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Identifying protective factors against overweight and obesity within the social environment of women with low incomes.

Monica M. Adams
University of Louisville

IDENTIFYING PROTECTIVE FACTORS AGAINST OVERWEIGHT AND OBESITY WITHIN THE SOCIAL ENVIRONMENT OF WOMEN WITH LOW INCOMES

By

Monica M. Adams
B.S.W., West Virginia University, 1994
M.S.W., Virginia Commonwealth University, 2000

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A Dissertation Approved on

April 16, 2020

By the Following Dissertation Committee:

_____
(Emma Sterrett- Hong) Chair

_____
(Adrian Archuleta)

_____
(Maurice Gattis)

_____
(Vickie Hines- Martin)

_____
(Sheila Barnhart)

DEDICATION

Bringing the gifts that my ancestors gave,
I am the dream and the hope of the slave.
I rise
I rise
I rise.

For my ancestors - my 4th great grandmother, Easter Nelson, a woman born into slavery, a time when it was illegal for her to receive a formal education. My grandmother, Dorothy Stevenson, my mother, Delores Stevenson, and my uncle, Newton Washington - each born into a world of a legally segregated education system. This degree is the culmination of the many hurdles you overcame in order to educate yourselves and the sacrifices you made so that one day I could rise to fulfill your hopes and dreams. Thank you for gift of hopes and dreams.

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The faculty and staff at the Kent School of Social Work were especially supportive during this journey. I would like to particularly acknowledge Dr. Bibhuti Sar,

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ABSTRACT

IDENTIFYING PROTECTIVE FACTORS AGAINST OVERWEIGHT AND OBESITY WITHIN THE SOCIAL ENVIRONMENT OF WOMEN WITH LOW INCOMES

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Over two-thirds of the United States population have overweight or obese (OW/OB) weight statuses due in large part to an obesogenic environment that encourages unhealthful weight related behaviors. The obesogenic environment appears to place a larger burden on women with low incomes as they experience OW/OB disproportionately compared to other groups. Studies seeking to understand the impact of the obesogenic environment on this population have been deficit focused, largely examining environmental risk factors for OW/OB and ignoring protective factors against it. Most women with low incomes do not have an obese weight status and some women who have OW/OB statuses have successfully engaged in healthful behaviors to lose weight, despite sharing the same social environment. The central aim of this study was to understand how women with low incomes navigate risk factors for OW/OB within their social environment.

Research questions included: 1) How do women with low incomes manage to engage in healthful eating in an environment with limited access to healthful foods? 2) How do women with low income manage to engage in consistent physical activity in an environment with limited opportunities for physical activity? 3) How do women with

children present in the home manage to engage in healthful eating and consistent physical activity in an environment with limited access to healthful foods and physical activity opportunities compared to women with low incomes who have no children present? 4) How do women with low incomes feel about their weight? To answer these questions, a narrative approach to qualitative inquiry was used to capture the lived experiences of women with low incomes with regard to managing socioenvironmental risk factors for OW/OB. Guided by a Social Ecological Model and Resilience Theory, study methods included in-depth interviews of 14 women with low incomes. Participants in this study demonstrated the ability to strategically maneuver around risk factors for OW/OB to engage in healthful behaviors. Study results highlight the complex nature of risk and protective factors and how the interplay of the various levels of the social environment create both risk and protective factors for women with low incomes for managing their weight.

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Overview of Overweight/Obesity

The prevalence of adults with a weight status of overweight or obese in the United States has increased by 134% since 1980 (Center for Disease Control and Prevention, 2017). Overweight and obese weight statuses represent a continuum on the Body Mass Index (BMI) scale used to categorize body weight using a special calculation of height and weight. There are four categories of weight based on BMI–underweight (BMI<18.5), normal (healthy) weight (BMI 18.5<25), overweight (BMI 25<30), and obese (BMI >30; National Institute of Health, 2017). There are three sub-categories of obesity based on BMI-– Class I-Obese (BMI 30<35), Class II-Morbidly Obese (BMI 35<40) and Class III-Severely Obese (BMI >40; CDC, 2017). According to Dr. Jill Klein at Cincinnati Children's Hospital Medical Center, these classes were developed out of the need to identify increased risk with higher levels of body fat and to identify eligibility for bariatric surgery (personal communication, April 8, 2017).

The most recent estimates from the CDC (2017) suggest that over two-thirds of adults (age ≥20) in the United States have a weight status of overweight or obese. As of 2016, of the 71.6% of adults with overweight or obese weight statuses, 39.8% are have a weight status of obese (CDC, 2017). It is predicted the number of adults with a weight status of overweight or obese will reach 90% by 2030, with predictions for increased

prevalence of adults with an obese weight status ranging from 42-51% by 2030, based on the current rate of growth (Ata, 2015; Wang et al., 2008).

Often referred to as an epidemic (Callahan, 2013; Herman et al., 2016; Jeffery & Utter, 2003; Mann et al., 2015; Ross et al., 2016), overweight and obesity are more complex than categories on the BMI scale. The term overweight is often used in conjunction with obesity as technically anyone who has a BMI reflecting obesity (≥30), has a BMI that reflects overweight (≥25). Both statuses are the result of excess body fat (CDC, 2017; NIH, 2017). Harvard School of Public Health (2017) defines overweight and obesity as having excess body fat at a level that presents a health risk to the individual. Both conditions, overweight and obesity, are complex maladies with medical and social implications. Both increase the risk for developing other illnesses (i.e., heart disease, diabetes and cancer) and premature death (Lorts & Ohri-Vachaspati, 2016). Rising cost of medical care associated with overweight and obesity has also become a concern (Lorts & Ohri-Vachaspati, 2016; Wang et al., 2008). Furthermore, people with weight statuses of overweight or obese are also at increased risk of various types of societal oppression such as isolation, discrimination and stigmatization (Allison et al, 2008), thus transforming overweight and obesity from mere micro level health problems to serious social ills. Because of the close similarities between overweight and obesity, the two will be treated as one condition for the remainder of this dissertation and will be referred to as OW/OB.

People with OW/OB weight statuses in the U.S. are a heterogeneous group, as OW/OB impacts both males and females and crosses all racial, age, geographic and socioeconomic boundaries. However, its prevalence is not proportional across

subpopulations (Table 1). Overall, men (73%) have higher levels of OW/OB compared to women (66.2%), with women (40.4%) being more likely to have weights that fall within the obese range compared to men (35%; CDC, 2017; United States Department of Health and Human Services, 2017). As a group, Hispanics (78.4%) and African Americans (76.3%) have higher levels of OW/OB compared to non-Hispanic whites (68.5%) and Asians (40.3%; USDHHS, 2017). And there are noted differences based on sex and race/ethnicity. African American women (82%) have the highest levels of OW/OB, compared to Hispanic women (77.1%), non-Hispanic white women (63.5%) and Asian women (34.3%; USDHHS, 2017). Hispanic men (79.6%) have the highest levels of OW/OB compared to non-Hispanic white men (73.3%), African American men (69.6%) and Asian men (46.9%; USDHHS, 2017). The CDC studied obesity prevalence among adults by three levels of household income, based on percentage (≤130%, >130% to ≤350%, and >350%) of the federal poverty level (FPL). While there is no significant difference among men based on income, the prevalence of obesity among women with the lowest incomes (42%) is disproportionately higher than that of women with the highest incomes (29.7%; Ogden et al., 2017).

Table 1.

U.S. Adults (≥20 years old) by sex, race/ethnicity, and income level	**OW/OB (BMI >25) Percentage of population**
Men	73
Women	66.2
Non-Hispanic	
White -total	*68.5*
White Men	73.7
White Women	63.5
African American- total	*76.3*
African American Men	69.6
African American Women	82
Asian - total	*40.3*
Asian Men	46.9
Asian Women	34.3
Hispanic	
Total	*78.4*
Men	79.6
Women	77.1
Income Level- Women	**Obese (BMI ≥30)**
≤130% of FPL	42
≥350% of FPL	29.7

Note. FPL = Federal Poverty Level

Women with Low Incomes and OW/OB

Women with low incomes are already at an increased risk of experiencing poorer health outcomes, such as increased rates of mental health concerns, diabetes, hypertension, decreased nutrition intake and poorer sleep outcomes compared to women with higher incomes, due to behaviors such as lower levels of physical activity and poor diet, and environmental factors such as food insecurity, residential segregation, structural racism, and limited access to resources (Galea & Vaughn, 2019; Gundersen & Ziliak, 2015; Rustad, & Smith, 2013). Having weight statuses of OW/OB further increases the risk for poorer health outcomes as OW/OB puts people at greater risk of developing diabetes (18 times greater), cardiovascular disease (7 times greater), and in some cases premature death (shortened life expectancy of 7 to 20 years), compared to a person with a healthy weight status (Hoffman, 2016). Low income women who experience OW/OB also face negative social consequences, as having weight statuses of OW/OB can lead to weight

discrimination which includes being waited on more slowly by sales personnel, being less likely to be offered jobs or rented apartments and often being looked down upon by educators and health care professionals (Allison et al, 2008). Efforts to promote healthy living have often utilized stigmatizing messages such as a billboard sponsored by a state health department which pictured children with an obese weight status and a message that read, "Fat prevention begins at home and the buffet line" and a video ad from Blue Cross Blue Shield of Minnesota which showed a mother and child, each with an obese weight status, filling up a shopping cart with high sugar, high fat foods (Young, Hinnant and Leshner, 2016, p. 903). This stigma is further perpetuated by ongoing inaccurate reports that give the impression that the majority of people with OW/OB weight statuses are people of color and poor (Herdon, 2015).

