 – 7 days.
- ³ Participants were restricted to those who have the outcome of the given analysis.
- ⁴ 95% CI, 95% Confidence Interval
- ⁵ The p-value presented for each categorical variable is the Chi-Square statistic.
- ⁶ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out.

Table D26. Final Adjusted Model for Perception of Fear and Physical Activity (60 minutes) in Relationship to Overweight/Obesity (n=145).

Adjusted Model¹⁻³	Odds Ratio	95% CI⁴	p-value⁵
Physical Activity			
0 – 3 days per week	0.54	0.17 - 1.71	0.32
4 – 7 days per week	1.00		
Afraid Scale			
Not Afraid	1.00		
Moderately Afraid	2.66	0.73 – 9.70	0.14
Afraid	0.24	0.05 - 1.09	0.06
Gender			
Female	0.45	0.13 - 1.59	0.22
Male	1.00		
Perceptions of Weight⁶			
Normal weight	1.00		
Overweight	36.30	3.38 – 389.60	0.0030
Weight Goals⁶			
Not try/Stay the same	1.00		
Lose weight	4.84	1.34 - 17.55	0.01
Gain weight	0.35	0.08 – 1.49	0.15
Comfort Scale⁶			
Comfortable	1.00		
Mild to Moderately comfortable	2.86	0.67 - 12.15	0.16

¹ Afraid based on response to questions (true/false) on: I am afraid of: there is a lot of people I don't know, other kids my age, kids that pick on me, gangs, homeless people, drug dealers, adults outside of my household.

² Physical activity based on response to question: How many days, did you exercise or participate in physical activity for at least 60 minutes per day or more? (1) 0- 3 days (2) 4 – 7 days.

³ Participants were restricted to those who have the outcome of the given analysis.

⁴ 95% CI, 95% Confidence Interval

⁵ The p-value presented for each categorical variable is the Chi-Square statistic.

⁶ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out.

Table D27. Final Adjusted Model for Perception of the Built Environment and Physical Activity (60 minutes) in Relation to Overweight/Obesity (n=145).

Adjusted Model ¹⁻³	Odds Ratio	95% CI ⁴	p-value ⁵
Physical Activity			
0 – 3 days per week	0.50	0.15 – 1.61	0.24
4 – 7 days per week	1.00		
Aesthetics Scale⁶			
Mildly aesthetically pleasing	1.00		
Not aesthetically pleasing	2.03	0.46 – 9.03	0.35
Aesthetically pleasing	2.64	0.60- 11.65	0.20
Accessibility Scale⁶			
Limited neighborhood facilities	0.50	0.10- 2.40	0.38
Some neighborhood facilities	1.25	0.37 – 4.28	0.72
Most neighborhood facilities	1.00		
Afraid Scale⁶			
Not Afraid	1.00		
Moderately Afraid	2.10	0.54 – 8.10	0.28
Afraid	0.19	0.04 – 1.02	0.05
Gender			
Female	0.39	0.11 - 1.43	0.15
Male	1.00		
Perceptions of Weight⁷			
Normal weight	1.00		
Overweight	55.49	4.47- 690.11	0.00
Weight Goals⁷			
Not try/Stay the same	1.00		
Lose weight	5.47	1.41 – 21.3	0.01
Gain weight	0.35	0.08 – 1.6	0.18
Comfort Scale⁷			
Comfortable	1.00		
Mild to Moderately comfortable	2.93	0.65- 13.21	0.16

¹ Built environment defined as aspects within the neighborhood (1) walkability scale; (2) aesthetics scale; (3) accessibility scale; (4) traffic scale; (5) crime scale; (6) afraid scale.

² Physical activity based on response to question: How many days, did you exercise or participate in physical activity for at least 60 minutes per day or more? (1) 0- 3 days (2) 4 – 7 days.

³ Participants were restricted to those who have the outcome of the given analysis.

⁴ 95% CI, 95% Confidence Interval

⁵ The p-value presented for each categorical variable is the Chi-Square statistic.

⁶ Aesthetics based on response to questions on whether or not there are pleasing/displeasing neighborhood features. Facilities based on response to questions on whether recreational or food facilities in the neighborhood. Afraid based on response to questions on whether adolescent' are afraid of people in the neighborhood.

⁷ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out.

APPENDIX E

SPECIFIC AIM 3

Neighborhood Influences on Adolescents' Perception of Built Environment and Physical Activity

Table E1. Purposeful Selection Logistic Regression Models, Odds Ratio of Neighborhood Region, Walkability and its Association to Overweight/Obesity (n=145).

Unadjusted Model¹⁻³	Odds Ratio	95% CI⁴	P – value⁵
Walkability			
Easy	1.35	0.42 - 4.35	0.61
Medium	1.51	0.41 - 5.46	0.53
Difficult	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.75	0.83 - 3.66	0.13
Other Region	1.57	0.58 - 4.21	0.36
Adjusted Model	Odds Ratio	95% CI	P – value
Walkability			
Easy	1.25	0.38 - 4.06	0.70
Medium	1.82	0.48 - 6.85	0.37
Difficult	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.32	0.39 - 4.48	0.65
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	1.44	0.41 - 4.98	0.56
Walkability			
Easy	1.27	0.39 - 4.13	0.68
Medium	1.88	0.50 - 7.13	0.34
Difficult	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.27	0.37 - 4.33	0.69
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	1.55	0.44 - 5.41	0.49
Gender			
Female	1.53	0.70 - 3.35	0.28
Male	1.00		
Walkability			
Easy	1.25	0.38 - 4.09	0.71
Medium	1.84	0.47 - 7.10	0.37
Difficult	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.21	0.35 - 4.19	0.75
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	1.66	0.46 - 5.93	0.43
Gender			
Female	1.50	0.68 - 3.30	0.31

Adjusted Model	Odds Ratio	95% CI	p-value
Male	1.00		
Age			
12 - 13 years old	1.00		
14 – 15 years old	1.39	0.58 - 3.29	0.45
16 – 17 years old	1.29	0.48 - 3.49	0.60
Walkability			
Easy	1.10	0.33 - 3.72	0.86
Medium	1.48	0.37 - 5.88	0.57
Difficult	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.15	0.33 - 3.99	0.81
Median Household Income ⁶			
Less than \$25,000	1.00		
Greater than \$25,000	1.61	0.44 - 5.77	0.46
Gender			
Female	1.44	0.65 - 3.19	0.36
Male	1.00		
Age			
12 - 13 years old	1.00		
14 – 15 years old	0.54	0.05 - 5.77	0.61
16 – 17 years old	0.47	0.03 - 6.09	0.56
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	2.84	0.26 - 30.75	0.39

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Walkability based on response to questions (yes/no) on: stores are easy to walk to in my neighborhood (grocery stores, clothing stores, local stores); from my home, it is easy to walk to a bus stop (transit or city bus); it is hard to walk to places in my neighborhood because of railroad tracks, the river, or the highway.

³ Participants were restricted to those who have the outcome of the given analysis.

⁴ 95% CI, 95% Confidence Interval.

⁵ The p-value presented for each categorical variable is the Chi-Square statistic.

⁶ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table E2. Adjusted Purposeful Selection Logistic Regression Models; Final Adjusted Model for Neighborhood Region, Walkability, and its Association to Overweight/Obesity (n=145).

Adjusted Model¹⁻³	Odds Ratio	95% CI⁴	P – value⁵
Walkability			
Easy	1.33	0.41 - 4.36	0.12
Medium	1.50	0.40 - 5.57	0.62
Difficult	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.80	0.85 - 3.83	0.36
Other Region	1.58	0.58 - 4.26	0.30
Age			
12 - 13 years old	1.00		
14 – 15 years old	1.50	0.68 - 3.29	0.35
16 – 17 years old	1.51	0.63 - 3.62	0.36

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Walkability based on response to questions (yes/no) on: stores are easy to walk to in my neighborhood (grocery stores, clothing stores, local stores); from my home, it is easy to walk to a bus stop (transit or city bus); it is hard to walk to places in my neighborhood because of railroad tracks, the river, or the highway.

³ Participants were restricted to those who have the outcome of the given analysis.

⁴ 95% CI, 95% Confidence Interval.

⁵ The p-value presented for each categorical variable is the Chi-Square statistic.

Table E3. Purposeful Selection Logistic Regression Models, Odds Ratio of Neighborhood Region, Aesthetics, and its Association to Overweight/Obesity (n=145).

Unadjusted Model^{1 - 3}	Odds Ratio	95% CI⁴	P – value⁵
Aesthetics Scale			
Mildly aesthetically pleasing	1.00		
Not aesthetically pleasing	1.28	0.55 - 2.97	0.56
Aesthetically pleasing	0.96	0.41 - 2.22	0.93
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.93	0.91 - 4.09	0.08
Other Region	1.80	0.66 - 4.85	0.24
Adjusted Model	Odds Ratio	95% CI	P - value
Aesthetics Scale			
Mildly aesthetically pleasing	1.00		
Not aesthetically pleasing	1.57	0.62 - 3.97	0.34
Aesthetically pleasing	1.07	0.41 - 2.77	0.88
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.44	0.41 - 4.99	0.55
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	1.52	0.42 - 5.44	0.52
Aesthetics Scale			
Mildly aesthetically pleasing	1.00		
Not aesthetically pleasing	1.50	0.58 - 3.83	0.39
Aesthetically pleasing	1.02	0.39 - 2.67	0.96
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.41	0.40 - 4.88	0.58
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	1.59	0.44 - 5.74	0.47
Gender			
Female	1.46	0.67 - 3.21	0.33
Male	1.00		
Aesthetics Scale			
Mildly aesthetically pleasing	1.00		
Not aesthetically pleasing	1.51	0.59 - 3.88	0.38
Aesthetically pleasing	1.03	0.39 - 2.70	0.94
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.32	0.37 - 4.68	0.65
Median Household Income			
Less than \$25,000	1.00		
Greater than \$25,000	1.72	0.46 - 6.35	0.41
Gender			
Female	1.43	0.65 - 3.16	0.36

Adjusted Model	Odds Ratio	95% CI	p-value
Male	1.00		
Age			
12 - 13 years old	1.00		
14 – 15 years old	1.45	0.61 - 3.42	0.39
16 – 17 years old	1.27	0.47 - 3.41	0.63
Aesthetics Scale			
Mildly aesthetically pleasing	1.00		
Not aesthetically pleasing	1.51	0.58 - 3.92	0.39
Aesthetically pleasing	0.93	0.35 - 2.49	0.89
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.26	0.35 - 4.48	0.71
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	1.65	0.44 - 6.17	0.45
Gender			
Female	1.38	0.62 - 3.07	0.41
Male	1.00		
Age			
12 - 13 years old	1.00		
14 – 15 years old	0.46	0.04 - 4.99	0.52
16 – 17 years old	0.39	0.03 - 5.03	0.47
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	3.45	0.31 - 37.52	0.30

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Aesthetics based on response to questions (yes/no) on: sidewalks are on most of the streets in my neighborhood; there are many beautiful things to look at in my neighborhood (e.g. gardens, views); there are many nice looking buildings and homes in my neighborhood; there are abandoned building in my neighborhood; there are buildings with graffiti in my neighborhood.

³ Participants were restricted to those who have the outcome of the given analysis.

⁴ 95% CI, 95% Confidence Interval.

⁵ The p-value presented for each categorical variable is the Chi-Square statistic.

⁶ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table E4. Adjusted Purposeful Selection Logistic Regression Models, Final Adjusted Model for Neighborhood Region, Aesthetics, and its Association to Overweight/Obesity (n=145).

Adjusted Model¹⁻³	Odds Ratio	95% CI⁴	P – value⁵
Aesthetics Scale			
Mildly aesthetically pleasing	1.00		
Not aesthetically pleasing	1.27	0.54 - 3.00	0.57
Aesthetically pleasing	0.87	0.37 - 2.05	0.75
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.80	0.82 - 3.95	0.13
Other Region	1.64	0.60 - 4.51	0.33
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	5.00	0.52 - 48.00	0.16
Age			
12 - 13 years old	1.00		
14 – 15 years old	0.34	0.03 - 3.34	0.36
16 – 17 years old	0.32	0.03 - 3.46	0.35

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Aesthetics based on response to questions (yes/no) on: sidewalks are on most of the streets in my neighborhood; there are many beautiful things to look at in my neighborhood (e.g. gardens, views); there are many nice looking buildings and homes in my neighborhood; there are abandoned building in my neighborhood; there are buildings with graffiti in my neighborhood.

³ Participants were restricted to those who have the outcome of the given analysis.

⁴ 95% CI, 95% Confidence Interval.

⁵ The p-value presented for each categorical variable is the Chi-Square statistic.

Table E5. Purposeful Selection Logistic Regression Models, Odds Ratio of Neighborhood Region, Accessibility, and its Association to Overweight/Obesity (n=145).

Unadjusted Model¹⁻³	Odds Ratio	95% CI⁴	P – value⁵
Accessibility Scale			
Limited neighborhood facilities	1.20	0.50 - 2.84	0.67
Some neighborhood facilities	1.69	0.74 - 3.87	0.20
Most neighborhood facilities	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.94	0.91 - 4.11	0.08
Other Region	1.71	0.65 - 4.53	0.27
Adjusted Model	Odds Ratio	95% CI	P - value
Accessibility Scale			
Limited neighborhood facilities	0.78	0.32 - 1.90	0.59
Most neighborhood facilities	0.72	0.29 - 1.78	0.48
Some neighborhood facilities	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.39	0.41 - 4.69	0.59
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	1.46	0.42 - 5.06	0.54
Accessibility Scale			
Limited neighborhood facilities	0.76	0.31 - 1.86	0.54
Most neighborhood facilities	0.70	0.28 - 1.73	0.44
Some neighborhood facilities	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.34	0.39 - 4.57	0.63
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	1.57	0.44 - 5.52	0.47
Gender			
Female	1.54	0.70 - 3.37	0.27
Male	1.00		
Accessibility Scale			
Limited neighborhood facilities	0.76	0.31 - 1.88	0.56
Most neighborhood facilities	0.70	0.28 - 1.76	0.46
Some neighborhood facilities	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.26	0.36 - 4.35	0.71
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	1.68	0.47 - 5.99	0.42

Adjusted Model	Odds Ratio	95% CI	p-value
Gender			
Female	1.51	0.69 - 3.34	0.29
Male	1.00		
Age			
12 - 13 years old	1.00		
14 – 15 years old	1.43	0.60 - 3.38	0.40
16 – 17 years old	1.18	0.44 - 3.20	0.73
Accessibility Scale			
Limited neighborhood facilities	0.78	0.31 - 1.96	0.60
Most neighborhood facilities	0.66	0.26 - 1.68	0.39
Some neighborhood facilities	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.18	0.34 - 4.09	0.79
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	1.63	0.45 - 5.87	0.45
Gender			
Female	1.45	0.65 - 3.22	0.35
Male	1.00		
Age			
12 - 13 years old	1.00		
14 – 15 years old	0.45	0.04 - 4.88	0.51
16 – 17 years old	0.34	0.02 - 4.54	0.42
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	3.49	0.32 - 37.98	0.30

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Facilities based on response to questions (true/false) on: there is a super market in my neighborhood (Walmart, Kroger); there are a recreational facilities or gyms (YMCA, community centers) in my neighborhood; there are parks with playgrounds in my neighborhood; there are parks with my walking trails in my neighborhood.

³ Participants were restricted to those who have the outcome of the given analysis.

⁴ 95% CI, 95% Confidence Interval.

⁵ The p-value presented for each categorical variable is the Chi-Square statistic.

⁶ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table E6. Adjusted Purposeful Selection Logistic Regression, Final Adjusted Model for Neighborhood Region, Accessibility, and its Association to Overweight/Obesity Models (n=145).

Adjusted Model¹⁻³	Odds Ratio	95% CI⁴	P – value⁵
Accessibility Scale			
Limited neighborhood	0.70	0.30 - 1.60	0.40
Most neighborhood	0.55	0.24 - 1.28	0.16
Some neighborhood	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.79	0.82 - 3.90	0.14
Other Region	1.53	0.57 - 4.12	0.39
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	5.39	0.56 - 51.74	0.14
Age			
12 - 13 years old	1.00		
14 – 15 years old	0.32	0.03 - 3.11	0.32
16 – 17 years old	0.28	0.02 - 3.06	0.29

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Facilities based on response to questions (true/false) on: there is a super market in my neighborhood (Walmart, Kroger); there are a recreational facilities or gyms (YMCA, community centers) in my neighborhood; there are parks with playgrounds in my neighborhood; there are parks with my walking trails in my neighborhood.