The social consequences of OW/OB for women with low incomes are intensified due to the overlapping stigmas associated with OW/OB and poverty. Poverty elicits negative public discourse including perceptions that people who are poor are incompetent, a societal burden, have character flaws (e.g., lazy and do not want to work), and are poor due to their choices more so than external circumstances (Hall et al. 2014; Shildrick & MacDonald, 2013). This perception is not dissimilar to assumptions made about people with weight statuses of OW/OB as the onus of weight status has historically been placed on the individual with little regard for the influence of socio-environmental factors (Chang & Christakis, 2002). In order to understand the complexity of the influence of socio-environmental factors that place women with low incomes at greater risk for having weight statuses of OW/OB, this chapter outlines aspects of the

environment that promote OW/OB related behaviors and how these changes impact women with low incomes.

Obesogenic Environment

OW/OB has been historically understood through the lens of a medical model. A medical model examines the problem at the individual level focusing on the body as the locus of explanation, perception, diagnosis and intervention while ignoring structural conditions such as sociocultural and environmental factors (Chang & Christakis, 2002). Through this lens, OW/OB is caused by the consistent consumption of more energy (food intake) than expended (physical activity). This simplistic, micro level conceptualization of OW/OB has placed the onus of the cause of OW/OB solely on the individual, ignoring the influence of the obesogenic environment that exists within the U.S. An obesogenic environment is one that promotes OW/OB through readily available unhealthy foods and provides frequent cues that remind us of appetizing foods that are high in fat, sugar and calories, via constant marketing through a variety of media outlets, and signage in stores and restaurants (Watson et al., 2014). The current obesogenic environment is primarily due to identified trends with regards to food availability, physical activity levels, and information related to food consumption. Regardless of income level, everyone is impacted by the current obesogenic environment, however, this environment appears to place a larger burden on women with low incomes with regards to OW/OB prevalence. The following is a discussion of how the above-mentioned trends promote OW/OB in general and how they contribute to the disparate prevalence of OW/OB among women with low incomes.

Food Trends

In the U.S., changes in availability of certain foods have contributed to increases in OW/OB rates. For example, there was an increase in availability of cooking oil (47%), cheese (111%), corn sweetener (283%) and soft drinks (75%) from 1970-1990 and there was a 15% decline in full service grocery stores, while convenience stores more than doubled between 1967 and 1997 (Jeffery & Utter, 2003). Cooking oils and cheese are both high fat foods. Studies have shown a strong correlation between high fat diets and OW/OB (Liang et al., 2012). Similarly, consuming high quantities of sugar is associated with OW/OB (Jeffery & Utter, 2003). Consumption of sugar sweetened beverages (SSB's) is the largest contributor to America's caloric intake (Kass et al., 2014).

In addition to increased availability, portion sizes also increased. For example, in 1950 a "king" sized soft drink as 12 ounces and the average snack was less than 100 calories per package; today a 12-ounce soft drink is considered "child" size at fast food restaurants and convenience stores, and snacks average about 275-300 calories per package (Herman et al., 2016; Popkin, 2010). Also, many prepackaged foods sold in convenience stores and vending machines exceed the United States Department of Agriculture's (USDA) recommended portion size by 100% (Herman et al., 2016).

While these national trends have impacted everyone, they have particularly impacted those within the low-income population due to the limited amount of full service grocery stores and an abundance of fast food and convenience stores in low-income communities. The lack of access to healthy foods and full-service grocery stores in a low-income neighborhood is referred to as a food desert (Dubowitz et al., 2015). Essentially while all people in the U.S. have greater access than they once did to foods

that are high in sugar and fat, those who are low-income also experience less availability of healthy foods. Furthermore, when healthier foods such as fruits and vegetables are accessible they may not be affordable. Some low-income families would need to spend up to 70% of their total food budget on fresh fruits and vegetables in order to meet recommended dietary guidelines (Cassady et al., 2007). The experience of lacking resources or having limited access to nutritious foods can cause some women with low incomes to worry about either not having enough food or running out of money and not being able to buy more food. This is referred to as food insecurity (USDA, 2017). Women with low incomes experience higher rates of food insecurity compared to other populations. Approximately 11.8% of U.S. households were food insecure in 2017, while women with low incomes living alone (13.9%) and low-income households headed by single women (30.3%) had rates higher than the national average (Coleman-Jensen et al., 2018). Food insecurity has been linked to overeating and OW/OB (Rasmusson et al., 2018). In essence, women with low incomes are at a greater risk of having OW/OB weight statuses because they are exposed to copious amounts of less expensive foods that are high in fats, sugar, salt and calories while their options for selecting healthier foods are extremely limited and more costly.

Physical Activity Trends

Though the terms physical activity and exercise are often used simultaneously, conceptually there are differences between the two. Exercise is planned, structured and repetitive activity that people engage in for the purpose of maintaining or improving their physical fitness (Caspersen et al., 1985). Physical activity is any activity that is the result of skeletal muscle movement that results in energy expenditure, including daily activities

such as walking, activities associated with an occupation, household chores, sports, and exercise (Caspersen et al., 1985). Despite the known benefits of engaging in regular physical activity, women with low incomes report lower levels of physical activity and healthy eating compared to women with higher incomes (Baruth et al., 2014). The lower a woman's income, the more likely she is to not meet recommended guidelines for physical activity - <100% of FPL (60.1%), 100%-199% of FPL (58.3%), 200%-399% of FPL (49.2%) and ≥400% of FPL (35.8; USDHHS, 2017).

As a whole, the U.S has seen an increase in health clubs and sporting goods stores but there has been a decrease in physical activity due to increased use of cars for transportation, laborsaving devices (e.g. riding mowers and remote controls), and an increase in sedentary entertainment activities such as watching television (Jeffery & Utter, 2003). Between 1970 and 2000 the number of homes with multiple televisions increased from 35% to 75% (Jeffery & Utter, 2003). This trend is particularly relevant to people with low incomes who are reported to watch more television than their higher income counterparts (Ball et al., 2006; Stamatakis et al., 2009). According to Nielson (2015), those with incomes of $75,000 or higher viewed less television (113 hours) than those with incomes at $25,000 or less (211 hours) during the third quarter of 2015. Some studies have suggested this difference in television viewing behaviors is likely due to people with lower incomes having lower levels of education; higher neighborhood deprivation; less disposable income for recreational activity; and having higher levels of occupational physical activity, thus compensating by sitting during leisure time (Ball et al., 2006; Stamatakis et al., 2009). Additionally, there are differences in the amount of

time spent watching television based on race/ethnicity, with African Americans tending to watch more television than whites or Hispanics (Shuval et al., 2013).

Other barriers related to physical activity among women with low incomes include limited access to recreational and commercial fitness centers, and lack of safe walking paths. Compared to higher income neighborhoods, low-income neighborhoods are almost five times more likely to not have recreational facilities (Moore et al., 2008) While walking is a free activity and no facility is needed, if a neighborhood has high crime rates, people may not feel safe going for leisurely walks, especially women (Lovasi et al., 2009). It has been well established physical inactivity is linked to OW/OB (Church et al., 2011; Myers et al., 2016; Shaw et al., 2006). The more time spent in sedentary activities increases the risk for OW/OB (Raynor et al., 2013). These barriers to physical activity do not support low- income women engaging in a level of physical activity to maintain a healthy weight status, putting them at risk for having weight statuses of OW/OB.

Information Trends

In addition to food and physical activity trends, information trends also influence the prevalence of OW/OB. Today we are inundated with information related to OW/OB and healthy living. This information comes in the form of messages typically disseminated through public health campaigns from national organizations (e.g., USDA and American Heart Association) and advertisements by the food and beverage industry through multiple platforms (e.g., media ads and signage in stores). The frequency of exposure to ads for unhealthy foods exceeds the frequency of exposure to information on healthy eating. This difference is likely due to the amount of resources utilized to support

this competing information. For example, the food and beverage industry spends roughly $50 per person, per year to promote their products, while the USDA spends about $1.50 per person, per year on nutritional education (Jeffery & Utter, 2003).

The food and beverage industry promotes its products primarily through television ads, with these products being almost entirely foods high in fats, sugar and salt (Boyland et al., 2016; Story & French, 2004). Because television watching has increased, we can assume that exposure to these ads has also increased, especially among low-income households since it has been documented they watch more television than households with higher incomes. Additionally, it has also been noted that the food and beverage industry specifically targets African Americans and Hispanics by spending $61 million and $224 million respectively in advertising on televisions stations whose primary audience are African American and Hispanic; items promoted were the less healthy menu items (Jones, 2015). Both African Americans (20%) and Hispanics (16%) experience disproportionate rates of poverty compared to Whites (8%) in the U.S. (Kaiser Family Foundation, 2017). The combination of the frequency of junk food ads and the targeting of racial and ethnic minorities by the food and beverage industry, creates a situation of greater exposure to messages that promote unhealthy eating. This exposure paired with living in communities where junk food is in an abundance increases the risk of women with low incomes having weight statuses of OW/OB.

Why Study Overweight/Obesity within Women with Low Incomes

As women from low-income backgrounds face greater risk for having OW/OB weight statuses compared to those from middle and high-income backgrounds, it is necessary to understand pathways to maintaining a healthy weight status among women

with low incomes in order to develop effective interventions. To date, many of the studies exploring OW/OB among women with low incomes have been from a deficit perspective comparing women with low incomes to those from middle- or high-income backgrounds with a focus on limited engagement in health behaviors and an identification of negative environmental influences without attention to coping strategies for overcoming those influences. However, it is important to recognize that while 42 percent of women with low incomes have a weight status of obese (Ogden et al., 2012), more than half of low-income woman have a weight status that is lower than obese. Additionally some women with low incomes with OW/OB weight statuses are still engaging with coping strategies and healthful behaviors, with some successfully losing weight despite being exposed to these same environmental factors. It is not well understood why this difference exists.

Sturm & Ad (2014) divided the environmental factors impacting OW/OB in to three categories- policy/economic (e.g., tax, subsidy, serving size regulations and nutritional labeling), social environment (e.g., family, workplace, community safety, social norms, food marketing and mass media), and physical environment (e.g., urban design, food outlets, neighborhood walkability, recreational facilities and transportation). This demarcation of the environment indicates that in addition to the proximal environmental factors (e.g., family, friends and neighborhood) often identified in studies addressing OW/OB among women with low incomes, there also exist distal environmental factors (e.g., food insecurity, public assistance program, food marketing and mass media) that influence OW/OB related health behaviors.

With greater attention being given to proximal barriers to engaging in health behaviors among women with low incomes, distal barriers have gone largely

unaddressed. While there have been examinations focused on nuanced differences among women with low incomes with regard to certain factors of the proximal environment (e.g. workplace, neighborhood food environment, neighborhood safety and access to recreation outlets) there have been few examinations of variation with regard to distal environmental factors (e.g., food insecurity, public assistance policies, food marketing and mass media) that influence OW/OB among these women.

The purpose of this study is to explore protective factors that exist within both the proximal and distal environments of women with low incomes that help them maneuver around barriers that exist within each level of the environment to engage in healthful behaviors. Identifying protective factors will assist researchers and practitioners with developing robust, strength-based interventions to address OW/OB within this population.

Why This Study Is Important to Social Work

The framing of OW/OB from an ecological model is indicative of the need for a multi-disciplinary approach to combating this social ill. Social work must be a part of this process as we are academically equipped to work collaboratively with other disciplines and are trained from a person-in-environment perspective to complete psychosocial assessments and develop interventions that take into consideration influences such as socioeconomic status, race and sex (Pappas et al., 2015; Wilson, 2016). Furthermore, social work is a profession that advocates for social justice; access to nutritious food and safe places for physical activity are social justice issues (Wilson, 2016). Social work also challenges oppression. Stigmatization and discrimination associated with OW/OB and poverty are examples of social oppression experienced by women with low incomes.

This study magnifies the need for social work to take a more active role in addressing OW/OB. Though social workers are more likely to encounter people with OW/OB weight statuses today than we were 20 years ago (Lawrence et al., 2012) as it disproportionately impacts vulnerable populations (e.g., women with low incomes) fundamental to the mission of social work (Wilson, 2016), it is still not considered a social work issue. However, social work has had a passive role in advocating for the population through our work with vulnerable populations such as the poor, children, less educated, and racial and ethnic minorities. All of which have higher levels of OW/OB. Given the negative impact of OW/OB on the overall wellbeing of women with low incomes and other vulnerable populations, it is necessary for social workers to begin to understand the complex nature of OW/OB so we can better advocate for the needs of these populations.

CHAPTER TWO
LITERATURE REVIEW

Introduction

The previous chapter provided an overview of the epidemiology of overweight/obesity (OW/OB), and of how an obesogenic environment specifically impacts women with low incomes. This chapter will provide an in-depth discussion of the multiple layers of the obesogenic environment and how these layers interrelate with one another to affect eating behaviors and physical activity among women with low incomes, utilizing theoretical and empirical literature. This chapter outlines the basis for utilizing an integration of the Social Ecological Model and Resilience Theory to better understand how the multiple levels of the social environment contribute to women with low incomes experiencing the obesogenic environment differently than other groups.

It will be through the Social Ecological Model that the multi-layered obesogenic environment will be further described, with a specific focus on risk factors for OW/OB that are unique to women with low incomes. During this discussion a picture will be painted of how social environmental factors and individual attributes interrelate to influence the health behaviors of women with low incomes (e.g. eating and physical activity) and ultimately their weight status. In order to create a well-rounded description of the social environment of women with low incomes, Resilience Theory will be used as a complementary framework to the Social Ecological Model. Despite significant risk factors that contribute to a disparity in OW/OB prevalence among women with low incomes, we

know that the majority of women with low incomes (54%) do not have obese weight status, and, also, some who do have OW/OB weight statuses have had success in losing weight (Banerjee et al., 2018a). Resilience Theory will be discussed from the perspective of protective factors among women with low incomes that may mitigate the impact of the identified risk factors. The end of the chapter will present identified gaps in literature and the research questions of this study that will be used to address these identified gaps.

Social Ecological Model

The Social Ecological Model (SEM) is a theoretical framework derived from a systems orientation to human development, specifically Ecological Systems Theory (EST), which was developed by Urie Bronfenbrenner, a well-known scholar in developmental psychology and human ecology (Golden et al., 2015; Rand et al., 2017; Tudge et al., 2016). Bronfenbrenner (1977, 1979) saw the ecological environment as a set of nested structures, each inside the next. Nested in the center of this environment is the immediate setting of the person (e.g., the home, classroom, workplace), however Bronfenbrenner (1979) recognized that a person's development also is impacted by events occurring in settings in which the person is not present. Bronfenbrenner's Ecological Systems Theory (Figure 1.) divided the social environment into four levels - micro, meso, exo and macro systems (McLeroyet et al., 1988; Sallis & Owens, 2015). He believed there was an interconnectedness between these four levels that created a whole which was greater than each individual level alone (Tudge et al., 2016).