³ Participants were restricted to those who have the outcome of the given analysis.

⁴ 95% CI, 95% Confidence Interval.

⁵ The p-value presented for each categorical variable is the Chi-Square statistic.

Table E7. Purposeful Selection Logistic Regression Models, Odds Ratio of Neighborhood Region, Traffic, and its Association to Overweight/Obesity (n=145).

Unadjusted Model¹⁻³	Odds Ratio	95% CI⁴	P – value⁵
Traffic Scale			
Traffic	0.83	0.43 - 1.626	0.59
No Traffic	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.79	0.87 - 3.720	0.11
Other Region	1.64	0.62 - 4.322	0.31
Adjusted Model	Odds Ratio	95% CI	P - value
Traffic Scale			
Traffic	1.15	0.55 - 2.42	0.69
No Traffic	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.45	0.42 - 4.94	0.55
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	1.34	0.38 - 4.67	0.64
Traffic Scale			
Traffic	1.11	0.53 - 2.35	0.77
No Traffic	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.39	0.40 - 4.78	0.60
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	1.44	0.40 - 5.10	0.56
Gender			
Female	1.48	0.68 - 3.24	0.32
Male	1.00		
Traffic Scale			
Traffic	1.13	0.53 - 2.40	0.73
No Traffic	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.31	0.37 - 4.56	0.66
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	1.54	0.42 - 5.56	0.50
Gender			
Female	1.45	0.66 - 3.20	0.34
Male	1.00		
Age			
12 - 13 years old	1.00		
14 – 15 years old	1.45	0.61 - 3.43	0.38

Adjusted Model	Odds Ratio	95% CI	p-value
16 – 17 years old	1.23	0.46 - 3.29	0.67
Traffic Scale			
Traffic	1.03	0.48 - 2.21	0.92
No Traffic	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.19	0.34 - 4.18	0.78
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	1.53	0.42 - 5.58	0.51
Gender			
Female	1.41	0.63 - 3.12	0.39
Male	1.00		
Age			
12 - 13 years old	1.00		
14 – 15 years old	0.51	0.04 - 5.47	0.58
16 – 17 years old	0.41	0.03 - 5.25	0.49
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	3.08	0.28 - 32.90	0.35

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Traffic based on response to questions (true/false) on: It is hard to walk in my neighborhood because of so much traffic; there are crosswalks and signals to help walkers cross the streets in my neighborhood.

³ Participants were restricted to those who have the outcome of the given analysis.

⁴ 95% CI, 95% Confidence Interval.

⁵ The p-value presented for each categorical variable is the Chi-Square statistic.

⁶ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table E8. Adjusted Purposeful Selection Logistic Regression Models, Final Adjusted Model for Neighborhood Region, Traffic, and its Association to Overweight/Obesity, (n=145).

Adjusted Model^{1 - 3}	Odds Ratio	95% CI⁴	P – value⁵
Traffic Scale			
Traffic	0.79	0.40 - 1.56	0.51
No Traffic	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.72	0.82 - 3.60	0.15
Other Region	1.53	0.57 - 4.09	0.38
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.75	0.89 - 3.45	0.10

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Traffic based on response to questions (true/false) on: It is hard to walk in my neighborhood because of so much traffic; there are crosswalks and signals to help walkers cross the streets in my neighborhood.

³ Participants were restricted to those who have the outcome of the given analysis.

⁴ 95% CI, 95% Confidence Interval.

⁵ The p-value presented for each categorical variable is the Chi-Square statistic.

Table E9. Purposeful Selection Logistic Regression Models, Odds Ratio of Neighborhood Region, Crime, and its Association to Overweight (n=145).

Unadjusted Model¹⁻³	Odds Ratio	95% CI⁴	P – value⁵
Crime Scale			
No Crime	1.28	0.65 – 2.54	0.48
Crime	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.85	0.89 - 3.83	0.09
Other Region	1.59	0.60 - 4.21	0.35
Adjusted Model	Odds Ratio	95% CI	P - value
Crime Scale			
No Crime	1.13	0.53 -2.39	0.75
Crime	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.39	0.41 - 4.68	0.58
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	1.40	0.41 - 4.82	0.58
Crime Scale			
No Crime	1.22	0.57 – 2.62	0.62
Crime	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.35	0.40 - 4.57	0.63
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	1.51	0.43 - 5.26	0.51
Gender			
Female	1.55	0.70 - 3.44	0.27
Male	1.00		
Crime Scale			
No Crime	1.16	0.53 – 2.53	0.72
Crime	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.28	0.37 - 4.37	0.69
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	1.61	0.45 - 5.69	0.45
Gender			
Female	1.52	0.68 - 3.38	0.30
Male	1.00		
Age			
12 - 13 years old	1.00		
14 – 15 years old	1.41	0.59 - 3.35	0.43
16 – 17 years old	1.21	0.44 - 3.26	0.70

Adjusted Model	Odds Ratio	95% CI	p-value
Crime Scale			
No Crime	1.12	0.51 – 2.49	0.77
Crime	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.19	0.35 - 4.10	0.79
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	1.56	0.44 - 5.55	0.49
Gender			
Female	1.45	0.64 - 3.25	0.36
Male	1.00		
Age			
12 - 13 years old	1.00		
14 – 15 years old	0.50	0.04 - 5.35	0.56
16 – 17 years old	0.40	0.03 - 5.19	0.48
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	3.10	0.29 - 33.37	0.35

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Crime based on response to questions (true/false) on: there is a lot of crime in my neighborhood; I do not feel safe in my neighborhood at night; I am worried about being outside alone in my neighborhood; I am worried about being alone at a park in my neighborhood.

³ Participants were restricted to those who have the outcome of the given analysis.

⁴ 95% CI, 95% Confidence Interval.

⁵ The p-value presented for each categorical variable is the Chi-Square statistic.

⁶ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table E10. Adjusted Purposeful Selection Logistic Regression Models, Final Adjusted Model for Neighborhood Region, Crime, and its Association to Overweight/Obesity, (n=145).

Adjusted Model^{1 - 3}	Odds Ratio	95% CI⁴	P – value⁵
Crime Scale			
No Crime	1.20	0.60 – 2.42	0.60
Crime	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.77	0.84 - 3.72	0.13
Other Region	1.52	0.57 - 4.06	0.41
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.73	0.88 - 3.41	0.11

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Crime based on response to questions (true/false) on: there is a lot of crime in my neighborhood; I do not feel safe in my neighborhood at night; I am worried about being outside alone in my neighborhood; I am worried about being alone at a park in my neighborhood.

³ Participants were restricted to those who have the outcome of the given analysis.

⁴ 95% CI, 95% Confidence Interval.

⁵ The p-value presented for each categorical variable is the Chi-Square statistic.

Table E11. Purposeful Selection Logistic Regression Models, Odds Ratio of Neighborhood Region, Afraid, and its Association to Overweight/Obesity, (n=145).

Unadjusted Model¹⁻³	Odds Ratio	95% CI⁴	P – value⁵
Afraid Scale			
Not Afraid	1.00		
Moderately Afraid	2.11	0.90 - 4.95	0.08
Afraid	0.76	0.32 - 1.82	0.54
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.59	0.75 - 3.37	0.21
Other Region	1.48	0.55 - 4.01	0.43
Adjusted Model	Odds Ratio	95% CI	P - value
Afraid Scale			
Not Afraid	1.00		
Moderately Afraid	2.35	0.91 - 6.03	0.07
Afraid	1.01	0.38 - 2.64	0.97
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.24	0.35 - 4.31	0.73
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	1.40	0.39 - 5.01	0.60
Afraid Scale			
Not Afraid	1.00		
Moderately Afraid	2.12	0.80 - 5.67	0.13
Afraid	0.91	0.33 - 2.48	0.86
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.23	0.35 - 4.33	0.74
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	1.43	0.39 - 5.20	0.58
Gender			
Female	1.36	0.59 - 3.11	0.46
Male	1.00		
Afraid Scale			
Not Afraid	1.00		
Moderately Afraid	2.13	0.79 - 5.72	0.13
Afraid	0.96	0.34 - 2.69	0.94
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.17	0.33 - 4.18	0.80
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	1.53	0.41 - 5.67	0.52
Gender			
Female	1.33	0.57 - 3.09	0.49

Adjusted Model	Odds Ratio	95% CI	p-value
Male			
Age			
12 - 13 years old	1.00		
14 - 15 years old	1.31	0.54 - 3.16	0.54
16 - 17 years old	1.16	0.41 - 3.26	0.76
Afraid Scale			
Not Afraid	1.00		
Moderately Afraid	2.12	0.78 - 5.77	0.13
Afraid	1.03	0.36 - 2.96	0.94
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.09	0.30 - 3.90	0.88
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	1.51	0.40 - 5.63	0.53
Gender			
Female	1.26	0.54 - 2.95	0.58
Male	1.00		
Age			
12 - 13 years old	1.00		
14 - 15 years old	0.48	0.04 - 4.96	0.54
16 - 17 years old	0.41	0.03 - 5.02	0.48
Grade			
6 th - 8 th grade	1.00		
9 th - 12 th grade	3.03	0.29 - 31.40	0.35

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Afraid based on response to questions (true/false) on: I am afraid of: there is a lot of people I don't know, other kids my age, kids that pick on me, gangs, homeless people, drug dealers, adults outside of my household.

³ Participants were restricted to those who have the outcome of the given analysis.

⁴ 95% CI, 95% Confidence Interval.

⁵ The p-value presented for each categorical variable is the Chi-Square statistic.

⁶ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table E12. Multivariable Logistic Regression Model for Neighborhood Region, Perception of the Built Environment and Association with Overweight/Obesity, SHAPE Study (n=145).

Adjusted Model¹⁻³	Odds Ratio	95% CI⁴	p-value⁵
Afraid Scale			
Not Afraid	1.00		
Moderately Afraid	2.09	0.88 - 4.93	0.09
Afraid	0.85	0.35 - 2.04	0.71
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.57	0.73 - 3.34	0.24
Other	1.42	0.52 - 3.85	0.48
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.67	0.84 - 3.32	0.14

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Built environment defined as aspects within the neighborhood (1) walkability scale; (2) aesthetics scale; (3) accessibility scale; (4) traffic scale; (5) crime scale; (6) afraid scale.

³ Participants were restricted to those who have the outcome of the given analysis.

⁴ 95% CI, 95% Confidence Interval.

⁵ The p-value presented for each categorical variable is the Chi-Square statistic.

Table E13. Purposeful Selection Logistic Regression Models, Odds Ratio for Neighborhood Region, Physical Activity levels (60 minutes), and its Association to Overweight/Obesity, (n=145).

Unadjusted Model¹⁻³	Odds Ratio	95% CI⁴	P – value⁵
Physical Activity			
0 – 3 days per week	1.16	0.54 - 2.45	0.69
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.33	1.03 - 5.25	0.04
Other Region	1.15	0.38 - 3.52	0.79
Adjusted Model	Odds Ratio	95% CI	P - value
Physical Activity			
0 – 3 days per week	1.09	0.49 - 2.45	0.82
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.34	1.03 - 5.27	0.04
Other Region	1.19	0.38 - 3.69	0.75
Gender			
Female	1.17	0.50 - 2.75	0.70
Male	1.00		
Physical Activity			
0 – 3 days per week	0.66	0.25 - 1.74	0.40
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.24	0.84 – 5.95	0.11
Other Region	1.63	0.43 – 6.17	0.48
Gender			
Female	0.72	0.28 - 1.88	0.50
Male			
Perceptions of Weight⁶			
Normal weight	1.00		
Overweight	64.42	7.93 – 523.03	<0.0001
Physical Activity			
0 – 3 days per week	0.60	0.20 - 1.76	0.35
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.97	0.95 - 9.21	0.06
Other Region	4.01	0.86 - 18.69	0.08
Gender			
Female	0.42	0.14 - 1.32	0.14
Male	1.00		
Perceptions of Weight⁶			
About the right weight	1.00		
Overweight	20.30	2.38 – 190.38	0.0021

Adjusted Model	Odds Ratio	95% CI	p-value
Weight Goals⁶			
Not trying/Stay the same	1.00		
Lose weight	7.28	2.05 – 25.85	0.00
Gain weight	0.43	0.11 - 1.65	0.22
Physical Activity			
0 – 3 days per week	0.64	0.20 - 2.06	0.46
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.01	0.58 - 6.98	0.27
Other Region	3.87	0.76 - 19.71	0.10
Gender			
Female	0.39	0.11 - 1.37	0.14
Male	1.00		
Perceptions of Weight⁶			
Normal weight	1.00		
Overweight	25.42	2.64 – 244.65	0.00
Weight Goals⁶			
Not trying/Stay the same	1.00		
Lose weight	6.28	1.63 - 24.13	0.00
Gain weight	0.31	0.07 - 1.33	0.12
Fruit and Veggie Scale⁶			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	3.37	1.11 - 10.27	0.03
Physical Activity			
0 – 3 days per week	0.63	0.19 - 2.04	0.44
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.61	0.43 – 5.99	0.48
Other Region	3.63	0.70 – 19.00	0.13
Gender			
Female	0.44	0.12 - 1.62	0.22
Male	1.00		
Perceptions of Weight⁶			
About the right weight	1.00		
Overweight	29.280	2.86 – 299.53	0.00
Weight Goals⁶			
Not trying/Stay the same	1.00		
Lose weight	5.62	1.46 - 21.67	0.01
Gain weight	0.31	0.06 - 1.41	0.13
Fruit and Veggie Scale⁶			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	3.96	1.21- 12.95	0.02
Comfort Scale⁶			
Comfortable	1.00		
Mild to Moderately comfortable	2.19	0.57 - 8.39	0.25
Physical Activity			
0 – 3 days per week	0.91	0.24 - 3.43	0.88
4 – 7 days per week	1.00		

Adjusted Model	Odds Ratio	95% CI	p-value
Neighborhood Region			
Eastern Region	1.00		
Western Region	0.37	0.05 - 2.61	0.32
Gender			
Female	0.44	0.10 – 2.02	0.29
Male	1.00		
Perceptions of Weight⁶			
Normal weight	1.00		
Overweight	25.02	2.18 – 288.30	0.01
Weight Goals⁶			
Not trying/Stay the same	1.00		
Lose weight	5.55	1.31 – 23.59	0.02
Gain weight	0.12	0.02 - 0.91	0.04
Fruit and Veggie Scale⁶			
Inadequate fruit and veggie intake	1.00		
Adequate fruit and veggie intake	4.09	1.03 - 16.18	0.05
Comfort Scale⁶			
Comfortable	1.00		
Mild to Moderately comfortable	2.08	0.46 - 9.50	0.35
Median Household Income⁷			
Less than \$25,000			
Greater than \$25,000	7.40	1.00 – 54.79	0.05

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Physical activity based on response to questions on: the number of days in the previous 7 days that a participant exercised or participated in physical activity for at least 60 minutes per day.

³ Participants were restricted to those who have the outcome of the given analysis.

⁴ 95% CI, 95% Confidence Interval.

⁵ The p-value presented for each categorical variable is the Chi-Square statistic.

⁶ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out.

⁷ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table E14. Multivariable Logistic Regression Model for Neighborhood Region, Physical Activity (60 minutes) and its Association to Overweight/Obesity, SHAPE Study (n=145).

Adjusted Model¹⁻³	Odds Ratio	95% CI⁴	p-value⁵
Physical Activity (60 minutes)			
0 -3 days	0.52	0.17 - 1.59	0.25
4 – 7 days	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.39	0.38 - 5.10	0.62
Other	3.59	0.71 – 18.24	0.12
Perceptions of Weight⁶			
Normal weight	1.00		
Overweight	28.44	2.70 – 299.24	0.00
Weight Goals⁶			
Not Trying/ Stay the Same	1.00		
Lose Weight	5.50	1.44 – 21.08	0.01
Gain Weight	0.42	0.10 - 1.72	0.23
Fruit and Veggie Scale⁶			
Inadequate Fruit and Veggie	1.00		
Adequate Fruit and Veggie	4.48	1.37 - 14.64	0.01
Comfort Scale⁶			
Comfortable	1.00		
Mild to moderately comfortable	2.54	0.70 - 9.32	0.16

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Physical activity based on response to questions on: the number of days in the previous 7 days that a participant exercised or participated in physical activity for at least 60 minutes per day.

³ Participants were restricted to those who have the outcome of the given analysis.