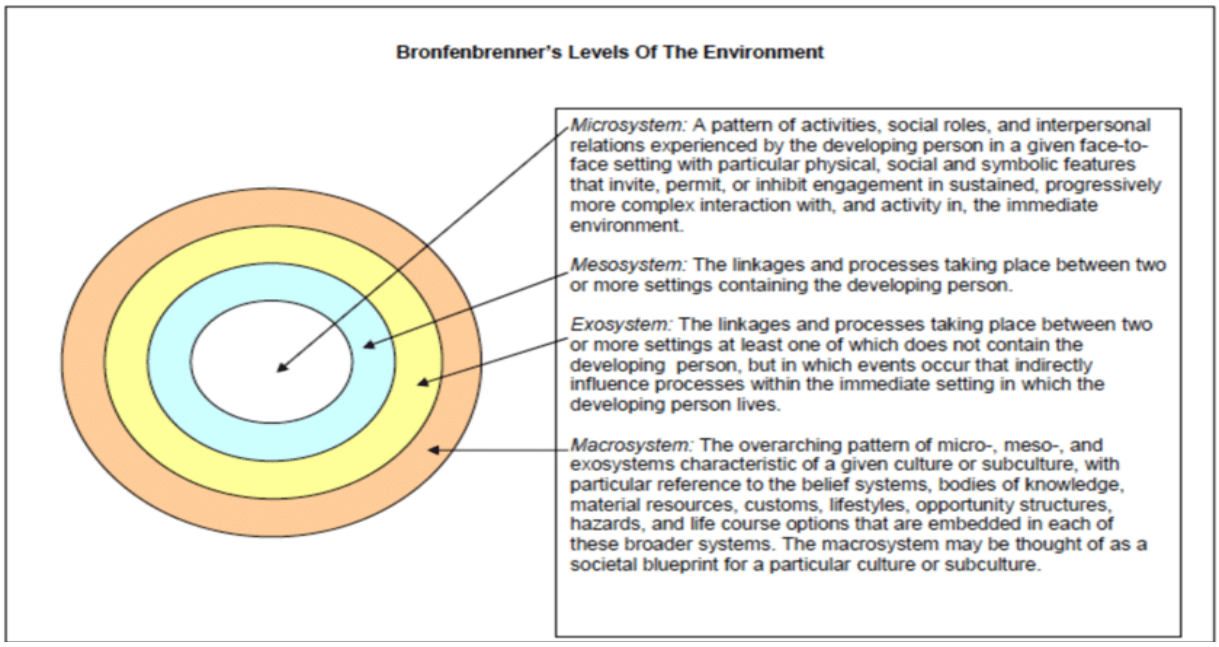

Figure 1. Retrieved from https://www.researchgate.net/figure/Bronfenbrenners-Social-Ecological-Model_fig1_326045514

Building on this ecological model of human development, McLeroy et al. (1988), proposed the SEM as an ecological model for health promotion. SEM has five environmental levels - intrapersonal, interpersonal, institutional, community and public policy (McLeroy et al., 1988; Rand et al., 2017; Sonderlund, 2017; Figure 2). The intrapersonal or individual level (microsystem), represents individual attributes such as race, age, income, education, knowledge, attitudes, beliefs and behavior (Ball et al., 2006; Kumar et al., 2012; McLeroy et al., 1988; Sonderlund, 2017). The interpersonal level (microsystem) consist of formal and informal social support systems and social networks such as family, friends, and coworkers (CDC, 2013; Ball et al., 2006; McLeroy et al., 1988; Ohri-Vachaspati et al., 2015). At the institutional level (exosystem) are social institutions with organizational characteristics such as health care organizations, law enforcement agencies, educational institutions, employment cites and religious institutions (CDC, 2013; Kumar et al., 2012; McLeroy et al., 1988). The community level

(mesosystem) reflects the collective social dynamics of the relationships that exist between entities at the institutional level (Kumar et al., 2012; McLeroy et al., 1988; Sonderlund, 2017). The policy level (macro) consist of local, state and national laws and policies (Golden & Earp, 2012; McLeroy et al., 1988).

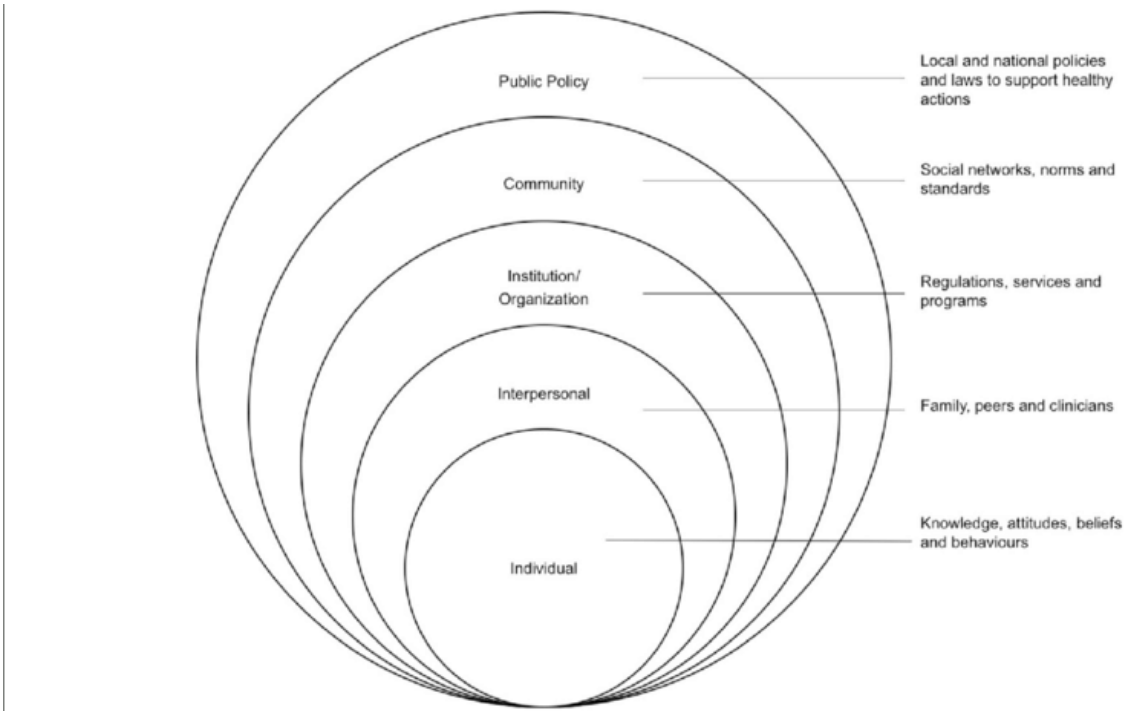

Figure 2. Retrieved from Zhong, A., Darren, B., & Dimaras, H. (2017). Ethical, social, and cultural issues related to clinical genetic testing and counseling in low- and middle-income countries: Protocol for a systematic review. *Systematic Reviews,6*(1). doi:10.1186/s13643-017-0535-2

SEM postulates that changes to the social environment produce change in the individual, and the support of individuals in the population is necessary for implementing environmental changes (McLeroy et al., 1988). In other words, when trying to understand the impact of the obesogenic environment on OW/OB among women with low incomes, it is not enough to examine the relationship between these women and their immediate social and physical environments. We must also consider their relationship with the institutional, community and policy levels (Figure 3). The following is a discussion of

the risk factors and trends outlined in the previous chapter relating to women with low incomes and the obesogenic environment from a socio-ecological perspective.

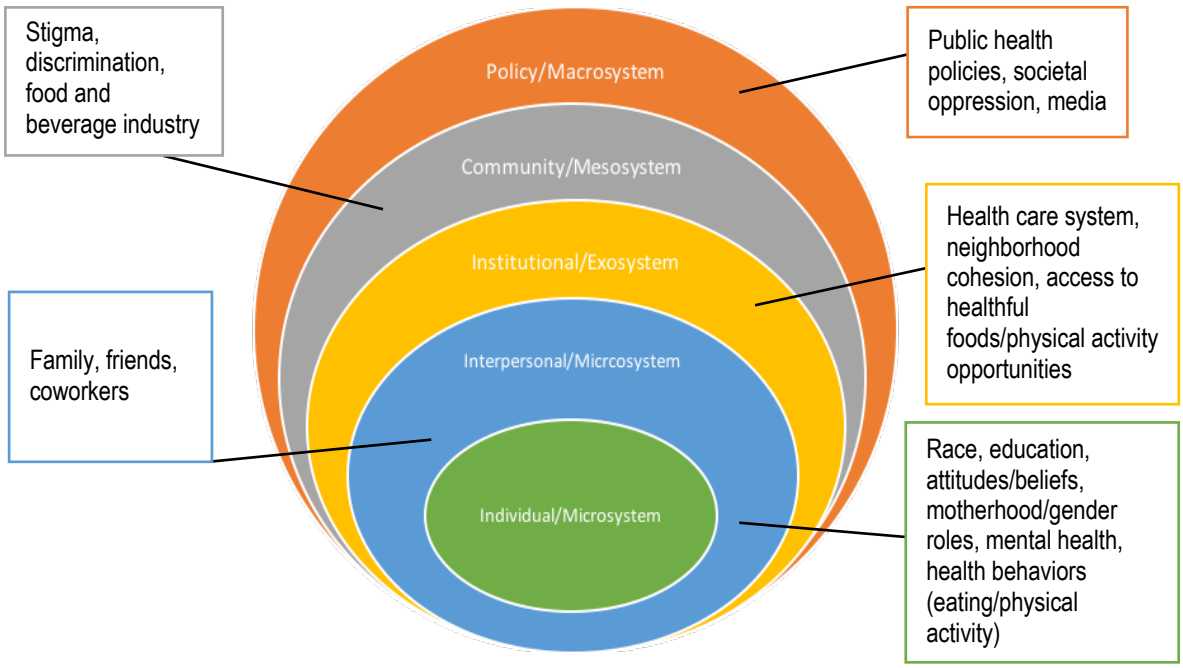

Figure 3. Social Ecological Model applied to social environmental factors influencing OW/OB among women with low incomes.