⁴ 95% CI, 95% Confidence Interval.

⁵ The p-value presented for each categorical variable is the Chi-Square statistic.

⁶ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out.

Table E15. Purposeful Selection Logistic Regression Models, Odds Ratio for Neighborhood Region, Physical Activity levels (20 minutes), and its Association to Overweight/Obesity (n=145).

Unadjusted Model¹⁻³	Odds Ratio	95% CI⁴	P – value⁵
Physical Activity			
0 – 3 days per week	1.10	0.52 - 2.33	0.79
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.88	0.84 - 4.19	0.11
Other Region	1.55	0.54 - 4.40	0.41
Adjusted Model	Odds Ratio	95% CI	P - value
Physical Activity			
0 – 3 days per week	1.11	0.52 - 2.38	0.77
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.88	0.84 - 4.19	0.12
Other Region	1.53	0.53 - 4.38	0.42
Gender			
Female	0.92	0.43 - 2.00	0.85
Male	1.00		
Physical Activity			
0 – 3 days per week	0.92	0.38 - 2.26	0.86
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.71	0.65 - 4.50	0.28
Other Region	1.84	0.55 - 6.15	0.33
Gender			
Female	0.49	0.20 - 1.20	0.12
Male	1.00		
Perceptions of Weight⁶			
Normal weight	1.00		
Overweight	65.36	8.19 – 521.77	<.0001
Physical Activity			
0 – 3 days per week	0.71	0.26 – 1.93	0.50
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.15	0.73 - 6.36	0.17
Other Region	3.83	0.96 - 15.27	0.06
Gender			
Female	0.27	0.09 - 0.78	0.02
Male	1.00		
Perceptions of Weight⁶			
Normal weight	1.00		
Overweight	22.14	2.55– 192.20	0.00

Adjusted Model	Odds Ratio	95% CI	p-value
Weight Goals⁶			
Not trying/Stay the same	1.00		
Lose weight	6.69	1.96 – 22.81	0.00
Gain weight	0.45	0.12 - 1.46	0.18
Physical Activity			
0 – 3 days per week	0.89	0.31 - 2.57	0.83
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.39	0.43 - 4.49	0.58
Other Region	3.33	0.71 - 15.63	0.13
Gender			
Females	0.24	0.07 - 0.80	0.02
Males	1.00		
Perceptions of Weight⁶			
About the right weight	1.00		
Overweight	23.23	2.51 – 215.11	0.00
Weight Goals⁶			
Not trying/Stay the same	1.00		
Lose weight	6.62	1.78 – 24.59	0.00
Gain weight	0.29	0.07 - 1.19	0.09
Fruit and Veggie Scale⁶			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	3.50	1.18 - 10.38	0.02
Physical Activity			
0 – 3 days per week	0.88	0.31- 2.57	0.83
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.29	0.38 - 4.41	0.69
Other Region	3.20	0.67 - 15.20	0.14
Gender			
Female	0.25	0.07 - 0.81	0.02
Male	1.00		
Perceptions of Weight⁶			
Normal weight	1.00		
Overweight	24.05	2.55 – 226.95	0.01
Weight Goals⁶			
Not trying/Stay the same	1.00		
Lose weight	6.18	1.61 – 23.71	0.01
Gain weight	0.28	0.07 - 1.20	0.08
Fruit and Veggie Scale⁶			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	3.61	1.20- 10.84	0.02
Comfort Scale⁶			
Comfortable	1.00		
Mild to Moderately comfortable	1.31	0.35 - 4.91	0.69
Physical Activity			
0 – 3 days per week	0.91	0.26 - 3.15	0.88
4 – 7 days per week	1.00		

Adjusted Model	Odds Ratio	95% CI	p-value
Neighborhood Region			
Eastern Region	1.00		
Western Region	0.18	0.02 - 1.44	0.11
Gender			
Female	0.24	0.06 - 1.02	0.05
Male	1.00		
Perceptions of Weight⁶			
Normal weight	1.00		
Overweight	35.02	2.87 – 427.38	0.00
Weight Goals⁶			
Not trying/Stay the same	1.00		
Lose weight	7.50	1.60 – 35.3	0.01
Gain weight	0.12	0.02 - 0.82	0.03
Fruit and Veggie Scale⁶			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	4.83	1.27 - 18.44	0.02
Comfort Scale⁶			
Comfortable	1.00		
Mild to Moderately comfortable	0.93	0.19 – 4.44	0.93
Median Household Income⁷			
Less than \$25,000			
Greater than \$25,000	14.02	1.58 – 124.62	0.02

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Physical activity based on response to questions on: the number of days in the previous 7 days that a participant exercised or participated in physical activity for at least 20 minutes per day.

³ Participants were restricted to those who have the outcome of the given analysis.

⁴ 95% CI, 95% Confidence Interval.

⁵ The p-value presented for each categorical variable is the Chi-Square statistic.

⁶ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out.

⁷ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table E16. Multivariable Logistic Regression Model for Neighborhood Region, Physical Activity (20 minutes) and Association with Overweight/Obesity, SHAPE Study (n=145).

Adjusted Model ¹⁻³	Odds Ratio	95% CI ⁴	p-value ⁵
Physical Activity (20 minutes)			
0 – 3 days	0.90	0.26 - 3.11	0.87
4 – 7 days	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	0.18	0.02 - 1.43	1.06
Gender			
Male	1.00		
Female	0.24	0.06 - 1.12	0.06
Perceptions of Weight⁶			
Normal weight	1.00		
Overweight	35.41	2.91- 430.21	0.00
Weight Goals⁶			
Not try/Stay the same	1.00		
Lose weight	7.35	1.67 - 32.36	0.00
Gain weight	0.12	0.02 - 0.81	0.03
Fruit and Veggie Scale⁶			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	4.85	1.27 - 18.48	0.02
Median Household Income⁷			
Less than \$25,000	1.00		
More than \$25,000	13.73	1.64 – 115.29	0.02

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Physical activity based on response to questions on: the number of days in the previous 7 days that a participant exercised or participated in physical activity for at least 20 minutes per day.

³ Participants were restricted to those who have the outcome of the given analysis.

⁴ 95% CI, 95% Confidence Interval.

⁵ The p-value presented for each categorical variable is the Chi-Square statistic.

⁶ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days.

⁷ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table E17. Purposeful Selection Logistic Regression Models, Odds Ratio for Neighborhood Region, Walkability, Physical Activity (60 minutes) and its Association to Overweight/Obesity (n=145).

Unadjusted Model ^{1 - 4}	Odds Ratio	95% CI ⁵	P – value ⁶
Physical Activity			
0 – 3 days per week	1.16	0.54 - 2.44	0.70
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.37	1.03 - 5.44	0.04
Other Region	1.18	0.38 - 3.70	0.76
Walkability			
Easy	0.88	0.22 - 3.50	0.86
Medium	0.84	0.18 - 3.85	0.83
Difficult	1.00		
Adjusted Model	Odds Ratio	95% CI	P - value
Physical Activity			
0 – 3 days per week	1.06	0.49 - 2.29	0.87
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.33	1.00 - 5.43	0.04
Other Region	1.18	0.37 - 3.75	0.77
Walkability			
Easy	0.68	0.15 - 2.95	0.60
Medium	0.64	0.12 - 3.20	0.58
Difficult	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.93	0.90 - 4.14	0.09
Physical Activity			
0 – 3 days per week	1.03	0.45 - 2.35	0.92
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.33	1.00 - 5.43	0.05
Other Region	1.20	0.37 - 3.84	0.75
Walkability			
Easy	0.68	0.15 - 2.98	0.61
Medium	0.64	0.12 - 3.24	0.59
Difficult	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.91	0.88 - 4.14	0.09
Gender			
Female	1.08	0.45 - 2.58	0.86
Male	1.00		
Physical Activity			

Adjusted Model	Odds Ratio	95% CI	p-value
0 – 3 days per week	0.65	0.24 - 1.73	0.39
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.32	0.84 - 6.44	0.11
Other Region	1.61	0.41 - 6.32	0.50
Walkability			
Easy	0.52	0.08 - 3.41	0.50
Medium	0.86	0.12 – 6.19	0.88
Difficult	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.64	0.65 - 4.14	0.30
Gender			
Female	0.70	0.26 - 1.84	0.45
Male	1.00		
Perceptions of Weight⁷			
About the right weight	1.00		
Overweight	65.39	7.90- 541.46	0.0001
Physical Activity			
0 – 3 days per week	0.55	0.18 - 1.70	0.30
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	3.43	1.02 - 11.47	0.05
Other Region	5.05	0.98 – 25.95	0.05
Walkability			
Easy	0.24	0.03 - 2.32	0.22
Medium	0.59	0.06 - 5.81	0.65
Difficult	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	2.42	0.82 - 7.17	0.11
Gender			
Female	0.34	0.10 - 1.20	0.09
Male	1.00		
Perceptions of Weight⁷			
Normal weight	1.00		
Overweight	20.24	2.15 – 190.22	0.00
Weight Goals⁷			
Not trying/Stay the same	1.00		
Lose weight	10.81	2.67 - 43.68	0.00
Gain weight	0.43	0.10 - 1.84	0.25
Physical Activity			
0 – 3 days per week	0.601	0.17 - 2.04	0.41
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.30	0.62 - 8.48	0.21
Other Region	5.10	0.91 - 28.32	0.06

Adjusted Model	Odds Ratio	95% CI	p-value
Walkability			
Easy	0.23	0.02 - 2.77	0.25
Medium	0.55	0.04 - 6.86	0.64
Difficult	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.71	0.55 - 5.29	0.35
Gender			
Female	0.33	0.09 - 1.29	0.11
Male	1.00		
Perceptions of Weight⁷			
Normal weight	1.00		
Overweight	24.63	2.44 – 248.84	0.00
Weight Goals⁷			
Not trying/Stay the same	1.00		
Lose weight	9.496	2.13 – 42.31	0.00
Gain weight	0.36	0.07 - 1.50	0.15
Fruit and Veggie Scale⁷			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	2.92	0.89 - 9.53	0.08
Physical Activity			
0 – 3 days per week	0.57	0.17 - 1.95	0.37
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.74	0.42 - 7.13	0.44
Other Region	4.61	0.80 - 26.38	0.09
Walkability			
Easy	0.27	0.02 - 3.15	0.29
Medium	0.60	0.05 - 7.20	0.69
Difficult	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.76	0.56 - 5.54	0.34
Gender			
Female	0.40	0.10 - 1.60	0.19
Male			
Perceptions of Weight⁷			
About the right weight	1.00		
Overweight	29.76	2.74 – 323.33	0.00
Weight Goals⁷			
Not trying/Stay the same	1.00		
Lose weight	7.91	1.77 - 35.38	0.00
Gain weight	0.30	0.06 - 1.52	0.15
Fruit and Veggie Scale⁷			
Inadequate fruit and veggie intake	1.00		
Adequate fruit and veggie intake	3.49	0.99 - 12.32	0.05
Comfort Scale⁷			
Comfortable	1.00		

Adjusted Model	Odds Ratio	95% CI	p-value
Mild to Moderately comfortable	2.17	0.53 – 8.98	0.28
Physical Activity			
0 – 3 days per week	0.77	0.19 – 3.13	0.71
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	0.40	0.05 – 3.04	0.38
Walkability			
Easy	0.17	0.01 - 2.76	0.37
Medium	0.46	0.03 – 7.28	0.58
Difficult	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.22	0.32 - 4.71	0.77
Gender			
Female	0.42	0.08 - 2.32	0.32
Male	1.00		
Perceptions of Weight⁷			
About the right weight	1.00		
Overweight	24.50	2.06 – 291.30	0.01
Weight Goals⁷			
Not trying/Stay the same	1.00		
Lose weight	9.81	1.63 – 59.07	0.01
Gain weight	0.18	0.02 - 1.65	0.12
Fruit and Veggie Scale⁷			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	3.83	0.83 – 17.76	0.08
Comfort Scale⁷			
Comfortable	1.00		
Mild to Moderately comfortable	2.05	0.42 - 10.09	0.38
Median Household Income⁸			
Less than \$25,000	1.00		
Greater than \$25,000	8.19	0.99 – 67.39	0.06

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Walkability based on response to questions (yes/no) on: stores are easy to walk to in my neighborhood (grocery stores, clothing stores, local stores); from my home, it is easy to walk to a bus stop (transit or city bus); it is hard to walk to places in my neighborhood because of railroad tracks, the river, or the highway.

³ Physical activity based on response to questions on: the number of days in the previous 7 days that a participant exercised or participated in physical activity for at least 60 minutes per day.

⁴ Participants were restricted to those who have the outcome of the given analysis.

⁵ 95% CI, 95% Confidence Interval.

⁶ The p-value presented for each categorical variable is the Chi-Square statistic.

⁷ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out.

⁸ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland

(\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table E18. Adjusted Purposeful Selection Logistic Regression Models, Final Adjusted Model for Neighborhood Region, Walkability, Physical Activity (60 minutes), and its Association to Overweight/Obesity (n=145).

Adjusted Model^{1 - 4}	Odds Ratio	95% CI⁵	P – value⁶
Physical Activity			
0 – 3 days per week	0.57	0.17 - 1.95	0.37
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.74	0.42 - 7.13	0.44
Other Region	4.61	0.80 - 26.38	0.09
Walkability			
Easy	0.26	0.02 - 3.15	0.29
Medium	0.60	0.05 - 7.20	0.69
Difficult	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.76	0.56 - 5.54	0.33
Gender			
Female	0.40	0.10 - 1.60	0.19
Male	1.00		
Perceptions of Weight⁷			
About the right weight	1.00		
Overweight	29.43	2.63 - 328.85	0.01
Weight Goals⁷			
Not trying/Stay the same	1.00		
Lose weight	7.91	1.77 - 35.38	0.01
Gain weight	0.30	0.06 - 1.52	0.15
Fruit and Veggie Scale⁷			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	3.48	0.99 - 12.32	0.05
Comfort Scale⁷			
Comfortable	1.00		
Mild to Moderately comfortable	2.18	0.53 – 8.98	0.28

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Walkability based on response to questions (yes/no) on: stores are easy to walk to in my neighborhood (grocery stores, clothing stores, local stores); from my home, it is easy to walk to a bus stop (transit or city bus); it is hard to walk to places in my neighborhood because of railroad tracks, the river, or the highway.

³ Physical activity based on response to questions on: the number of days in the previous 7 days that a participant exercised or participated in physical activity for at least 60 minutes per day.

⁴ Participants were restricted to those who have the outcome of the given analysis.

⁵ 95% CI, 95% Confidence Interval.

⁶ The p-value presented for each categorical variable is the Chi-Square statistic.

⁷ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out.

Table E19. Purposeful Selection Logistic Regression Models, Odds Ratio for Neighborhood Region, Aesthetic, Physical Activity (60 minutes) and its Association to Overweight/Obesity (n=145).

Unadjusted Model¹⁻⁴	Odds Ratio	95% CI⁵	P – value⁶
Physical Activity			
0 – 3 days per week	1.13	0.53 - 2.41	0.74
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.59	1.11 - 6.04	0.02
Other Region	1.15	0.36 - 3.62	0.80
Aesthetics Scale			
Mildly aesthetically pleasing	1.00		
Not Aesthetically pleasing	2.02	0.76 - 5.34	0.15
Aesthetically pleasing	1.76	0.66 - 4.64	0.25
Adjusted Model	Odds Ratio	95% CI	P - value
Physical Activity			
0 – 3 days per week	1.06	0.49 - 2.28	0.88
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.52	1.06 - 5.97	0.03
Other Region	1.13	0.35 - 3.63	0.83
Aesthetics Scale			
Mildly aesthetically pleasing	1.00		
Not Aesthetically pleasing	2.07	0.76 - 5.57	0.15
Aesthetically pleasing	1.56	0.58 - 4.18	0.37
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.93	0.88 - 4.21	0.09
Physical Activity			
0 – 3 days per week	1.03	0.45 - 2.35	0.94
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.52	1.06 - 5.97	0.03
Other Region	1.15	0.35 - 3.73	0.81
Aesthetics Scale			
Mildly aesthetically pleasing	1.00		
Not Aesthetically pleasing	2.06	0.76 - 5.57	0.15
Aesthetically pleasing	1.55	0.58 - 4.17	0.37
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.91	0.87 - 4.20	0.10
Gender			
Female	1.08	0.45 - 2.59	0.85
Male	1.00		
Physical Activity			

Adjusted Model	Odds Ratio	95% CI	p-value
0 – 3 days per week	0.64	0.24 - 1.74	0.38
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.48	0.88 - 6.95	0.08
Other Region	1.46	0.38 - 5.63	0.58
Aesthetics Scale			
Mildly aesthetically pleasing	1.00		
Not Aesthetically pleasing	1.89	0.57 – 6.24	0.30
Aesthetically pleasing	1.97	0.60 - 6.45	0.26
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.46	0.58 - 3.68	0.42
Gender			
Female	0.67	0.25 - 1.82	0.43
Male	1.00		
Perceptions of Weight⁷			
About the right weight	1.00		
Overweight	63.00	7.48 – 530.95	0.0001
Physical Activity			
0 – 3 days per week	0.57	0.19 - 1.73	0.32
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	3.40	1.01 - 11.40	0.05
Other Region	3.88	0.80 - 18.50	0.09
Aesthetics Scale			
Mildly aesthetically pleasing	1.00		
Not Aesthetically pleasing	1.90	0.50 - 7.11	0.34
Aesthetically pleasing	2.13	0.56 - 8.05	0.26
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.91	0.68 – 8.05	0.22
Gender			
Female	0.34	0.10 - 1.15	0.08
Male	1.00		
Perceptions of Weight⁷			
About the right weight	1.00		
Overweight	18.57	1.96 – 175.58	0.01
Weight Goals⁷			
Not trying/Stay the same	1.0		
Lose weight	8.51	2.21 - 32.69	0.00
Gain weight	0.41	0.10 - 1.71	0.22
Physical Activity			
0 – 3 days per week	0.58	0.17 - 1.96	0.37
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.25	0.61 - 8.25	0.22
Other Region	3.83	0.75 - 19.62	0.11

Adjusted Model	Odds Ratio	95% CI	p-value
Aesthetics Scale			
Mildly aesthetically pleasing	1.00		
Not Aesthetically pleasing	2.32	0.53 - 10.22	0.26
Aesthetically pleasing	1.69	0.40 - 7.06	0.47
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.43	0.49 - 4.23	0.51
Gender			
Female	0.39	0.11 - 1.45	0.16
Male	1.00		
Perceptions of Weight⁷			
About the right weight	1.00		
Overweight	21.72	2.16 – 218.13	0.01
Weight Goals⁷			
Not trying/Stay the same	1.00		
Lose weight	6.93	1.70 - 28.31	0.00
Gain weight	0.31	0.07 - 1.43	0.13
Fruit and Veggie Scale⁷			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie	3.60	1.07 - 12.06	0.04
Physical Activity			
0 – 3 days per week	0.53	0.16 - 1.82	0.31
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.62	0.40 - 6.58	0.50
Other Region	3.53	0.66 - 18.92	0.14
Aesthetics Scale			
Mildly aesthetically pleasing	1.00		
Not Aesthetically pleasing	2.57	0.54 – 12.27	0.24
Aesthetically pleasing	1.87	0.42 – 7.94	0.14
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.53	0.51 - 4.64	0.42
Gender			
Female	0.47	0.12 - 1.81	0.27
Male			
Perceptions of Weight⁷			
About the right weight	1.00		
Overweight	26.28	2.46 – 280.54	0.00
Weight Goals⁷			
Not trying/Stay the same	1.00		
Lose weight	5.91	1.45 - 24.16	0.01
Gain weight	0.28	0.06 - 1.44	0.13
Fruit and Veggie Scale⁷			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie	4.65	1.22 - 17.69	0.02
Comfort Scale⁷			
Comfortable	1.00		
Mild to Moderately comfortable	2.64	0.62 – 11.15	0.19

Adjusted Model	Odds Ratio	95% CI	p-value
Physical Activity			
0 – 3 days per week	0.69	0.16 - 2.92	0.52
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	0.33	0.05 - 2.42	0.28
Aesthetics Scale			
Mildly aesthetically pleasing	1.00		
Not Aesthetically pleasing	2.63	0.47 – 15.46	0.27
Aesthetically pleasing	1.76	0.31 - 10.07	0.27
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.16	0.31 - 4.28	0.83
Gender			
Female	0.50	0.10 - 2.39	0.39
Male	1.00		
Perceptions of Weight⁷			
About the right weight	1.00		
Overweight	25.23	1.89 – 336.55	0.01
Weight Goals⁷			
Not trying/Stay the same	1.00		
Lose weight	5.64	1.22 - 26.14	0.03
Gain weight	0.13	0.02 - 1.09	0.06
Fruit and Veggie Scale⁷			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie	4.51	1.02 - 20.00	0.05
Comfort Scale⁷			
Comfortable	1.00		
Mild to Moderately comfortable	2.46	0.48 - 12.52	0.28
Median Household Income⁸			
Less than \$25,000	1.00		
Greater than \$25,000	9.33	1.09 – 79.76	0.04

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Aesthetic based on response to questions (yes/no) on: sidewalks are on most of the streets in my neighborhood; there are many beautiful things to look at in my neighborhood (e.g. gardens, views); there are many nice looking buildings and homes in my neighborhood; there are abandoned building in my neighborhood; there are buildings with graffiti in my neighborhood.

³ Physical activity based on response to questions on: the number of days in the previous 7 days that a participant exercised or participated in physical activity for at least 60 minutes per day.

⁴ Participants were restricted to those who have the outcome of the given analysis.

⁵ 95% CI, 95% Confidence Interval.

⁶ The p-value presented for each categorical variable is the Chi-Square statistic.

⁷ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out.

⁸ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland

(\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table E20. Adjusted Purposeful Selection Logistic Regression Models, Final Adjusted Model for Neighborhood Region, Aesthetics, Physical Activity (60 minutes), and its Association to Overweight/Obesity, (n=145).

Adjusted Model ¹⁻⁴	Odds Ratio	95% CI ⁵	P – value ⁶
Physical Activity			
0 – 3 days per week	0.53	0.16 - 1.82	0.31
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.62	0.40 - 6.58	0.50
Other Region	3.53	0.66 - 18.92	0.14
Aesthetics Scale			
Mildly aesthetically pleasing	1.00		
Not Aesthetically pleasing	2.57	0.54 – 12.27	0.24
Aesthetically pleasing	1.83	0.42 – 7.94	0.43
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.53	0.51 - 4.64	0.45
Gender			
Female	0.47	0.12 - 1.81	0.27
Male	1.00		
Perceptions of Weight⁷			
Normal weight	1.00		
Overweight	26.28	2.46 – 280.54	0.01
Weight Goals⁷			
Not trying/Stay the same	1.00		
Lose weight	5.91	1.45 - 24.16	0.01
Gain weight	0.28	0.06 - 1.44	0.13
Fruit and Veggie Scale⁷			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	4.65	1.22 - 17.69	0.02
Comfort Scale⁷			
Comfortable	1.00		
Mild to Moderately comfortable	2.64	0.63 - 11.15	0.18

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Aesthetic based on response to questions (yes/no) on: sidewalks are on most of the streets in my neighborhood; there are many beautiful things to look at in my neighborhood (e.g. gardens, views); there are many nice looking buildings and homes in my neighborhood; there are abandoned building in my neighborhood; there are buildings with graffiti in my neighborhood.

³ Physical activity based on response to questions on: the number of days in the previous 7 days that a participant exercised or participated in physical activity for at least 60 minutes per day.

⁴ Participants were restricted to those who have the outcome of the given analysis.

⁵ 95% CI, 95% Confidence Interval.

⁶ The p-value presented for each categorical variable is the Chi-Square statistic.

⁷ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out.

Table E21. Purposeful Selection Logistic Regression Models, Odds Ratio for Neighborhood Region, Accessibility, Physical Activity (60 minutes) and its Association to Overweight/Obesity (n=145).

Unadjusted Model ¹⁻⁴	Odds Ratio	95% CI ⁵	P – value ⁶
Physical Activity			
0 – 3 days per week	1.20	0.56 - 2.56	0.63
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.46	1.06 - 5.69	0.03
Other Region	1.18	0.38 - 3.65	0.76
Accessibility Scale			
Limited neighborhood facilities	0.64	0.25 - 1.65	0.35
Most neighborhood facilities	0.59	0.24 - 1.46	0.25
Some neighborhood facilities	1.00		
Adjusted Model	Odds Ratio	95% CI	P - value
Physical Activity			
0 – 3 days per week	1.12	0.52 - 2.43	0.76
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.35	0.99 - 5.53	0.05
Other Region	1.14	0.36 - 3.55	0.81
Accessibility Scale			
Limited neighborhood facilities	0.64	0.24 - 1.70	0.37
Most neighborhood facilities	0.60	0.24 - 1.50	0.28
Some neighborhood facilities	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.91	0.89 - 4.12	0.09
Physical Activity			
0 – 3 days per week	1.08	0.47 - 2.46	0.85
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.35	1.00 - 5.54	0.05
Other Region	1.16	0.37 - 3.67	0.79
Accessibility Scale			
Limited neighborhood facilities	0.64	0.24 - 1.69	0.37
Most neighborhood facilities	0.60	0.24 - 1.49	0.27
Some neighborhood facilities	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.89	0.87 - 4.09	0.10
Gender			
Female	1.12	0.46 - 2.68	0.79

Adjusted Model	Odds Ratio	95% CI	p-value
Male	1.00		
Physical Activity			
0 – 3 days per week	0.63	0.23 - 1.71	0.37
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.97	0.69 - 5.57	0.20
Other Region	1.32	0.41 - 6.38	0.49
Accessibility Scale			
Limited neighborhood facilities	0.34	0.09 - 1.30	0.12
Most neighborhood facilities	0.72	0.26 – 2.01	0.53
Some neighborhood facilities	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.49	0.60 - 3.74	0.41
Gender			
Female	0.71	0.26 – 1.92	0.39
Male	1.00		
Perceptions of Weight⁷			
Normal weight			
Overweight	70.635	8.19 – 609.20	0.00
Physical Activity			
0 – 3 days per week	0.59	0.19 - 1.84	0.35
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.97	0.87 - 9.97	0.08
Other Region	4.99	0.94 - 25.77	0.06
Accessibility Scale			
Limited neighborhood facilities	0.28	0.06 - 1.20	0.09
Most neighborhood facilities	0.48	0.14 - 1.58	0.23
Some neighborhood facilities	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	2.00	0.69 - 5.73	0.20
Gender			
Female	0.35	0.10 - 1.20	0.09
Male	1.00		
Perceptions of Weight⁷			
About the right weight	1.00		
Overweight	19.89	2.05 – 192.79	0.01
Weight Goals⁷			
Not trying/Stay the same	1.00		
Lose weight	8.13	2.11 - 31.31	0.00
Gain weight	0.31	0.07 - 1.33	0.11
Physical Activity			
0 – 3 days per week	0.63	0.19 - 2.07	0.45
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		

Adjusted Model	Odds Ratio	95% CI	p-value
Western Region	1.87	0.50 - 7.01	0.35
Other Region	4.42	0.80 - 24.33	0.09
Accessibility Scale			
Limited neighborhood facilities	0.30	0.06 - 1.42	0.13
Most neighborhood facilities	0.52	0.15 - 1.79	0.30
Some neighborhood facilities	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.41	0.47 - 4.26	0.54
Gender			
Female	0.35	0.10 - 1.30	0.12
Male	1.00		
Perceptions of Weight⁷			
Normal weight	1.00		
Overweight	25.43	2.33 - 277.65	0.01
Weight Goals⁷			
Not trying/Stay the same	1.00		
Lose weight	7.02	1.72 - 28.73	0.01
Gain weight	0.26	0.06 - 1.20	0.08
Fruit and Veggie Scale⁷			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	3.11	0.98 - 9.90	0.06
Physical Activity			
0 – 3 days per week	0.61	0.18 - 2.02	0.42
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.53	0.37 - 6.31	0.56
Other Region	4.06	0.72 – 22.84	0.11
Accessibility Scale			
Limited neighborhood facilities	0.35	0.07 - 1.71	0.19
Most neighborhood facilities	0.60	0.17- 2.21	0.45
Some neighborhood facilities	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.45	0.48 - 4.42	0.51
Gender			
Female	0.40	0.11 - 1.54	0.19
Male	1.00		
Perceptions of Weight⁷			
Normal weight	1.00		
Overweight	30.39	2.56 – 360.63	0.01
Weight Goals⁷			
Not trying/Stay the same	1.00		
Lose weight	6.13	1.48 - 25.36	0.01
Gain weight	0.26	0.05 - 1.26	0.09
Fruit and Veggie Scale⁷			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	3.53	1.04 - 11.93	0.04
Comfort Scale⁷			

Adjusted Model	Odds Ratio	95% CI	p-value
Comfortable	1.00		
Mild to Moderately comfortable	1.89	0.43 - 8.27	0.40
Physical Activity			
0 – 3 days per week	0.89	0.22 - 3.58	0.87
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	0.36	0.05 - 2.67	0.32
Accessibility Scale			
Limited neighborhood facilities	0.49	0.08 - 3.20	0.46
Most neighborhood facilities	0.40	0.09 - 1.82	0.24
Some neighborhood facilities	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	0.94	0.24 - 3.62	0.92
Gender			
Female	0.47	0.10 - 2.24	0.34
Male	1.00		
Perceptions of Weight⁷			
Normal weight	1.00		
Overweight	20.86	1.58 – 274.95	0.02
Weight Goals⁷			
Not trying/Stay the same	1.00		
Lose weight	6.01	1.31 - 27.68	0.02
Gain weight	0.10	0.00 - 0.73	0.03
Fruit and Veggie Scale⁷			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	4.25	0.94 – 19.11	0.06
Comfort Scale⁷			
Comfortable	1.00		
Mild to Moderately comfortable	1.85	0.37 - 9.26	0.46
Median Household Income⁸			
Less than \$25,000	1.00		
Greater than \$25,000	8.51	1.08 – 67.12	0.04

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Facilities based on response to questions (true/false) on: there is a super market in my neighborhood (Walmart, Kroger); there are a recreational facilities or gyms (YMCA, community centers) in my neighborhood; there are parks with playgrounds in my neighborhood; there are parks with my walking trails in my neighborhood.

³ Physical activity based on response to questions on: the number of days in the previous 7 days that a participant exercised or participated in physical activity for at least 60 minutes per day.

⁴ Participants were restricted to those who have the outcome of the given analysis.

⁵ 95% CI, 95% Confidence Interval.

⁶ The p-value presented for each categorical variable is the Chi-Square statistic.

⁷ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out.

⁸ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table E22. Adjusted Purposeful Selection Logistic Regression Models, Final Adjusted Model for Neighborhood Region, Accessibility, Physical Activity (60 minutes), and its Association to Overweight/Obesity (n=145).

Adjusted Model^{1 - 4}	Odds Ratio	95% CI⁵	P – value⁶
Physical Activity			
0 – 3 days per week	0.60	0.19 - 1.80	0.35
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region			
Western Region	2.97	0.88 – 10.00	0.08
Other Region	4.99	0.96 – 26.02	0.06
Accessibility Scale			
Limited neighborhood facilities	0.28	0.07 - 1.20	0.09
Most neighborhood facilities	0.48	0.15 - 1.60	0.23
Some neighborhood facilities	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	2.00	0.70 - 5.73	0.20
Gender			
Female	0.35	0.10 - 1.17	0.09
Male	1.00		
Perceptions of Weight⁷			
About the right weight	1.00		
Overweight	19.89	2.05 – 192.79	0.01
Weight Goals⁷			
Not trying/Stay the same	1.00		
Lose weight	8.13	2.11 - 31.31	0.00
Gain weight	0.31	0.07 - 1.33	0.11

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Facilities based on response to questions (true/false) on: there is a super market in my neighborhood (Walmart, Kroger); there are a recreational facilities or gyms (YMCA, community centers) in my neighborhood; there are parks with playgrounds in my neighborhood; there are parks with my walking trails in my neighborhood.

³ Physical activity based on response to questions on: the number of days in the previous 7 days that a participant exercised or participated in physical activity for at least 60 minutes per day.

⁴ Participants were restricted to those who have the outcome of the given analysis.

⁵ 95% CI, 95% Confidence Interval.

⁶ The p-value presented for each categorical variable is the Chi-Square statistic.

⁷ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals.

Table E23. Purposeful Selection Logistic Regression Models, Odds Ratio for Neighborhood Region, Traffic, Physical Activity (60 minutes) and its Association to Overweight/Obesity, (n=145).