The Social Environment and OW/OB Among Women with Low Incomes

Throughout the literature addressing OW/OB among women with low incomes, low-income is generally defined as having a household income at a certain ratio of the federal poverty line (FPL; $\leq$185 - 200%), as this is the threshold for qualifying for most income based public assistance programs, including community health clinics (Bulchholz et al., 2012; Dammann & Smith, 2011; Chang et al., 2014; Ohri-Vachaspati et al., 2015). Women with low incomes experience OW/OB disproportionately compared to women with higher incomes primarily due to differences in eating behaviors and physical activity levels (Caldwell & Sayer, 2019; Dressler & Smith, 2013a, 2013b; Lovasi et al., 2009; Richardson et al., 2015; Soltero et al., 2015). These differences have been well explored

in the literature with several studies identifying poorer dietary habits such as lower fruit and vegetable intake and higher intake of foods high in fat, sugar, salt and calories, and lower levels of physical activity among women with low incomes compared to women with higher incomes as the most prominent difference (Ball et al., 2006; Lorts & Ohri-Vachaspati, 2016; Moore et al., 2008; Nguyen et al., 2014; Ogden et al., 2012; Ogden et al., 2017). To appreciate the complexity of OW/OB and why these differences in eating behaviors and physical activity levels exist, we must understand how behaviors among women with low incomes are influenced by the various levels of the social environment.

Intrapersonal Level Risk Factors

The following is a discussion of individual factors identified in the literature as influencing the eating behaviors and physical activity levels of women with low incomes and contributing to disparity in OW/OB prevalence.

Financial Resources. One of the more influential intrapersonal level factors on eating behaviors is income. Women with low incomes by virtue of their economic position have limited financial resources to obtain healthful foods. Healthful foods are defined as "foods that (a) are comprised of at least one of the major food groups (vegetables, fruits, grains, dairy, and protein foods) equal to at least half the portion size that the Dietary Guidelines for Americans 2010 uses for measuring the nutrients in that food, and (b) contain only moderate amounts of saturated fats, added sugars, and sodium" (Cooksey-Stowers, Schwartz & Brownell, 2017, p. 4). Less healthful or unhealthy foods are defined as "foods that are high in saturated fat, added sugar, and/or sodium, or that contribute little to meeting dietary recommendations" (Cooksey-Stowers et al., 2017, p. 4).

Studies related to eating behaviors of those who have trouble procuring food due to lack of financial resources, show that these women tend to forgo the purchase of healthful foods due to their higher prices in favor of more affordable, less nutritious foods in order to stretch their food budget (Mook et al., 2016). Women with low incomes who live with one or more adults and no children (7.7%), are married with children (9.5%) or live alone (13.9%), are less likely to be food insecure due to limited resources in comparison to low-income households headed by single women (30.3%; Coleman-Jensen et al., 2018).

Education. Studies examining OW/OB among women with low incomes have consistently shown an inverse relationship between BMI and education level (Caldwell and Sayer, 2019; Kim, 2016 ;Yu, 2016). Women with lower levels of education tend to have a higher prevalence of OW/OB. Education as a pathway for OW/OB has been linked to its indirect effects on eating behaviors and physical activity levels. Education impacts employment opportunities and income. These three components are often used to define one's socioeconomic status (SES; Moore et al., 2008; Moore & Cunningham, 2012; Stamatakis, 2009). People with lower SES tend to live in neighborhoods where barriers to healthful eating and physical activity opportunities exist, contributing to less healthful eating behaviors and lower levels of physical activity compared to people with higher SES (Caldwell & Sayer, 2019). Women with low incomes have been shown to have lower levels of nutritional knowledge compared to their higher income counterparts. A study by Cannoosamy et al., (2014) found that lower levels of education was associated with lower levels of understanding nutritional labels, awareness of nutritional issues and overall nutritional knowledge.

Attitudes and Beliefs. Attitudes and beliefs toward healthful eating and physical activity has been identified in the literature as intrapersonal level variables that influence these behaviors. Studies have shown that people with positive attitudes or beliefs about healthful eating and physical activity are more likely to engage in these behaviors (Baruth et al., 2014; Chapman et al., 2017; Chevance et al., 2017). Studies on attitudes and beliefs that include women with low incomes have shown that women with low incomes tend to select foods based on taste and cost, and associate walking with transport versus physical activity for health purposes (Ball et al., 2006; Dlugonski et al., 2017; Vilaro et al., 2016). A study comparing food choice priorities between women with low incomes and those with higher incomes found that women with higher incomes most frequently listed "health" as the primary reason for their food selection, whereas those with lower incomes a number of competing priorities which included (in order of priority) taste, convenience, family history, price and health (Vilaro et al., 2016).

A study examining intrapersonal influences on physical activity levels of women from low, mid and high income backgrounds, found that low-income were more likely to associate physical activity (e.g., walking or cycling) with daily tasks such as to traveling to work, compared to women from higher income backgrounds who associated these activities with leisure. The study also found that low-income tended to have a more negative attitude toward walking than women with higher incomes, some low-income described walking as unenjoyable when they were children because they had to walk everywhere they went as it was their only mode of transportation. They also described often being discouraged from walking during childhood. This reported discouragement may be related to their parents trying to maintain safety in unsafe neighborhoods by

closely monitoring their whereabouts. Regardless of income background, time was a barrier to physical activity, albeit for different reasons depending on income. Women with higher incomes believed physical activity interfered with their time with their families and were more likely to report scheduling physical activity, whereas women with low-incomes believed physical activity interfered with their inflexible work schedules or interfered with their downtime for relaxing. Additionally, television viewing was most popular among low-income as a form of leisure activity.

These findings suggest that not viewing physical activities such as walking as a leisure activity may contribute to women with low incomes not engaging in physical activity during leisure time (i.e., "downtime"). However, it is important to note that literature reporting lower levels of physical activity for women with low incomes compared to those with higher incomes may be misinterpreted as physical inactivity among women with low incomes. In other words, studies that may inadvertently confound leisure physical activity and routine physical activity, may not be capturing the physical activity of women with low incomes since they do not view activities such as walking as leisure activities.

Motherhood. Women with low incomes with children present in the home, are more likely to have OW/OB weight statuses than women with low incomes with no children and single mothers are more likely to have OW/OB weight statuses than mothers who are married or cohabitating (Martin & Lippert, 2012). One in three single mothers live in poverty (Tucker & Lowell, 2016). Because women with low incomes tend to engage in less healthful eating behaviors than higher income women, they tend to have higher levels of excess gestational weight gain (GWG) and are at greater risk of

postpartum weight retention (Baruth et al., 2014; Buchholz et al., 2014, Huffman & McKenna, 2014; Chang et al., 2008; Nunnery et al., 2017; Uribe & Olson, 2018). A study of postpartum weight retention among women with diverse income backgrounds, showed that women with incomes <200% of FPL (77%) were more likely to retain 20 pounds or more at one year postpartum compared to women with incomes ≥200% of FPL (23%; Endres et al., 2015). These numbers include women who were of a healthy weight prior to pregnancy. These higher levels of GWG and postpartum weight retention among low-income mothers may be an indication of how pregnancy and motherhood can exacerbate already poor eating and physical activity habits.

Beyond eating behaviors and weight gain associated with pregnancy, women with low incomes have reported time constraints related to caring for children as a barrier to cooking healthy meals and engaging in physical activity as well as emotional eating related to the stress of daily life (Chang et al., 2008; Uribe & Olson, 2018). Emotional eating entails using food, usually comfort or junk foods) to alleviate negative emotions or to heighten the sensation of positive emotions (Soffin & Batsell, 2019). Low-income mothers have limited access to childcare outside of the home due to financial constraints compared to mothers with higher incomes (Uribe & Olson, 2018). Additionally, when childcare is available, low-income mothers are more likely to report experiencing higher levels of maternal separation anxiety compared to mothers with higher incomes (Cooklin et al., 2013). Additionally, low-mothers have to juggle the many roles often associated with being head of the household such as working to provide for the family, and for some, caring for other family members in addition to their own children (Baruth et al.,

2014; Buchholz et al., 2012; Hemmerlein & Clark, 2015) making it difficult to find time to engage in physical activity beyond that associated with their daily routines.

Because the presence of children in the home and being responsible for their care has an influence on eating behaviors and physical activity, this dissertation conceptualizes motherhood as being a primary caregiver of children (ages 0-17) living in the home. Broadening the scope of motherhood to include women who may not be the biological parent (e.g., stepmother, grandmother, aunt, adult friend), acknowledges that the eating behaviors and physical activity of these women are also impacted by having children present in the home.

Stress. Stress has been shown to be positively associated with unhealthy eating behaviors in women with low incomes, especially those with children present in the home (Chang et al., 2008; Moore & Cunningham, 2012; Richardson et al., 2015). Stress provokes emotional and uncontrolled eating behaviors, leading to overeating (Richardson et al., 2015). It may also contribute to physical inactivity (Food Research and Action Center, 2019). While stress can occur across all income levels, women with low incomes may experience high levels of stress associated with psychosocial factors such as the financial and emotional strain of food insecurity, low-wages, lack of access to health care, inadequate transportation, poor housing, neighborhood violence, and other factors (FRAC, 2019).

While women with higher incomes generally experience less stress (Moore & Cunningham, 2012), women with low incomes are exposed to chronic psychosocial factors such as those mentioned above. This is significant with regard to stress as it has been found to be associated with OW/OB independent of eating behaviors (Martin &

Lippert, 2012; Richardson et al., 2015). Chronic stress can cause secretion of stress hormones which has been linked to greater storage of fat around the abdomen (Mayne et al., 2018).

Race and Ethnicity. Hispanic women and African American women have higher levels of OW/OB in comparison to non-Hispanic whites and Asians (USDHHS, 2017). This is not surprising as race/ethnicity is highly correlated with income in the U.S, with racial/ethnic minorities disproportionately represented in the low-income population (Nguyen et al., 2014). Race and ethnicity have been identified as intrapersonal factors impacting eating behaviors and physical activity (Acheampong & Haldeman, 2013; Hernandez et al., 2017; Mastin et al., 2012; Robinson, 2008; Sonderlund, 2017). These differences in health behaviors are likely indicative of higher level societal structures such as housing segregation contributing to racial/ethnic minorities being overrepresented in low-income neighborhoods (Hastings & Snowden, 2018) ultimately impacting their eating behaviors and physical activity levels. These higher level societal structures will be discussed later in the chapter.

Sexual Orientation. Having a low income may be a pathway to having OW/OB weight statuses among women who identify as a sexual minority. Women who identify as sexual minorities (e.g., lesbian or bisexual) have a higher prevalence of poverty compared to women who identify as heterosexual (Badget et al., 2013). A study conducted by the Williams Institute (University of California Los Angeles) examined data from four different national and state level data sets to estimate the prevalence of poverty based on sexual orientation. The results showed that women living alone who identified as "LGBT" (lesbian, gay, bisexual, transgender) had a higher prevalence

(21.5%) of poverty compared to women living alone who identified as "not LGBT" (19.1%; Badget et al., 2013). When examining the data based on specific sexual orientation identities, bisexual women (29.4%) had the highest prevalence of poverty in comparison to women who identified as lesbian (22.7%) or heterosexual (21.1%; Badget et al., 2013).

The higher prevalence of poverty for women who identify as sexual minorities may be a contributing factor to sexual orientation being recognized as a risk factor for OW/OB. Income related risk factors such as food insecurity and limited access to recreational opportunities, which will be discussed later, negatively impact eating and physical activity behaviors. Additionally, a review of the literature indicates that minority stressors like discrimination, internalized homophobia, concealment of identity and body dissatisfaction have been associated with increased binge eating among women who identify as sexual minorities (Mason & Lewis, 2015). Although some studies have suggested that being a sexual minorities may protect against body shame due to having a different standard of beauty (e.g., more accepting of larger body types), other studies have found no difference in levels of body satisfaction between women who identify as sexual minorities and those who identify as heterosexual (Cohen & Tannenbaum, 2001; Mason & Lewis, 2015; Moreno-Domínguez et al., 2019 & Yean et al., 2013). Studies have shown that women who identify as sexual minorities are more likely to have OW/OB weight statuses compared to women who identify as heterosexual (Boehmer et al., 2007; Dyar et al., 2018; Gonzales & Henning-Smith, 2017). For example, a study examining health disparities by sexual orientation using data from the national health survey Behavioral Risk Factor Surveillance System found that women who identified as

lesbian (1.25) or bisexual (1.83) were more likely to have an obese weight status than women who identified as heterosexual (Gonzales & Smith, 2017).

Trauma. Trauma is yet another intrapersonal risk factor that may increase the risk of women with low income having OW/OB weight statuses. Women from low income backgrounds are more likely to have had traumatic life experience during childhood compared to women with higher incomes (Halfon et al., 2017). A study examining adverse child experiences (ACEs) based on income levels found that children who live in families below the FPL were more than three times more likely to have $\geq$2 ACEs and five times more likely to have $\geq$4 ACEs compared to those who live in families at or above 400% of the FPL (Halfon et al., 2017). Disproportionally experiencing trauma is not limited to childhood for this population. Women with low income also disproportionately experience trauma via intimate partner violence and exposure to neighborhood violence during adulthood compared to women with higher incomes (Hill et al., 2007; Sacket 2016)

Women with histories of traumatic life experiences are at greater risk for having OW/OB weight statuses (Brewerton et al., 2015; Dedert et al., 2010; Kubzansky et al., 2014). This is likely due to the impact of trauma on eating habits. Studies have shown an association between trauma and unhealthy eating habits such as emotional eating and binge eating to manage the emotions (Mason et al., 2014; Meyer & Stanick, 2018; Ruffault et al., 2018). Given the poorer eating habits associated with income for this population, experiencing trauma may only serve to increase unhealthy eating habits among women with low incomes, increasing their risk of having OW/OB weight statuses.

Interpersonal Level Risk Factors

The ability of informal social support networks to mitigate the various risks associated with being a low-income woman is not well understood. Some studies indicate that low-income mothers frequently depend on informal social support networks to meet their needs (Chang et al., 2011; Rady & McWey, 2019). Yet other studies on OW/OB among women with low incomes have shown low-income mothers to report a lack of social support as a barrier to healthful eating and engaging in physical activity, particularly single mothers who have higher levels of social isolation (Baruth et al., 2014; Buchholz et al., 2012; Taylor & Conger, 2017).

Social Networks as a Risk Factor. Women with low incomes' attitudes and beliefs regarding healthful eating and physical activities, and, by extension, their eating and physical activity, may reflect the influence of multiple levels of the social environment. According to Emmons et al., (2007), attitudes and beliefs about health are shaped by life experiences, social relationships, organizational structures, and societal influences. Given the high prevalence of OW/OB among women with low incomes, it is highly likely that the support system of these women is composed of friends, family members and others in the community who have OW/OB weight statuses, as people living in the same area are more similar than people living in other areas (Shuz, 2017). Additionally, different social classes or peer groups develop different lifestyle norms and health standards (Kim, 2016). Social networks earlier in life (e.g., parents) can also influence the current attitudes toward physical activity. In Ball et al., (2006), women with low incomes were less likely to have grown up in an environment where their parents were perceived to be physically active in comparison to women with higher incomes.

Studies have shown that women with low incomes have identified multiple barriers to healthful eating and engaging in physical activity within their immediate social environment. Examples of barriers include partners or other family member being unwilling to eat healthful food; unsupportive family, friends or coworkers encouraging them to eat more and telling them they do not need to lose weight; being the caregiver for multiple people (i.e., children, parents, spouse, siblings or grandchildren); not having a workout partner; and emotional abuse associated with weight by a partner (Baruth et al., 2014; Buchholz et al., 2012; Dlugonski et al., 2017; Uribe & Olson, 2018).

Institutional Level Risk Factors

The institutional level reflects the interrelationship between women with low incomes and resources (or lack thereof) beyond their immediate social network (i.e., family, friends coworkers). At this level we examine the larger social setting outside of the home that impact the eating and physical activity behaviors of women with low incomes, such as the neighborhood food environment, opportunities for physical activity, and health care providers.

Neighborhood Food Environment. Two factors in the neighborhood food environment influencing the behaviors of women with low incomes are food insecurity and food deserts. These two factors greatly impede the ability of women with low incomes to engage in healthful eating.