Unadjusted Model¹⁻⁴	Odds Ratio	95% CI⁵	P – value⁶
Physical Activity			
0 – 3 days per week	1.17	0.55 - 2.50	0.67
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.31	1.02 - 5.23	0.04
Other Region	1.15	0.37 - 3.52	0.79
Traffic Scale			
No Traffic	1.00		
Traffic	0.92	0.43 - 1.96	0.82
Adjusted Model	Odds Ratio	95% CI	P - value
Physical Activity			
0 – 3 days per week	1.09	0.50 - 2.36	0.81
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.20	0.96 - 5.06	0.06
Other Region	1.10	0.35 - 3.43	0.85
Traffic Scale			
No Traffic	1.00		
Traffic	0.89	0.41 - 1.93	0.78
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.91	0.89 - 4.09	0.09
Physical Activity			
0 – 3 days per week	1.05	0.46 - 2.40	0.89
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.20	0.96 - 5.06	0.06
Other Region	1.13	0.36 - 3.54	0.83
Traffic Scale			
No Traffic	1.00		
Traffic	0.88	0.40 - 1.92	0.75
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.88	0.87 - 4.06	0.10
Gender			
Female	1.11	0.46 - 2.68	0.80
Male	1.00		
Physical Activity			
0 – 3 days per week	0.64	0.24 - 1.72	0.38
4 – 7 days per week	1.00		
Neighborhood Region			

Adjusted Model	Odds Ratio	95% CI	p-value
Eastern Region	1.00		
Western Region	2.14	0.80 - 5.78	0.13
Other Region	1.56	0.41 - 5.99	0.52
Traffic Scale			
No Traffic	1.00		
Traffic	0.82	0.32 – 2.08	0.67
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.52	0.61 - 3.76	0.37
Gender			
Female	0.75	0.28 - 2.10	0.56
Male	1.00		
Perceptions of Weight⁷			
Normal weight	1.00		
Overweight	59.22	7.26 - 453.16	0.0001
Physical Activity			
0 – 3 days per week	0.58	0.19 - 1.74	0.33
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.85	0.90 – 9.10	0.08
Other Region	4.08	0.86 – 19.46	0.08
Traffic Scale			
No Traffic	1.00		
Traffic	0.72	0.25 – 2.05	0.54
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.97	0.70 – 5.52	0.20
Gender			
Female	0.40	0.12 – 1.32	0.13
Male	1.00		
Perceptions of Weight⁷			
About the right weight	1.00		
Overweight	18.10	1.98 – 165.92	0.01
Weight Goals⁷			
Not trying/Stay the same	1.00		
Lose weight	7.78	2.13 - 28.42	0.00
Gain weight	0.37	0.09 - 1.53	0.17
Physical Activity			
0 – 3 days per week	0.59	0.18 - 1.92	0.38
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.87	0.52 - 6.67	0.33
Other Region	3.80	0.74 - 19.61	0.11
Traffic Scale			
No Traffic	1.00		
Traffic	0.69	0.23 - 2.08	0.51
Grade			
6 th – 8 th grade	1.00		

Adjusted Model	Odds Ratio	95% CI	p-value
9 th – 12 th grade	1.43	0.49 - 4.20	0.52
Gender			
Female	0.41	0.11 - 1.49	0.17
Male	1.00		
Perceptions of Weight⁷			
Normal weight	1.00		
Overweight	24.53	2.44 – 246.98	0.01
Weight Goals⁷			
Not trying/Stay the same	1.00		
Lose weight	6.29	1.62 - 24.40	0.01
Gain weight	0.29	0.06 - 1.29	0.10
Fruit and Veggie Scale⁷			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie	3.23	1.03 - 10.13	0.04
Physical Activity			
0 – 3 days per week	0.55	0.16 - 1.86	0.34
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.38	0.35 - 5.47	0.65
Other Region	3.45	0.64 - 18.52	0.15
Traffic Scale			
No Traffic	1.00		
Traffic	0.67	0.22 - 2.04	0.49
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.49	0.50 - 4.48	0.48
Gender			
Female	0.49	0.13 - 1.84	0.29
Male	1.00		
Perceptions of Weight⁷			
About the right weight	1.00		
Overweight	30.86	2.83 - 337.01	0.00
Weight Goals⁷			
Not trying/Stay the same	1.0		
Lose weight	5.31	1.36 - 20.76	0.02
Gain weight	0.27	0.06 - 1.33	0.11
Fruit and Veggie Scale⁷			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie	3.93	1.16 - 13.37	0.03
Comfort Scale⁷			
Comfortable	1.00		
Mild to Moderately comfortable	2.51	0.61 - 10.28	0.20
Physical Activity			
0 – 3 days per week	0.85	0.21 - 3.45	0.82
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	0.35	0.05 - 2.75	0.32

Adjusted Model	Odds Ratio	95% CI	p-value
Traffic Scale			
No Traffic	0.97		
Traffic	1.00	0.26 - 3.61	0.96
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.05	0.29 - 3.84	0.94
Gender			
Female	0.48	0.10 - 2.27	0.35
Male	1.00		
Perceptions of Weight⁷			
About the right weight	1.00		
Overweight	25.04	2.00 – 314.07	0.01
Weight Goals⁷			
Not trying/Stay the same	1.00		
Lose weight	5.18	1.20 – 22.41	0.03
Gain weight	0.12	0.02 - 0.91	0.04
Fruit and Veggie Scale⁷			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie	3.99	0.94 - 17.01	0.06
Comfort Scale⁷			
Comfortable	1.00		
Mild to Moderately comfortable	2.36	0.48 – 11.76	0.29
Median Household Income⁸			
Less than \$25,000	1.00		
Greater than \$25,000	7.20	0.94 – 55.32	0.06

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Traffic based on response to questions (true/false) on: It is hard to walk in my neighborhood because of so much traffic; there are crosswalks and signals to help walkers cross the streets in my neighborhood.

³ Physical activity based on response to questions on: the number of days in the previous 7 days that a participant exercised or participated in physical activity for at least 60 minutes per day.

⁴ Participants were restricted to those who have the outcome of the given analysis.

⁵ 95% CI, 95% Confidence Interval.

⁶ The p-value presented for each categorical variable is the Chi-Square statistic.

⁷ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out.

⁸ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table E24. Adjusted Purposeful Selection Logistic Regression Models, Final Adjusted Model for Neighborhood Region, Traffic, Physical Activity (60 minutes), and its Association to Overweight/Obesity (n=145).

Adjusted Model¹⁻⁴	Odds Ratio	95% CI⁵	P – value⁶
Physical Activity			
0 – 3 days per week	0.91	0.16 - 1.91	0.35
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.38	0.34 - 5.42	0.65
Traffic Scale			
No Traffic	1.04		
Traffic	1.00	0.21 - 2.04	0.46
Gender			
Female	0.44	0.13 - 1.91	0.31
Male	1.00		
Perceptions of Weight⁷			
Normal weight	1.00		
Overweight	24.86	2.67 - 333.10	0.00
Weight Goals⁷			
Not trying/Stay the same	1.00		
Lose weight	5.55	1.35 - 20.69	0.01
Gain weight	0.12	0.05 - 1.40	0.12
Fruit and Veggie Scale⁷			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	4.05	1.14 - 13.27	0.02
Comfort Scale⁷			
Comfortable	1.00		
Mild to Moderately comfortable	2.08	0.61 - 10.48	0.19
Median Household Income⁸			
Less than \$25,000	1.00		
Greater than \$25,000	7.30	0.93 – 57.13	0.06

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Traffic based on response to questions (true/false) on: It is hard to walk in my neighborhood because of so much traffic; there are crosswalks and signals to help walkers cross the streets in my neighborhood.

³ Physical activity based on response to questions on: the number of days in the previous 7 days that a participant exercised or participated in physical activity for at least 60 minutes per day.

⁴ Participants were restricted to those who have the outcome of the given analysis.

⁵ 95% CI, 95% Confidence Interval.

⁶ The p-value presented for each categorical variable is the Chi-Square statistic.

⁷ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out.

Table E25. Purposeful Selection Logistic Regression Models, Odds Ratio for Neighborhood Region, Crime, Physical Activity (60 minutes) and its Association to Overweight/Obesity, (n=145).

Unadjusted Model ¹⁻⁴	Odds Ratio	95% CI ⁵	P – value ⁶
Physical Activity			
0 – 3 days per week	1.16	0.54 - 2.47	0.69
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.46	1.07 - 5.61	0.03
Other Region	1.01	0.32 - 3.19	0.97
Crime Scale			
No Crime	1.51	0.69 – 3.33	0.31
Crime	1.00		
Adjusted Model	Odds Ratio	95% CI	P - value
Physical Activity			
0 – 3 days per week	1.08	0.50 - 2.33	0.83
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.32	1.00 - 5.37	0.04
Other Region	1.02	0.32 - 3.23	0.97
Crime Scale			
No Crime	1.00		
Crime	1.347	0.59 – 3.02	0.49
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.82	0.39 – 2.33	0.13
Physical Activity			
0 – 3 days per week	1.03	0.45 - 2.33	0.95
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.33	1.00 - 5.41	0.04
Other Region	1.04	0.32 - 3.32	0.94
Crime Scale			
No Crime	1.39	0.60 – 3.20	0.45
Crime	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.78	0.81 - 3.90	0.15
Gender			
Female	1.19	0.49 - 2.90	0.71
Male	1.00		
Physical Activity			
0 – 3 days per week	0.63	0.23 - 1.68	0.38
4 – 7 days per week	1.00		

Adjusted Model	Odds Ratio	95% CI	p-value
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.28	0.80 - 6.00	0.12
Other Region	1.40	0.34 - 5.32	0.66
Crime Scale			
No Crime	1.58	0.59 – 4.22	0.36
Crime	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.38	0.54 - 3.52	0.50
Gender			
Female	0.79	0.29 - 2.13	0.64
Male	1.00		
Perceptions of Weight⁷			
About the right weight	1.00		
Overweight	61.04	7.45 – 500.05	0.0001
Physical Activity			
0 – 3 days per week	0.59	0.20 - 1.77	0.35
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.92	0.91 - 9.32	0.07
Other Region	4.19	0.85 - 20.59	0.08
Crime Scale			
No Crime	0.87	0.28 – 2.71	0.81
Crime	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	2.05	0.71 - 5.98	0.19
Gender			
Female	0.36	0.10 - 1.25	0.11
Male	1.00		
Perceptions of Weight⁷			
Normal weight	1.00		
Overweight	16.99	1.85 – 155.84	0.01
Weight Goals⁷			
Not trying/Stay the same	1.00		
Lose weight	7.95	2.13 - 29.71	0.00
Gain weight	0.37	0.09 - 1.55	0.17
Physical Activity			
0 – 3 days per week	0.60	0.18 - 2.00	0.41
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.96	0.56 - 6.93	0.29
Other Region	4.28	0.79 - 23.25	0.09
Crime Scale			
No Crime	0.77	0.23 – 2.55	0.67
Crime	1.00		

Adjusted Model	Odds Ratio	95% CI	p-value
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.53	0.50 - 4.64	0.46
Gender			
Female	0.34	0.08 - 1.34	0.12
Male	1.00		
Perceptions of Weight⁷			
Normal weight	1.00		
Overweight	22.43	2.26 – 222.17	0.01
Weight Goals⁷			
Not trying/Stay the same	1.00		
Lose weight	6.68	1.68 - 26.55	0.01
Gain weight	0.27	0.05 - 1.27	0.10
Fruit and Veggie Scale⁷			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie	3.24	1.02 - 10.19	0.05
Physical Activity			
0 – 3 days per week	0.57	0.16 - 1.93	0.36
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.46	0.37 - 5.69	0.58
Other Region	4.01	0.69 - 23.18	0.11
Crime Scale			
No Crime	1.00	0.22 – 2.53	0.63
Crime	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.62	0.52 - 5.07	0.41
Gender			
Female	0.41	0.10 - 1.64	0.21
Male	1.00		
Perceptions of Weight⁷			
Normal weight	1.00		
Overweight	27.87	2.61 – 297.19	0.01
Weight Goals			
Not trying/Stay the same	1.00		
Lose weight	5.73	1.44 - 22.83	0.01
Gain weight	0.25	0.05 - 1.32	0.10
Fruit and Veggie Scale⁷			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie	3.97	1.15 - 13.67	0.03
Comfort Scale⁷			
Comfortable	1.00		
Mild to Moderately comfortable	2.52	0.61 - 10.42	0.21
Physical Activity			
0 – 3 days per week	0.85	0.22 – 3.32	0.81
4 – 7 days per week	1.00		

Adjusted Model	Odds Ratio	95% CI	p-value
Neighborhood Region			
Eastern Region	1.00		
Western Region	0.33	0.05 - 2.46	0.28
Crime Scale			
No Crime	1.00	0.11 – 1.95	0.30
Crime	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.36	0.34 - 5.42	0.67
Gender			
Female	0.38	0.08 - 1.93	0.25
Male			
Perceptions of Weight⁷			
About the right weight	1.00		
Overweight	24.61	1.90 – 318.37	0.01
Weight Goals⁷			
Not trying/Stay the same	1.00		
Lose weight	6.11	1.34 – 27.76	0.02
Gain weight	0.09	0.01 - 0.80	0.03
Fruit and Veggie Scale⁷			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie	4.30	0.99 – 18.74	0.06
Comfort Scale⁷			
Comfortable	1.00		
Mild to Moderately comfortable	2.25	0.46 - 11.08	0.32
Median Household Income⁸			
Less than \$25,000	1.00		
Greater than \$25,000	7.63	0.92 – 59.36	0.06

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Crime based on response to questions (true/false) on: there is a lot of crime in my neighborhood; I do not feel safe in my neighborhood at night; I am worried about being outside alone in my neighborhood; I am worried about being alone at a park in my neighborhood.

³ Physical activity based on response to questions on: the number of days in the previous 7 days that a participant exercised or participated in physical activity for at least 60 minutes per day.

⁴ Participants were restricted to those who have the outcome of the given analysis.

⁵ 95% CI, 95% Confidence Interval.

⁶ The p-value presented for each categorical variable is the Chi-Square statistic.

⁷ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out.

⁸ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table E26. Adjusted Purposeful Selection Logistic Regression Models, Final Adjusted Model for Neighborhood Region, Crime, Physical Activity (60 minutes), and its Association to Overweight/Obesity, (n=145).

Adjusted Model ^{1 - 4}	Odds Ratio	95% CI ⁵	P – value ⁶
Physical Activity			
0 – 3 days per week	0.59	0.23 - 1.57	0.27
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.35	0.82 - 6.11	0.10
Other Region	1.46	0.35 - 5.44	0.58
Crime Scale			
No Crime	1.82	0.71 – 4.66	0.21
Crime	1.00		
Perceptions of Weight⁷			
About the right weight	1.00		
Overweight	64.82	7.98 – 526.74	<0.0001

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Crime based on response to questions (true/false) on: there is a lot of crime in my neighborhood; I do not feel safe in my neighborhood at night; I am worried about being outside alone in my neighborhood; I am worried about being alone at a park in my neighborhood.

³ Physical activity based on response to questions on: the number of days in the previous 7 days that a participant exercised or participated in physical activity for at least 60 minutes per day.

⁴ Participants were restricted to those who have the outcome of the given analysis.

⁵ 95% CI, 95% Confidence Interval.

⁶ The p-value presented for each categorical variable is the Chi-Square statistic.

⁷ Perceptions about weight based on response to question on how the participant describes their weight.

Table E27. Purposeful Selection Logistic Regression Models, Odds Ratio for Neighborhood Region, Afraid, Physical Activity (60 minutes) and its Association to Overweight/Obesity (n=145).