Food Insecurity. Food insecurity is defined as the limited ability to access affordable healthful foods due to limited financial resources (e.g., income or public benefits) and/or limited access to full service grocery stores (i.e., food desert) at some time during the year (Ashe & Lapane, 2018; Coleman-Jensen et al., 2018; Hernandez et

al., 2017; Larson & Story, 2011; Ro & Osborn, 2018). Food insecurity as it relates to limited resources was addressed as an intrapersonal risk factor. This section will discuss food insecurity with regard to the physical food environment.

Eating behaviors are often the point of interest in the literature addressing OW/OB among women with low incomes, and it is rare that these articles do not list food insecurity as having a significant influences on these behaviors (Beydoun & Wang, 2010; Dressler & Smith, 2013b; Hillier et al., 2011; Larsen & Story, 2011; Robaina & Martin, 2013; Zhang et al., 2011). Multiple studies have shown an association between food insecurity, due to limited availability of healthful foods, and OW/OB among women with low incomes (Franklin et al., 2012; Hernandez et al., 2017; Ivers & Cullen, 2011; Larson & Story, 2011; Sullivan et al., 2009). These studies have found that women with low incomes who are food insecure are more likely have OW/OB weight statuses compared to women with low incomes who are food secure and low-income men regardless of food security status. Race and ethnicity are interpersonal risk factors for food insecurity as studies have shown that a greater number of black and Hispanic women are food insecure compared to white women due to limited availability of healthful foods (Burke et al., 2018; Hernandez et al., 2017). Additionally, women with low incomes who utilize food pantries as a means of obtaining food are exposed to foods that are generally of poor nutritional quality (Robaina & Martin, 2013).

In addition to impacting eating behaviors by limiting access to healthful foods, lack of availability of healthy foods leading to food insecurity has been shown to be a contributor to stress among women with low incomes, which we know also negatively impacts their eating behaviors (Dinour et al., 2007). This is especially true for low-

income mothers. One study found a significant association between food insecurity and OW/OB among low-income mothers but not women with low incomes with no children and found that low-income single mothers were more likely to be food insecure than women with no children or mothers who are married or cohabitating (Martin & Lipper, 2012).

Food Deserts/Food Swamps. Food deserts are an institutional level risk factor for OW/OB among women with low incomes as they offer limited opportunities for purchasing healthful foods (Dubowitz et al., 2015; Freedman et al., 2019; James et al., 2017). While access to full service grocery stores are limited in low-income neighborhoods, studies have shown an overabundance of convenience and fast food outlets (Cooksey-Stowers et al., 2017; Hager et al., 2017). Some studies have postulated that this overabundance of convenience and fast foods, also referred to as food swamps, is more of a predictor of OW/OB than food deserts (Cooksey-Stowers et al., 2017). Studies have found that low-income neighborhoods' have more fast food restaurants and a quicker rate of growth of fast food restaurants in comparison to their higher income counterparts (Cooksey-Stowers et al., 2017; James et al., 2017). These findings may explain why efforts to increase access to healthful foods and increase nutritional knowledge in low-income populations can lead to increased fruit and vegetable intake but not lead to improved overall diet quality (Cummins et al., 2014; Molitor et al., 2016).

Neighborhood Physical Activity Environment. Given their disparate access to healthful foods in comparison to less healthful foods, the physical activity habits of women with low incomes could play a crucial role in lessening the impact the consumption of excess calories has on their weight. However, a review of the literature

indicates that women with low incomes engage in less physical activity compared to their higher income counterparts due in part to low-income neighborhoods having less green spaces, commercial health clubs, public recreational facilities, neighborhood walkability, and higher levels of crime compared to higher income neighborhoods (Ball et al., 2006; Baruth et al., 2014; Dlugonski et al., 2017; Lovasi et al., 2009; Moore et al., 2008; Shelton et al., 2011; Suglia et al., 2016). These risk factors associated with limited access to physical activity and healthful foods opportunities may inadvertently send the message to women with low incomes that physical activity and healthful eating are not important.

Healthcare Providers. Another institutional level influence on the health information low-income receive is their relationship with the health care providers. Primary care physicians (PCP) can be a risk factor for OW/OB when appropriate information is not shared with regard to healthful eating behaviors and recommended physical activity levels. For instance, a study exploring the relationship between PCP's advice and the eating behaviors of low income adult participants with OW/OB weight statuses (83% female) found that PCP's advice was positively related to increased fruit and salad consumption (Lorts & Ohri-Vachaspati, 2016). However, in this same study, of the 548 low income respondents with OW/OB weight statuses who participated, only 48% received advice to lose weight from the PCP, which is less than what was reported in a similar study (67%) that had higher portions of white participants and high incomes than the participants in this study (Lorts & Ohri-Vachaspati, 2016). The findings suggest that women with low incomes may be given the impression that their weight is healthy and that they are not at risk of potentially developing weight-related health complications.

Weight stigmatization is pervasive throughout all levels of the social environment, including among healthcare providers. Within the literature is evidence that healthcare providers are one of the most frequent sources of weight stigmatization, creating an atmosphere of weight bias in the healthcare industry (Puhl et al., 2013b). This bias is seen in the implicit message by the health care industry that weight equals health. According to Mann et al., (2016), with the exception of those with Class III obesity (BMI ≥40), weight is an inadequate measurement of health because one's health can be improved through physical activity, maintaining proper nutrition and reducing stress, even if no weight loss occurs. Healthcare providers may demonstrate weight stigmatization toward women with OW/OB weight statuses regardless of their income backgrounds. However this stigmatization may be conflated with stigmatization associated with women with low incomes having poorer health outcomes compared to their higher income counterparts. In other words, the study mentioned above with regard to women with low incomes with OW/OB weight statuses being less likely to receive advice about healthful eating than higher income women with OW/OB weight statuses may be an example of the interplay between weight stigma and poverty related stigma. Healthcare providers who perceive weight as an indication of health, who are aware of the poorer health outcomes for women with low incomes compared to women with higher incomes, may believe it is pointless to address this issue of weight with this population.

Community Level Risk Factors

At the community level exists societal norms, cultural beliefs and mega establishments that result from the dynamic relationships that exist between

organizational level institutions. Societal level norms and cultural beliefs influence the policy level and the lower levels of the social environment. The following is a discussion of how the community level of the social environment impacts the eating and physical activity behaviors of women with low incomes by promoting stereotypes and promoting an obesogenic environment.

Stigma. Women with low incomes have identified internalizing weight stigma as a barrier to engaging in healthful behaviors (Chang et al., 2008; Puhl, Himmelstein & Quinn, 2018). There is a large body of literature addressing the issue of weight stigmatization in the U.S. (Carels et al., 2013; Nolan & Eschleman, 2016; Puhl, Peterson & Luedicke, 2013a, 2013b; Rudolph & Hilbert, 2017; Shentow-Bewsh et al., 2016; Young, Subramanian & Hinnant, 2016). Throughout the literature, weight stigmatization is described as negative societal attitudes that promote undesirability, devaluation, and denigration based on weight, leading to discrimination and unfair treatment (Carels et al., 2013; Nolan & Eschleman, 2016; Rudolph & Hilbert, 2017; Shentow-Bewsh, Keating & Mills, 2016; Sutin, Robinson & Daly, 2016; Young, Subramanian & Hinnant, 2016).

Weight stigmatization perpetuated by negative images and language used in anti-obesity public health campaigns and misinformation spread through multiple media platforms adds yet another layer of external barriers to women with low incomes engaging in healthful behaviors. Compared to women with higher incomes, weight stigma creates an additional burden on low-come women as it reinforces the power of the previously identified risk factors that promote OW/OB within this population (e.g., food insecurity's negative influence on eating behaviors). For example, weight stigma increases unhealthy food choices among an already limited set of food options. It also

encourages poor eating and physical activity habits. Research findings on the impact of stigmatization on OW/OB indicate that stigmatization increases disordered eating such as binge eating, predicts exercise avoidance, and causes psychological distress, depleting the mental resources needed to manage health related behaviors (Mann et al., 2015; Nolan & Eshleman; Sutin et al., 2016; Shentow-Bewsh et al., 2016, Puhl et al., 2013a, 2013b). Sutin et al. (2016), studied the association between unhealthy eating-related behaviors and weight discrimination and found that discrimination was associated with overeating convenience foods and irregular eating. The findings from this study suggests that increases in food intake (especially food with low nutritional value) may be a pathway for weight stigmatization to increase risk of OW/OB.