Unadjusted Model^{1 - 4}	Odds Ratio	95% CI⁵	P – value⁶
Physical Activity			
0 – 3 days per week	0.99	0.44 - 2.21	0.98
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.09	0.89 - 4.93	0.09
Other Region	1.03	0.32 - 3.34	0.95
Afraid Scale			
Not Afraid	1.00		
Moderately Afraid	2.60	0.97 - 6.92	0.05
Afraid	0.55	0.20 - 1.49	0.24

Adjusted Model	Odds Ratio	95% CI	P - value
Physical Activity			
0 – 3 days per week	0.95	0.42 - 2.13	0.90
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.03	0.85 - 4.85	0.10
Other Region	1.01	0.31 - 3.28	0.98
Afraid Scale			
Not Afraid	1.00		
Moderately Afraid	2.69	0.99 - 7.27	0.05
Afraid	0.62	0.22 - 1.70	0.35
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.88	0.85 - 4.18	0.11

Physical Activity			
0 – 3 days per week	0.89	0.37 - 2.14	0.80
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.04	0.85 - 4.88	0.10
Other Region	1.041	0.31 - 3.42	0.94
Afraid Scale			
Not Afraid	1.00		
Moderately Afraid	2.61	0.95 - 7.15	0.06
Afraid	0.59	0.21 - 1.68	0.32
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.84	0.82 - 4.13	0.13
Gender			
Female	1.19	0.46 - 3.05	0.71
Male	1.00		

Adjusted Model	Odds Ratio	95% CI	p-value
Physical Activity			
0 – 3 days per week	0.56	0.20 - 1.61	0.29
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.01	0.71 – 5.73	0.19
Other Region	1.70	0.40 – 7.18	0.47
Afraid Scale			
Not Afraid			
Moderately Afraid	2.55	0.81 – 7.97	0.11
Afraid	0.41	0.11 - 1.50	0.18
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.39	0.53 - 3.66	0.51
Gender			
Female	0.76	0.27 - 2.17	0.61
Male	1.00		
Perceptions of Weight⁷			
About the right weight	1.00		
Overweight	74.88	8.50 – 659.54	0.0001
Physical Activity			
0 – 3 days per week	0.47	0.14 - 1.59	0.22
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.71	0.79 - 9.35	0.11
Other Region	5.25	0.91 - 30.19	0.06
Afraid Scale			
Not Afraid	1.00		
Moderately Afraid	3.33	0.87 – 12.78	0.08
Afraid	0.36	0.08 - 1.52	0.16
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.72	0.56 - 5.29	0.34
Gender			
Female	0.32	0.09 - 1.19	0.09
Male	1.00		
Perceptions of Weight⁷			
About the right weight	1.00		
Overweight	22.06	2.11 – 230.63	0.01
Weight Goals⁷			
Not trying/Stay the same	1.00		
Lose weight	8.77	2.05 - 37.42	0.00
Gain weight	0.27	0.06 - 1.24	0.09
Physical Activity			
0 – 3 days per week	0.54	0.14 - 2.04	0.36
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.97	0.50 - 7.67	0.33

Adjusted Model	Odds Ratio	95% CI	p-value
Other Region	5.43	0.81 - 36.56	0.08
Afraid Scale			
Not Afraid	1.00		
Moderately Afraid	3.22	0.70 - 14.57	0.13
Afraid	0.27	0.06 - 1.26	0.09
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.14	0.34 - 3.80	0.83
Gender			
Female	0.27	0.06 - 1.15	0.08
Male	1.00		
Perceptions of Weight⁷			
About the right weight	1.00		
Overweight	27.89	2.46 – 316.00	0.00
Weight Goals⁷			
Not trying/Stay the same	1.00		
Lose weight	7.09	1.52 - 33.10	0.02
Gain weight	0.18	0.03 - 0.96	0.04
Fruit and Veggie Scale⁷			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	2.22	0.67 - 7.37	0.19
Physical Activity			
0 – 3 days per week	0.54	0.14 - 2.13	0.37
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	1.29	0.29 - 5.81	0.74
Other Region	4.65	0.67 - 32.32	0.12
Afraid Scale			
Not Afraid	1.00		
Moderately Afraid	2.82	0.58 – 13.80	0.20
Afraid	0.19	0.04 - 1.05	0.06
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.12	0.33 - 3.82	0.86
Gender			
Female	1.00		
Male	0.35	0.08 - 1.61	0.18
Perceptions of Weight⁷			
About the right weight	1.00		
Overweight	43.51	3.15 – 600.80	0.00
Weight Goals⁷			
Not trying/Stay the same	1.00		
Lose weight	5.05	1.03 - 24.76	0.05
Gain weight	0.17	0.00 - 1.00	0.06
Fruit and Veggie Scale⁷			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	2.65	0.74 - 9.50	0.14
Comfort Scale⁷			
Comfortable	1.00		

Adjusted Model	Odds Ratio	95% CI	p-value
Mild to Moderately comfortable	4.22	0.69 - 26.62	0.12
Physical Activity			
0 – 3 days per week	0.72	0.16 - 3.25	0.67
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	0.31	0.04 - 2.66	0.29
Afraid Scale			
Not Afraid	1.00		
Moderately Afraid	4.89	0.71 – 33.91	0.11
Afraid	0.51	0.07 - 3.86	0.52
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	0.84	0.19 - 3.72	0.82
Gender			
Female	0.37	0.06 - 2.17	0.27
Male	1.00		
Perceptions of Weight⁷			
About the right weight	1.00		
Overweight	44.05	2.50 – 777.10	0.01
Weight Goals⁷			
Not trying/Stay the same	1.00		
Lose weight	4.04	0.82 – 19.97	0.09
Gain weight	0.07	0.01 - 0.73	0.03
Fruit and Veggie Scale⁷			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	3.08	0.66 – 14.42	0.15
Comfort Scale⁷			
Comfortable	1.00		
Mild to Moderately comfortable	3.83	0.57 – 25.58	0.17
Median Household Income⁸			
Less than \$25,000	1.00		
Greater than \$25,000	5.90	0.62 – 56.43	0.12

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Afraid based on response to questions (true/false) on: I am afraid of: there is a lot of people I don't know, other kids my age, kids that pick on me, gangs, homeless people, drug dealers, adults outside of my household.

³ Physical activity based on response to questions on: the number of days in the previous 7 days that a participant exercised or participated in physical activity for at least 60 minutes per day.

⁴ Participants were restricted to those who have the outcome of the given analysis.

⁵ 95% CI, 95% Confidence Interval.

⁶ The p-value presented for each categorical variable is the Chi-Square statistic.

⁷ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out.

⁸ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland

(\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table E28. Adjusted Purposeful Selection Logistic Regression Models, Final Adjusted Model for Neighborhood Region, Afraid Scale , Physical Activity (60 minutes), and its Association to Overweight/Obesity (n=145).

Adjusted Model ^{1 - 4}	Odds Ratio	95% CI ⁵	P – value ⁶
Physical Activity			
0 – 3 days per week	0.46	0.13 - 1.56	0.21
4 – 7 days per week	1.00		
Neighborhood Region			
Eastern Region	1.00		
Western Region	2.26	0.62 - 8.27	0.22
Other Region	4.58	0.77 - 27.37	0.10
Afraid Scale			
Not Afraid	1.00		
Moderately Afraid	2.93	0.73 – 11.77	0.13
Afraid	0.30	0.06 - 1.37	0.12
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.71	0.55 - 5.31	0.35
Gender			
Female	0.39	0.10 - 1.52	0.18
Male	1.00		
Perceptions of Weight⁷			
Normal weight	1.00		
Overweight	25.60	2.30 – 285.47	0.01
Weight Goals⁷			
Not trying/Stay the same	1.00		
Lose weight	7.50	1.72 - 32.70	0.00
Gain weight	0.28	0.06 - 1.35	0.12
Comfort Scale⁷			
Comfortable	1.00		
Mild to Moderately comfortable	2.21	0.45 – 10.78	0.32

¹ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

² Afraid based on response to questions (true/false) on: I am afraid of: there is a lot of people I don't know, other kids my age, kids that pick on me, gangs, homeless people, drug dealers, adults outside of my household.

³ Physical activity based on response to questions on: the number of days in the previous 7 days that a participant exercised or participated in physical activity for at least 60 minutes per day.

⁴ Participants were restricted to those who have the outcome of the given analysis.

⁵ 95% CI, 95% Confidence Interval.

⁶ The p-value presented for each categorical variable is the Chi-Square statistic.

⁷ Perceptions about weight based on response to question on how the participant describes their weight. Weight goals based on responses to questions on the adolescents' weight goals. Comfortability based on responses to questions in regards to how comfortable adolescents' are working out.

APPENDIX F

SPECIFIC AIM 4

PERCEPTION OF SELF

Table F1. Purposeful Selection Logistic Regression Models, Odds Ratio for Perception of Weight and its Association to Overweight/Obesity (n=145).

Unadjusted Model^{1,2}	Odds Ratio	95% CI³	P – value³
Perception of Weight			
Normal weight	1.00		
Overweight	68.40	9.04 – 517.61	<.0001
Adjusted Model	Odds Ratio	95% CI	P - value
Perception of Weight			
Normal weight	1.00		
Overweight	73.30	9.60 – 559.93	<.0001
Gender			
Female	0.70	0.31 - 1.57	0.39
Male	1.00		
Perception of Weight			
Normal weight	1.00		
Overweight	67.37	8.79 – 516.61	<.0001
Gender			
Female	0.70	0.31 - 1.58	0.40
Male	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.24	0.56 - 2.75	0.59
Perception of Weight			
Normal weight	1.00		
Overweight	74.64	9.33 – 598.41	<.0001
Gender			
Female	0.68	0.28 – 4.65	0.39
Male	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.06	0.45 – 2.51	0.89
Fruit and Veggie Scale⁵			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	3.05	1.28 – 7.27	0.01
Perception of Weight			
Normal weight	1.00		
Overweight	68.51	8.53 – 550.30	<.0001
Gender			
Female	0.76	0.31 – 1.89	0.56
Male	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.01	0.42 - 2.43	0.98
Fruit and Veggie Scale⁵			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	2.82	1.17 - 6.75	0.02

Adjusted Model	Odds Ratio	95% CI	P - value
Fun Scale⁵			
0 -3 hours per day	1.42	0.54 - 372	0.48
4 or more hours per day	1.00		
Perception of Weight			
Normal weight	1.00		
Overweight	64.91	8.00 – 526.13	<.0001
Gender			
Female	0.75	0.30 - 2.51	0.53
Male	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.03	0.42 – 2.51	0.95
Fruit and Veggie Scale⁵			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	2.61	1.01 - 6.42	0.04
Fun Scale⁵			
0 -3 hours per day	1.45	0.55 – 3.82	0.45
4 or more hours per day	1.00		
Neighborhood Region⁶			
Eastern Region	1.00		
Western Region	1.41	0.53 - 3.76	0.50
Other Region	1.60	0.45 - 5.62	0.47
Perception of Weight			
Normal weight	1.00		
Overweight	54.42	6.64 – 446.30	0.0002
Gender			
Female	0.87	0.33 - 2.10	0.69
Male	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	0.99	0.41 – 2.51	0.98
Fruit and Veggie Scale⁵			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	2.65	1.09 - 6.90	0.03
Fun Scale⁵			
0 -3 hours per day	1.49	0.53 – 3.82	0.49
4 or more hours per day	1.00		
Neighborhood Region⁶			
Eastern Region	1.00		
Western Region	1.42	0.55 - 3.99	0.44
Other Region	1.30	0.35 - 490	0.69
Mom's weight⁵			
Normal weight	1.00		
Overweight	1.44	0.48 – 4.38	0.51
Perception of Weight			
Normal weight	1.00		
Overweight	76.57	8.44 – 694.43	0.0001
Gender			
Female	0.71	0.26 – 1.99	0.52

Adjusted Model	Odds Ratio	95% CI	P - value
Male	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	0.66	0.24 – 1.83	0.42
Fruit and Veggie Scale⁵			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	4.63	1.53 – 13.98	0.00
Fun Scale⁵			
0 -3 hours per day	1.77	0.57 -5.51	0.33
4 or more hours per day	1.00		
Neighborhood Region⁶			
Eastern Region	1.00		
Western Region	1.90	0.61 – 5.94	0.27
Other Region	1.33	0.28 – 6.26	0.72
Mom's weight⁵			
Normal weight	1.00		
Overweight	1.97	0.57 – 6.86	0.28
Dad's weight⁵			
Normal weight	1.00		
Overweight	6.33	1.73 – 23.19	0.0053
Perception of Weight			
Normal weight	1.00		
Overweight	68.86	5.90 – 803.21	0.0007
Gender			
Female	0.96	0.30 – 3.02	0.94
Male	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	0.68	0.21 – 2.10	0.50
Fruit and Veggie Scale⁵			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	5.47	1.59 – 18.82	0.01
Fun Scale⁵			
0 -3 hours per day	1.33	0.38 – 4.70	0.59
4 or more hours per day	1.00		
Neighborhood Region⁶			
Eastern Region	1.00		
Western Region	0.61	0.10 – 3.63	0.21
Mom's weight⁵			
Normal weight	1.00		
Overweight	2.57	0.58 – 11.37	0.23
Dad's weight⁵			
Normal weight	1.00		
Overweight	6.59	1.67 – 25.97	0.00
Median Household Income⁷			
Less than \$25,000	1.00		
Greater than \$25,000	3.99	0.71 – 22.41	0.11

¹ Perceptions about weight based on response to question on: how the participant describes their weight as very underweight, slightly underweight, the right weight, slightly overweight, and very overweight.

² Participants were restricted to those who have the outcome of the given analysis.

³ 95% CI, 95% Confidence Interval.

⁴The p-value presented for each categorical variable is the Chi-Square statistic.

⁵ Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Fun scale based on responses to questions on hours adolescents spend on social media, watching television, and playing video games. Mom and dad's weight based on responses to questions on how adolescents perceive their mom and dad's weight.

⁶ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

⁷ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table F2. Purposeful Selection Logistic Regression Models, Odds Ratio for Perception of Weight Goals and its Association to Overweight/Obesity (n=145).

Unadjusted Model^{1,2}	Odds Ratio	95% CI³	P value⁴
Weight Goals			
Not trying/Stay the same	1.00		
Lose weight	10.67	4.37 - 26.05	<.00
Gain weight	0.59	0.21 - 1.65	0.31
Adjusted Model	Odds Ratio	95% CI	P value
Weight Goals			
Not trying/Stay the same	1.00		
Lose weight	12.49	4.91 - 31.75	<.00
Gain weight	0.48	0.16 - 1.40	0.18
Gender			
Female	0.45	0.18 - 1.12	0.08
Male	1.00		
Weight Goals			
Not trying/Stay the same	1.00		
Lose weight	12.64	4.86 - 32.86	<.00
Gain weight	0.45	0.15 - 1.36	0.16
Gender			
Female	0.41	0.16 - 1.03	0.05
Male	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.82	0.80 - 4.12	0.15
Weight Goals			
Not trying/Stay the same	1.00		
Lose weight	10.96	4.00 - 30.00	<.00
Gain weight	0.31	0.09 - 1.05	0.06
Gender			
Female	0.41	0.15 - 1.13	0.08
Male	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.63	0.68 - 3.93	0.27
Fruit and Veggie Scale⁵			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	2.07	0.83 - 5.13	0.11
Weight Goals⁵			
Not trying/Stay the same	1.00		
Lose weight	10.02	3.64 - 27.58	<.00
Gain weight	0.30	0.09 - 1.05	0.06
Gender			
Female	0.45	0.16 - 1.24	0.12
Male	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.52	0.62 - 3.71	0.34

Adjusted Model	Odds Ratio	95% CI	P - value
Fruit and Veggie Scale⁵			
Inadequate fruit and veggie			
Adequate fruit and veggie intake	1.99	0.80 - 4.95	0.13
Fun Scale⁵			
0 -3 hours per day	1.31	0.50 - 3.44	0.58
4 or more hours per day	1.00		
Weight Goals			
Not trying/Stay the same	1.00		
Lose weight	12.23	4.17 - 35.80	<.00
Gain weight	0.27	0.07 - 0.99	0.04
Gender			
Female	0.40	0.14 - 1.16	0.09
Male	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.54	0.61 - 3.84	0.35
Fruit and Veggie Scale⁵			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	1.822	0.71 - 4.65	0.20
Fun Scale⁵			
0 -3 hours per day	1.370	0.51 - 3.64	0.52
4 or more hours per day	1.00		
Neighborhood Region⁶			
Eastern Region	1.00		
Western Region	2.14	0.78 - 5.84	0.13
Other Region	3.85	0.98 - 15.07	0.05
Weight Goals			
Not trying/Stay the same	1.00		
Lose weight	10.12	3.45 – 29.66	<.0001
Gain weight	0.26	0.07 - 0.98	0.04
Gender			
Female	0.48	0.17 - 1.38	0.17
Male	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.38	0.54 - 3.56	0.51
Fruit and Veggie Scale⁵			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	1.99	0.76 - 5.22	0.16
Fun Scale⁵			
0 -3 hours per day	1.36	0.50 – 3.67	0.55
4 or more hours per day	1.00		
Neighborhood Region⁶			
Eastern Region	1.00		
Western Region	2.30	0.83 - 6.37	0.11
Other Region	2.97	0.74 - 11.97	0.13
Mom's weight⁵			
Normal weight	1.00		
Overweight	1.66	0.57 - 4.86	0.36

Adjusted Model	Odds Ratio	95% CI	P - value
Weight Goals			
Not trying/Stay the same	1.00		
Lose weight	10.52	3.27 – 33.87	<.0001
Gain weight	0.28	0.07 - 1.17	0.08
Gender			
Female	0.50	0.16 - 1.56	0.23
Male	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.11	0.41 - 3.04	0.83
Fruit and Veggie Scale⁵			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	2.81	0.99 – 7.99	0.06
Fun Scale⁵			
0 -3 hours per day	1.97	0.66 – 5.87	0.22
4 or more hours per day	1.00		
Neighborhood Region⁶			
Eastern Region	1.00		
Western Region	3.12	1.07 - 11.56	0.05
Other Region	4.33	0.94 - 21.75	0.06
Mom's weight⁵			
Normal weight	1.00		
Overweight	1.72	0.55 – 5.37	0.35
Dad's weight⁵			
Normal weight	1.00		
Overweight	4.41	1.35 – 14.43	0.01
Weight Goals			
Not trying/Stay the same	1.00		
Lose weight	7.32	2.09 – 25.68	0.00
Gain weight	0.09	0.01 – 0.68	0.02
Gender			
Female	0.51	0.14 – 1.92	0.32
Male	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.19	0.39 – 3.69	0.76
Fruit and Veggie Scale⁵			
Inadequate fruit and veggie	1.00		
Adequate fruit and veggie intake	2.79	0.86 - 9.08	0.09
Fun Scale⁵			
0 -3 hours per day	1.53	0.45 - 5.25	0.50
4 or more hours per day	1.00		
Neighborhood Region⁶			
Eastern Region	1.00		
Western Region	0.97	0.20 – 4.74	0.97
Mom's weight⁵			
Normal weight	1.00		
Overweight	2.94	0.73 – 11.83	0.13
Dad's weight⁵			

Adjusted Model	Odds Ratio	95% CI	P - value
Normal weight	1.00		
Overweight	4.69	1.27 – 17.32	0.02
Median Household Income⁷			
Less than \$25,000	1.00		
Greater than \$25,000	4.83	0.92 – 25.23	0.06

¹ Weight goals based on response to question: which of the following are you trying to do about your weight? The responses were lose weight, gain weight, stay the same weight, and I am not trying to do anything about my weight.

² Participants were restricted to those who have the outcome of the given analysis.

³ 95% CI, 95% Confidence Interval.

⁴The p-value presented for each categorical variable is the Chi-Square statistic.

⁵ Fruit and vegetable intake based on response to questions on how many times adolescents ate fruit and vegetables within past 7 days. Fun scale based on responses to questions on hours adolescents spend on social media, watching television, and playing video games. Mom and dad's weight based on responses to questions on how adolescents perceive their mom and dad's weight.

⁶ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.

⁷ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

Table F3. Purposeful Selection Logistic Regression Models, Odds Ratio for Perception of Parental Support and its Association to Overweight/Obesity (n=145).

Unadjusted Model^{1,2}	Odds Ratio	95% CI³	P – value⁴
Support Scale			
Low to mid parental support	1.05	0.54 - 2.03	0.86
High parental support	1.00		
Adjusted Model	Odds Ratio	95% CI	P - value
Support Scale			
Low to mid parental support	1.06	0.55 - 2.05	0.85
High parental support	1.00		
Gender			
Female	1.11	0.55 - 2.19	0.77
Male	1.00		
Support Scale			
Low to mid parental support	1.03	0.52 - 2.01	0.93
High parental support	1.00		
Gender			
Female	1.03	0.51 - 2.09	0.91
Male	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.78	0.91 - 3.47	0.09
Support Scale			
Low to mid parental support	1.09	0.55 - 2.16	0.78
High parental support	1.00		
Gender			
Female	1.11	0.54 - 2.26	0.77
Male	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.75	0.88 - 3.45	0.10
Neighborhood Region⁵			
Eastern Region	1.00		
Western Region	1.76	0.84 - 3.71	0.13
Other Region	1.58	0.59 - 4.21	0.35
Support Scale			
Low to mid parental support	0.80	0.37 - 1.69	0.55
High parental support	1.00		
Gender			
Female	1.42	0.64 - 3.14	0.37
Male	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.51	0.71 - 3.22	0.27
Neighborhood Region⁵			
Eastern Region	1.00		
Western Region	1.23	0.35 - 4.21	0.74

Adjusted Model	Odds Ratio	95% CI	P - value
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	1.53	0.43 - 5.50	0.50
Support Scale			
Low to mid parental support	0.67	0.31 - 1.46	0.31
High parental support	1.00		
Gender			
Female	1.37	0.59 - 3.17	0.45
Male	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.48	0.67 - 3.24	0.32
Neighborhood Region⁵			
Eastern Region	1.00		
Western Region	1.27	0.36 - 4.43	0.70
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	1.70	0.46 - 6.19	0.42
Fun Scale⁷			
0 -3 hours per day	1.22	0.52 - 2.85	0.63
4 or more hours per day	1.00		
Support Scale			
Low to mid parental support	0.66	0.30 - 1.45	0.30
High parental support	1.00		
Gender			
Female	1.43	0.61 – 3.36	0.41
Male	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.41	0.63 – 3.15	0.40
Neighborhood Region⁵			
Eastern Region	1.00		
Western Region	1.22	0.35 - 4.24	0.63
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	1.73	0.47 – 6.41	0.41
Fun Scale⁷			
0 -3 hours per day	1.41	0.59 – 3.34	0.44
4 or more hours per day	1.00		
Meals at home per week⁷			
0 – 3 meals per week	2.37	0.98 – 5.70	0.05
4 – 5 meals per week	1.00		

¹ Parental Support based on responses to questions (yes/no): encourage you to do physical activities or play sports; exercise or play sports with you; drive you to school-related activities; eat dinner with you; do any of your parents or guardians work long hours; and are any of your parents or guardians home after school.

² Participants were restricted to those who have the outcome of the given analysis.

³ 95% CI, 95% Confidence Interval.

⁴ The p-value presented for each categorical variable is the Chi-Square statistic.

- ⁵ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.
- ⁶ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).
- ⁷ Fun scale based on responses to questions on hours adolescents spend on social media, watching television, and playing video games. Meals at home based on responses to questions on eating breakfast, lunch, and dinner at home within past 7 days

Table F4. Purposeful Selection Logistic Regression Models, Odds Ratio for Perception of Parental Weight and its Association to Overweight/Obesity, (n=145).

Unadjusted Model^{1,2}	Odds Ratio	95% CI³	P – value⁴
Perception of Mom’s weight			
Normal weight	1.00		
Overweight	2.01	0.96 – 4.22	0.06
Adjusted Model	Odds Ratio	95% CI	P - value
Perception of Mom’s weight			
Normal weight	1.00		
Overweight	2.01	1.00 - 4.49	0.05
Gender			
Female	1.14	0.57 – 2.29	0.71
Male	1.00		
Perception of Mom’s weight			
Normal weight	1.00		
Overweight	1.90	0.88 – 4.10	0.10
Gender			
Female	1.10	0.54 - 2.24	0.79
Male	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.57	0.79 - 3.15	0.20
Perception of Mom’s weight			
Normal weight	1.00		
Overweight	2.10	0.96 - 4.62	0.06
Gender			
Female	1.19	0.57 - 2.45	0.65
Male	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.54	0.76 - 3.11	0.23
Neighborhood Region⁵			
Eastern Region	1.00		
Western Region	1.95	0.91 - 4.17	0.09
Other Region	1.51	0.55 - 4.13	0.42
Perception of Mom’s weight			
Normal weight	1.00		
Overweight	2.95	1.21 – 7.21	0.01
Gender			
Female	1.44	0.64 - 3.25	0.38
Male			
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.30	0.65 – 4.56	0.37
Neighborhood Region⁵			
Eastern Region	1.00		
Western Region	1.29	0.37 – 6.70	0.69

Adjusted Model	Odds Ratio	95% CI	P - value
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	1.80	0.48 – 6.70	0.38
Perception of Mom's weight			
Normal weight	1.00		
Overweight	3.64	1.38 – 9.63	0.01
Gender			
Female	1.40	0.59 – 3.37	0.45
Male	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.41	0.62 – 4.77	0.41
Neighborhood Region⁵			
Eastern Region	1.00		
Western Region	1.31	0.36 – 4.77	0.68
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	2.13	0.55 – 8.19	0.27
Fun Scale⁷			
0 -3 hours per day	1.07	0.44 – 2.59	0.88
4 or more hours per day	1.00		
Perception of Mom's weight			
Normal weight	1.00		
Overweight	1.39	0.43 – 4.51	0.58
Gender			
Female	1.01	0.39 – 2.65	0.98
Male	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.14	0.45 – 2.92	0.78
Neighborhood Region⁵			
Eastern Region	1.00		
Western Region	0.87	0.18 – 4.34	0.87
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	2.63	0.51 – 13.54	0.25
Fun Scale⁷			
0 -3 hours per day	1.35	0.47 – 3.88	0.58
4 or more hours per day	1.00		
Adolescents' Perception of Weight⁷			
Normal weight	1.00		
Overweight	43.20	5.09 – 366.41	0.00

¹ Mom's weight based on responses to questions on how adolescents perceive their mom or female guardian (underweight, normal weight, or overweight).

² Participants were restricted to those who have the outcome of the given analysis.

³ 95% CI, 95% Confidence Interval.

⁴ The p-value presented for each categorical variable is the Chi-Square statistic.

- ⁵ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.
- ⁶ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).
- ⁷ Fun scale based on responses to questions on hours adolescents spend on social media, watching television, and playing video games. Perceptions about weight based on response to question on how the participant describes their weight.

Table F5. Adjusted Purposeful Selection Logistic Regression Models, Final Adjusted Model for Perception of Parental Weight and its Association to Overweight/Obesity, (n=145).

Adjusted Model^{1,2}	Odds Ratio	95% CI³	P – value⁴
Perception of Mom’s weight			
Normal weight	1.00		
Overweight	1.17	0.40 – 3.44	0.77
Median Household Income⁵			
Less than \$25,000	1.00		
Greater than \$25,000	2.13	0.87 – 5.21	0.10
Adolescents’ Perception of Weight⁶			
Normal weight	1.00		
Overweight	55.77	6.87 – 452.45	0.0002

¹ Mom’s weight based on responses to questions on how adolescents perceive their mom or female guardian (underweight, normal weight, or overweight).

² Participants were restricted to those who have the outcome of the given analysis.

³ 95% CI, 95% Confidence Interval.

⁴ The p-value presented for each categorical variable is the Chi-Square statistic.

⁵ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

⁶ Perceptions about weight based on response to question on how the participant describes their weight.

Table F6. Adjusted Purposeful Selection Logistic Regression Models, Odds Ratio for Perception of Parental Weight and its Association to Overweight/Obesity (n=145).

Unadjusted Model^{1,2}	Odds Ratio	95% CI³	P – value⁴
Perception of Dad’s weight			
Normal weight	1.00		
Overweight	1.38	0.43 – 10.13	0.00
Adjusted Model	Odds Ratio	95% CI	P - value
Perception of Dad’s weight			
Normal weight	1.00		
Overweight	3.98	1.70 – 9.32	0.00
Gender			
Female	1.06	0.51 – 2.19	0.88
Male	1.00		
Perception of Dad’s weight			
Normal weight			
Underweight	0.64	0.24 - 1.74	0.38
Overweight	3.87	1.55 - 9.67	0.00
Gender			
Female	1.02	0.48 - 2.15	0.95
Male	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.46	0.71 - 3.01	0.30
Perception of Dad’s weight			
Normal weight	1.00		
Overweight	4.93	1.98 – 12.29	0.00
Gender			
Female	1.14	0.53 – 2.44	0.74
Male	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.39	0.67 – 2.90	0.38
Neighborhood Region⁵			
Eastern Region	1.00		
Western Region	2.16	0.96 – 4.89	0.07
Other Region	1.59	0.54 – 4.70	0.40
Perception of Dad’s weight			
Normal weight	1.00		
Overweight	6.61	2.33 – 18.71	0.00
Gender			
Female	1.51	0.64 – 3.57	0.35
Male	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.30	0.57 – 2.98	0.54
Neighborhood Region⁵			
Eastern Region	1.00		
Western Region	1.31	0.34 – 5.14	0.70

Adjusted Model	Odds Ratio	95% CI	P - value
Other Region			
Median Household Income⁶			
Less than \$25,000	2.02	0.50 – 8.11	0.32
Greater than \$25,000	1.00		
Perception of Dad's weight			
Normal weight	1.00		
Overweight	6.38	2.20 – 18.53	0.00
Gender			
Female	1.53	0.61 - 3.83	0.36
Male	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	1.30	0.55 - 3.08	0.56
Neighborhood Region⁵			
Eastern Region	1.00		
Western Region	1.40	0.35 - 5.60	0.64
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	2.27	0.55 - 9.36	0.26
Fun Scale⁷			
0 -3 hours per day	1.46	0.57 - 3.75	0.43
4 or more hours per day	1.00		
Perception of Dad's weight			
Normal weight	1.00		
Overweight	4.82	1.43 – 16.20	0.01
Gender			
Female	0.96	0.34 – 2.70	0.93
Male	1.00		
Grade			
6 th – 8 th grade	1.00		
9 th – 12 th grade	0.88	0.32 – 2.46	0.81
Neighborhood Region⁵			
Eastern Region	1.00		
Western Region	0.97	0.18 – 5.37	0.97
Median Household Income⁶			
Less than \$25,000	1.00		
Greater than \$25,000	3.07	0.58 – 5.89	0.21
Fun Scale⁷			
0 -3 hours per day	1.85	0.58 – 5.9	0.30
4 or more hours per day	1.00		
Adolescents' Perception of Weight⁷			
Normal weight	1.00		
Overweight	50.43	5.66 – 449.49	0.00

¹ Dad's weight based on responses to questions on how adolescents perceive their dad or male guardian (underweight, normal weight, or overweight).

² Participants were restricted to those who have the outcome of the given analysis.

³ 95% CI, 95% Confidence Interval.

⁴ The p-value presented for each categorical variable is the Chi-Square statistic.

- ⁵ Eastern neighborhood regions include Algonquin, Parkhill, California, and Russell; Western neighborhood regions include Shawnee, Chickasaw, Parkland, Portland, and Park Duvalle.
- ⁶ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).
- ⁷ Fun scale based on responses to questions on hours adolescents spend on social media, watching television, and playing video games. Perceptions about weight based on response to question on how the participant describes their weight.

Table F7. Adjusted Purposeful Selection Logistic Regression Models, Final Adjusted Model for Perception of Parental Weight and its Association to Overweight/Obesity (n=145).

Adjusted Model ^{1,2}	Odds Ratio	95% CI ³	P – value ⁴
Perception of Dad’s weight			
Normal weight	1.00		
Overweight	4.19	1.30 – 13.46	0.02
Median Household Income⁵			
Less than \$25,000	1.00		
Greater than \$25,000	3.16	1.13 – 8.79	0.03
Fun Scale⁶			
0 -3 hours per day	1.73	0.57 – 5.25	0.33
4 or more hours per day	1.00		
Adolescent Perception of Weight ⁶			
Normal weight	1.00		
Overweight	49.47	5.97 – 410.29	0.0003

¹ Dad’s weight based on responses to questions on how adolescents perceive their dad or male guardian (underweight, normal weight, or overweight).

² Participants were restricted to those who have the outcome of the given analysis.

³ 95% CI, 95% Confidence Interval.

⁴ The p-value presented for each categorical variable is the Chi-Square statistic.

⁵ Neighborhoods with a median household income less than or equal to 25K includes: Algonquin (\$19,894), California (\$16,591), Russell (\$17,264), Park Hill (\$19,894), Parkland (\$22,615) and Portland (\$23,705). Neighborhoods with a median household income greater than 25K includes Chickasaw (\$31,497), Park Duvalle (\$25,044), and Shawnee (\$29,157).

⁶ Fun scale based on responses to questions on hours adolescents’ spend on social media, watching television, and playing video games. Perceptions about weight based on response to question on how the participant describes their weight.

CURRICULUM VITAE

Colette Davis

485 East Gray Street Louisville, KY 40208 (office)

502-852-0417 (Cell) 615- 498-4664

cpdavi05@louisville.edu

PROFESSIONAL PROFILE

Doctoral Candidate - Experience in data and research management along with the development of study designs. Demonstrated proficiency in presenting and writing reports, reviews, and manuscripts. Advanced critical and analytical thinking techniques with fluent data interpretation skills. Advanced use of SAS (Statistical Analysis System), SPSS, (Statistical Package for Social Science Quantitative Research Methods), and Microsoft Excel.

Professional and Research Experience – Developed outstanding work ethic, complex problem solving skills, public speaking skills, 7+ years of communication experience, and quality work in short deadlines

Leadership and Service Experience – Intelligence in judgment and decision-making, management of personnel resources, team motivation, self-motivation and service orientation.

EDUCATION

UNIVERSITY OF LOUISVILLE – Louisville, KY

Doctor of Philosophy in Public Health Science

Specialization in Epidemiology

Spring 2019

MEHARRY MEDICAL COLLEGE – Nashville, TN

Master of Science in Public Health (MSPH)

Spring 2014

MISSISSIPPI COLLEGE – Clinton, MS

Master of Science (MS) in Biology

Fall 2010

PROFESSIONAL EXPERIENCE

DISSERTATION COMPLETION AWARD — Louisville, KY **Dissertation Completion and Defense, Fall 2018**

- ◆ Awarded to select PhD students in final semester
- ◆ Recipient receives full stipend, candidacy fee, and health insurance
- ◆ Based on scholarly ability and program progress
- ◆ Nominated by Chair of Department of Epidemiology & Population Health Department, SPHIS

PROGRAM COORDINATOR — Louisville, KY **Region IV Public Health Training Center (R-IV PHTC), University of Louisville,** May 2016 to September 2018; Current

- ◆ Coordinated lectures and seminars with various experts in public health in the interest of training the Public Health Workforce in Kentucky
- ◆ Met with local and regional directors of health organizations for KY workforce training opportunities and field scholar opportunities for MPH students
- ◆ Managed communications through media relations and social media
- ◆ Managed and lead data collection for classroom and online trainings
- ◆ Kept updated records, create reports and proposals for R-IV PHTC Headquarters
- ◆ Researched practicum opportunities for MPH students; promote scholarships and practicum opportunities at practicum and job fairs for students
- ◆ Counseled and supported students who have received Pathway to Practice Scholarships
- ◆ Trained new program coordinators for Kentucky's local performance site (LPS)
- ◆ Monitored participant progress, generated reports, and uploaded trainings to Kentucky website.

COURSE INSTRUCTOR OF PHUN 110-03 & PHUN 110-05— Louisville, KY **Learning Tools in Public Health,** Spring 2018

- ◆ Lectured one course with two sections for first year and transfer undergraduate students
- ◆ Courses were held on Tuesdays and Thursdays at 1:00 – 2:40 PM, 2-hour credit course
- ◆ Created and organized course material – syllabi, course lectures,

modules, and class assignments for the course.

- ◆ Graded all assignments, constructed assignment percentages
- ◆ Guide students in learning critical thinking techniques to aid in public health major and future public health career

UNDERGRADUATE TEACHING ASSISTANTSHIP— Louisville, KY

School of Public Health and Information Sciences, August 2017 to June 2018

- ◆ Assisted in Introduction to Public Health 101, Contemporary Issues in Public Health, and Global Health
- ◆ Conducted class lectures in the absence of the professors; facilitate discussions during class time
- ◆ Graded over 100+ student, weekly assignments and quizzes; provide feedback and on essays
- ◆ Met with students at an appointed time during the week
- ◆ Managed grades and course information on blackboard

GRADUATE TEACHING ASSISTANTSHP — Louisville, KY

Department of Epidemiology and Population Health, August 2014 to Fall 2016

- ◆ Assisted in Epidemiologic Emerging Issues, Intro to Epidemiology, Epidemiology Methods I, People, Policy and the Environment
- ◆ Conducted class lectures in the absence of the professors
- ◆ Reviewed and explained homework assignments during class lectures
- ◆ Planned and conducted study sessions for midterms and final exams
- ◆ Graded weekly homework assignments and quizzes; provide feedback on student presentations
- ◆ Met with students at an appointed time during the week

BIostatISTICS AND RESEARCH ASSISTANT TUTOR — Nashville, TN

Office of Institutional Research at Meharry Medical College, August 2013 to May 2014

- ◆ Tutored and organized study sessions for Biostatistics I and II first year graduate students
- ◆ Edited and reviewed essay documents, unpublished theses, and classroom assessments
- ◆ Analyzed and interpreted data for accreditation, conference lectures, and classroom lectures
- ◆ Gathered data from the medical tracking systems to perform multi-dimensional analyses

- ◆ Interpreted data using SAS, SPSS, XLSTAT, and Microsoft Excel

PROJECT GIVE— Jackson, MS

Team Leader, March 2010 to August 2012

- ◆ Coordinated and implemented several community outreach projects for Jackson, MS.
- ◆ Informed underserved populations, 500+, on health, wellness, and fitness benefits during health and wellness fairs and nutrition programs.
- ◆ Trained all Project Give Team Leaders on effective program planning, sponsorship processes, and publicity techniques.
- ◆ Provided quality service to communities in need; advocated and promoted all Project Give events and programs.

COMCAST ADVANCED SOLUTIONS CENTER — Madison, MS

Customer Account Executive, Jan. 2011 to July 2012

- ◆ Used various Internet and phone troubleshooting techniques to properly restore the regularity of the customer's services.
- ◆ Digitally performed upgrades to customer's accounts to enhance the speed and efficiency of their Internet service.
- ◆ Provided quality customer communication and customer care to ensure the safety and reliability of Comcast.

HEALTHY EYES FAMILY VISION CENTER, LLD — Jackson, MS

Optometric Technician and Receptionist, July 2010 to Jan. 2012

- ◆ Operated various eye equipment for patient care, recorded eye equipment test results, and verbally communicated the test results to the optometrist.
- ◆ Operated the HRT, Heidelberg Retina Tomography II for 3D pictures of posterior segment of the patient's eye, NCT Non Contact Tomography for eye pressure measurements and the VF, Visual Field test for dysfunctions of the patient's eye.
- ◆ Fitted and measured the PD of patients for eye wear; used proper eye wear measurement techniques through the use of the millimeter ruler and the patient's pupil distance.
- ◆ Provided quality patient care that ensures the patients' safety and reliability in the company and the various optometric methods required and provided for each particular patient.

RESEARCH EXPERIENCE

THE S.H.A.P.E. STUDY – Louisville, KY

Survey of Health and the Perceived Environment Study, Author and Investigator of study - partially supported through competitive, grant award, March 2017 to Current

- ◆ Managed and trained an eight member research team on the study's recruitment methods, training materials, and presentation delivery to parents and adolescents
- ◆ Coordinated recruitment events with various directors of youth organizations and community centers
- ◆ Planned meetings, presentations, and reports to update other SHAPE study investigators and advisors on the process of the study.
- ◆ Budgeted and allocated S.H.A.P.E. study grant funding for participant incentives
- ◆ Facilitated and hosted two adolescent focus groups for the assessment of the SHAPE Questionnaire; constructed focus group using a semi-structured guide
- ◆ Attended community networking events on behalf of the S.H.A.P.E. study
- ◆ Surveyed adolescents at health fairs, youth organizations, and community centers
- ◆ Analyze and interpret data from S.H.A.P.E. study

LOUISVILLE INTERNATIONAL FOOD MARKETS STUDY – Louisville, KY
Examining the Effects and Contributions of International Food Markets on Food Access in Jefferson County, Team Member, June 2018 to July 2018

- ◆ Collected data on food items from grocery stores using the Harvard Healthy Eating Plate to illustrate the four food groups
- ◆ Administered Customer Satisfaction Survey to customers from various international markets. Survey utilized a Likert Scale to analyze whether or not customer expectations were met.
- ◆ Recruited participants for study by attending meeting with the directors of international organizations.

GRADUATE STUDENT COUNCIL (GSC) RESEARCH GRANT FUND – University of Louisville

Grant funding from School of International Graduate Studies (SIGS), April 2017 to Current

- ◆ Competitive grant awarded to doctoral student with dissertation research expenses
- ◆ Submitted a project description, proposed budget, and letter of support from dissertation's director

COMMUNITY HEALTH AWARENESS VOLUNTEER – Owensboro, KY
Green River District Health Department (GRDHD), October 2017

- ◆ Participated in Community Assessment for Public Health Emergency Response (CASPER) Recruitment. CASPER – an epidemiological tool used to conduct needs assessment.

- ◆ Recruited participants using CASPER methodology
- ◆ Interviewed household members from selected clusters using CASPER methodology

HOME INSPECTOR FOR HEALTHY HOOPS—Louisville, KY

Healthy Hoops Home Visit Study, September

2014 to April 2015 Healthy Homes Certified -

October 2014

- ◆ Certified to enter homes and detect asthmatic triggers that if removed can reduce allergens, prevent illness, and reduce injury from accident.
- ◆ Recruited families, adults and elementary students, for healthy home inspections
- ◆ Recorded asthmatic triggers and irritants during home visits following EPA's asthma home inspection inventory
- ◆ Interviewed adults following EPA's home inspection guidelines
- ◆ Recommended remediation; counsel adults and children on how to limit asthmatic triggers within the home
- ◆ Follow-up on absenteeism and status of asthma health care by calling study participants and scheduling follow-up interviews and visits.

MARCH OF DIMES — MEMPHIS, TN

Summer Intern for Program Services and NICU Family Support, June 2013 to August 2013

- ◆ Promoted Emergency Disaster Preparedness and Awareness among mothers with infants through Emergency Management Agencies and the NICU (Neonatal Intensive Care Unit) Family Support.
- ◆ Implemented programs to ensure the safety of pregnant women, newborn and infants in the Memphis area while using disaster preparedness and safe sleep training materials created by the March of Dimes.
- ◆ Attended various conferences outlining the health of preemies, family support, and insurance policies.
- ◆ Conducted workshops in the NICU on safe sleep and disaster preparedness for the Regional Medical Center Staff and the mothers of premature babies.

AMERICAN DIABETES ASSOCIATION — Nashville, TN

Chair of Project Power, March 2013 to July 2013

- ◆ Increased diabetes awareness in over 20 African American churches and community centers through a series of lectures and workshops
- ◆ Recruited 20+ African American churches and communities centers in the Nashville community to join the fight against diabetes
- ◆ Trained ADA volunteers to lecture and conduct workshops geared towards diabetes
- ◆ Conducted workshops in underserved populations on the effectiveness of

exercising and eating healthy.

PUBLICATIONS

- ◆ **Colette Davis**, MSPH, CK Chen, EdD, Juanita Buford EdD, etc. A Case Study: Determining the Relationship between Socioeconomic Backgrounds of Matriculants and their Environment after Graduation. *European International Journal of Science and Technology*. June, 2014. Vol 3(5). Pp. 64-68.
- ◆ CK Chen, EdD, Juanita Buford, EdD, **Colette Davis**, MSPH, etc. A Study on the Relation among Primary Care Professionals Serving the Disadvantaged Community, Socioeconomic Status, and Adverse Health Outcome. *International Journal of Social, Behavioral, Educ... Engineering*. 2015 Vol 9(5).

PRESENTATIONS & CONFERENCES

- ◆ June 2018. Summer Health Professionals Education Program (SHPEP): SPHIS Student Panel. PhD Candidate Selected to participate on panel. Location: Health Science Campus Instructional Building. Audience: Shared equity experiences with over 50 undergraduates who attended colleges in multiple US regions
- ◆ March 2018. The S.H.A.P.E. Study: The Survey of Health and the Perceived Environment Study. Location: Graduate Student Regional Research Conference: Louisville, KY. Poster presentation; mentor – Assistant Professor, Dr. Stephanie Boone. Audience: UofL Students, Faculty, Researchers
- ◆ November 2017. Evaluating Quality of Life, Health Behaviors, and Body Mass Index in Long-Term Cervical Cancer Survivors. Location: APHA Conference; Atlanta, GA. Poster presentation; mentor -Assistant Professor, Dr. Stephanie Boone. Audience: APHA members and conference attendees
- ◆ March 2017. Judge for the Louisville Research Science and Engineering Fair. Location: Kentucky Science Center; Louisville, KY. Audience: High School Students; Field: Biology and Health
- ◆ September 2016. Evaluating Quality of Life, Health Behaviors, and Body Mass Index in Long-Term Cervical Cancer Survivors. Location: Research! Louisville Conference; Louisville, KY. Audience: UofL Students, Faculty, Researchers. 1st Place – Health Disparities Category
- ◆ October 2015. Selected to introduce the 2015 Alumni Fellow from the School of Public Health at the Annual Alumni Awards Banquet; Louisville, KY. Presented with Dean Blakely. Audience: Alumni, faculty, and students
- ◆ April 2015. Healthy Hoops Asthma Home Visits. Location: KPHA Conference; Owensboro, KY. Presented with Dr. Richard Wilson, Director of Health Promotion Dept. Audience: KPHA members and attendees
- ◆ March 2015. College Mission Assessment: Using Analytics Modeling Approaches to Study Primary Care Professionals Serving Disadvantaged

Communities. Location: International Multi-Conference on Complexity, Informatics, and Cybernetics. Presenter: Dr. Chau-Kuang Chen. Audience: IMIC attendees

- ◆ November 2014. Determining the Relationship between Socioeconomic Status Backgrounds of Matriculants and their Environment of Medical Practice beyond Graduation. Location: APHA Conference; New Orleans, LA. Oral presentation; mentor - Biostatistician, Dr. Chen. Audience: APHA members and conference attendees
- ◆ July – August 2013. Safe Sleep for Babies. Disaster Preparedness for Pregnant Women, Mothers and Newborns. Stress Management. Location: Regional Medical Center; Memphis, TN. Presented with March of Dimes. Mentor - NICU Specialist Karen Hill. Audience: NICU Mothers and NICU Faculty and Staff.
- ◆ August 2013. ABC's of Safe Sleep. Location: First Step; Memphis, TN. Presented with March of Dimes. Mentor -Valencia Nelson. Audience: Teen mothers, pregnant teens, program directors
- ◆ November 2013. Predicting the Effect of Hurricane Katrina on Low Birth Weight Babies in the Gulf Coast based on A Hybrid Model of PLS Regression and GM (1, N). Location: APHA Conference; Boston, MA. Poster presentation; mentor -Dr. Chau-Kuang Chen. Audience: APHA student and faculty members.

SERVICE EXPERIENCE

Student Member	<i>Society of Epidemiologic Research</i>	Access to SERs news, playlists, and lectures.	July 2016 - Current
Student Member	<i>American Public Health Association</i>	Present at Conferences, network with epidemiologists	Oct. 2013 - Current
National Member, Louisville Chapter	<i>Tau Sigma National Honor Society</i>	Inducted as a result of high academic achievement	June. 2015 – Current
KPHA President, UofL Chapter	<i>Kentucky Public Health Association</i>	Create, Plan, Promote Professional Development events and volunteer events	June 2015 – June 2016
Student Member, SPHIS	<i>Student Government Association</i>	Promote and attend professional development events	Sept. 2015 – June 2016
KPHA Representative	<i>Graduate Student Council for SPHIS</i>	Inform SGA on KPHA Events	Sept. 2015 – June 2016
Elementary School Tutor	<i>St. Paul Christian Academy</i>	Tutor 20+ students in Various Subjects during after school program	August 2013 – June 2014
Personal Mentor	<i>Fisk University Freshman</i>	Advise mentees on academic, personal, and social matters	Sept. 2012 – May 2014

REFERENCES

Richard Baumgartner, PHD

Professor & Chair, Department
of Epidemiology &
Population Health
School of Public Health &
Information Sciences
Department of Epidemiology &
Population Health Office No:
227A, 485 East Gray Street.
Louisville, KY 40202
Phone: 502-852-2038
Email: rnbaum01@louisville.edu

William P McKinney, MD

Professor & Associate Dean for Research
Director of Regional Public Health
Training Center's LPS Site (Kentucky)
School of Public Health and
Information Sciences Office No:
233B, 485 East Gray Street.
Louisville, KY 40202
Phone: 502-852-3291
Email: mckinney@louisville.edu

Kathy B. Baumgartner, PHD

Professor and Associate Dean of
Faculty Affairs School of Public
Health and Information Sciences
Department of Epidemiology and
Population Health Office No: 230,
485 East Gray Street.
Louisville, KY 40202
Phone: 502-852-1894
Kbbaum01@louisville.edu