Other forms of stigma, beyond weight-related stigma, also increase the likelihood of eating foods with little nutritional value (Nolan & Eshleman, 2016). For instance, women with low incomes are also at risk of experiencing stigmatization related to their income status, motherhood and race. OW/OB carriers a moral burden of blame and responsibility as OW/OB as seen as self-inflicted, much like poverty (Warin & Gunson, 2013). Increasing this burden even more is the public misperception of women with low incomes having children for the sake of receiving public benefits. The role of race adds yet another layer of stigma to low-income mothers of color who received the derogatory label of "welfare queen" in the 1970's (Gilman, 2014; Kohler-Hausmann, 2007). Additionally, the literature reveals that stereotypes such as laziness and lack of motivation to work are both associated with people's perceptions of OW/OB, poverty and non-white racial and ethnic groups (Durante & Fiske, 2017; Ellis et al., 2014; Shentow-Bewsh et al., 2016).

The essence of stigma is to blame the victim for their circumstance, while ignoring their environment. For instance, neighborhood safety concerns may limit physical activity among women with low incomes. Lack of safety associated with high crime rates in low-income neighborhoods though experienced at the micro level, is the result of the interrelationships of higher social environmental levels. For example, societal views of high crime rates in low-income neighborhoods tend to be "victim blaming." In other words, there is the misconception that poverty is the result of criminal behaviors instead of the other way around. These societal views influence and are influenced by public policies that address crime and poverty. For instance, several states have recommended legislation that would require drug testing for all participants, regardless of substance use history, in order to receive certain public benefits such as the Supplemental Nutritional Assistance Program (SNAP; Palacio, 2017). This change in policy has the potential to increase the prevalence of OW/OB for people that struggle with food insecurity. Furthermore, states that have instituted such policies for cash assistance participants have found drug testing to be costly and ineffective addressing drug use (Palacio, 2017). Polices such as this are driven by and encourage stereotypes associated with low-income populations.

Food and Beverage Industry. Although the effects of food insecurity, food deserts and food swamps are primarily experienced at lower levels of the social environment, they are the result of factors originating in higher social environment levels like the community level. The food and beverage industry is composed of a vast amount organizations such as mega agribusiness companies (e.g., Cargill); food selling companies like Kraft, which owns other food companies such as Nabisco; and restaurant

companies like Yum!, which owns Pizza Hut, Taco Bell, KFC and more (Brownell & Warner, 2009). Then there are the associations that represent various aspects of food and beverages such as the Snack Food Association, National Beverage Association, Sugar Association, and Corn Refiners Association (Brownell & Warner, 2009). The practices of this mega establishment makes it a significant influence on the neighborhood food environment of women with low incomes.

The number of convenience and fast food retail establishments in low-income neighborhoods and the lack of full service grocery stores is an example of the food and beverage industry's influence as the locations of these establishments fall under its purview. Furthermore, the industry has been shown to specifically target low-income, and racial and ethnic populations with advertisements for sugar sweetened beverages and fast food (Powell et al., 2014; Yancy et al., 2009).

Policy Level Risk Factors

Social welfare, public health, and economic policies have inadvertently contributed to the disproportionate prevalence of OW/OB among women with low incomes. The following is a discussion of examples of these policies and their impact OW/OB among women with low incomes.

Financial Impact. At the policy level, laws and regulations impact the monthly income of women with low incomes, (e.g., minimum wage, SNAP allotment, and cash assistance).

Minimum Wage. According to the U.S. Department of Labor (2019), the current federal minimum wage for the U.S is $7.25 per hour. Working fulltime, a women with low incomes living alone would be just $2590 over the FPL and low-income mothers

would remain below it (USDHHS, n.d.). Some states have elected to have a higher minimum wage, with highest state minimum wage being $12 per hour (U.S. DOL, 2019). Though the wage is increased it can inadvertently place a financial strain on women with low incomes living alone and low-income mothers with one child who work fulltime, as it knocks them out of the range for qualifying for public benefits such as SNAP. Depending on necessary monthly expenses (e.g. housing, food, health insurance, childcare and transportation) these women may still experience food insecurity, thus impacting their ability to engage in healthful eating.

SNAP Benefits. While minimum wage has been adjusted by some states to accommodate variations in cost of living across the country, monthly SNAP allotments are based on income and family size. With the exception of Hawaii and Alaska, there is no variation in the allotment based on geographic locations (Center on Budget and Policy Priorities, 2018). This means that women with low incomes living in areas with higher food prices do not fare as well as those living in areas with more moderate food prices.

The policy level also determines when SNAP benefits are delivered which impacts the eating behaviors of women with low incomes. Monthly food benefits are delivered at the beginning of each month but generally do not last for the whole month, creating a situation of "feast or famine" in a food insecure household. For instance, benefits are often spent rapidly during the beginning of the month with an average of 59% being spent within the first week of issuance; a quarter of all households exhaust benefits within the week (Hamerick & Andrews, 2016). With benefits not lasting throughout the month, women with low incomes engage in chaotic eating patterns such as

skipping meals and/or reducing the size of meals to accommodate for less food availability (Dinour et al., 2007).

With regard to monthly benefit cycle, there is an association between changes in food pricing and the receipt of monthly SNAP benefits. A study conducted in Nevada on SNAP participants' spending throughout the benefit cycle, found that food prices changed throughout the month, with prices being higher at the beginning of the month when benefits are issued (Hastings & Washington, 2010). At the beginning of the month there is an increase in demand at grocery stores. The food and beverage industry responds by adjusting food prices with minimal oversight by the federal government. The lack of oversight on the food and beverage industry is believed to be the result of the structural density of the industry which has transformed it into a financial juggernaut. The literature indicates, that the food and beverage industry uses it financial power to influence public health policies related to food, through spending millions of dollars to influence policy makers through lobbying and direct contributions to policy makers (Aaron & Siegel, 2017; Gostin, 2016).

Cash Assistance. The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 ended long term cash assistance to families and replaced it with a time limited, cash assistance program with a work requirement. This change in policy contributed to the percentage of unemployed low-income single mothers with no access to cash to increase from 12% in 2004 to 20% in 2008 and eligible families for cash assistance dropped from 68% in 1996 to 23% in 1997 (Rady & McWey, 2019). These changes not only impacted the monthly income, but it also created an increased reliance on informal social networks by low-income mothers. These changes in public welfare

policies did not translate into increased social capital for low-income mothers, putting a strain on the social network and its ability compensate for the decrease in support provided by the government.

Reinforcement of stigmatization. In 1964, President Lyndon B. Johnson declared a war on poverty (Gallaway & Garrett, 2016) and in the mid-nineties, the U.S. Surgeon General declared war on obesity (Herdon, 2005). These declarations of "war" have created an atmosphere of contention instead of compassion for both of these marginalized groups. And in both cases, policies created to address OW/OB and poverty generally targeted individual behaviors and not the socio-environmental issues factors that fuel OW/OB and poverty among women such as economic disparity and the oppression of women and racial/ethnic minorities (Bilger et al., 2016; Bowleg, 2012).

Summary

The interrelationship between risk factors that exist throughout multiple levels of the social environment have contributed to the current obesogenic environment having a more severe impact on women with low incomes. While risk factors at the intrapersonal and interpersonal levels have been well studied, and to some extent the institutional level, the role of the community and policy levels in contributing to the disproportionate prevalence of OW/OB among low-women have received less attention. As a result, interventions to address the OW/OB prevalence among women with low incomes have generally targeted their behaviors and their immediate food environments (e.g., placing farmer's markets in low-income neighborhoods, without making needed changes at higher levels of the social environment that would support positively reinforce changes at the lower levels.

There does not appear to be any meaningful changes on the horizon to correct the obesogenic environment or the burden it places on women with low incomes. Therefore, it is necessary to understand what protective factors currently exist among women with low incomes that minimize the burden of the current obesogenic environment. Despite the disproportionate prevalence of OW/OB within this population, most of these women do not have an obese weight status not OW/OB, and some women who do have OW/OB statuses have had success with engaging in healthful behaviors to lose weight, though exposed to the same environment. To develop a more robust understanding of these protective factors, this dissertation will also utilize Resilience Theory to explore OW/OB related to health behaviors among women with low incomes.

Resilience Theory

A central argument of the ecological approach is that individuals develop within the context of their social environment (Maring et al., 2012). Resilience theory (RT) will be used to examine protective factors within the social environment that influence the strength of the relationship between risk factors unique to OW/OB among women with low incomes such as food insecurity, motherhood and limited access to physical activity opportunities. Though a key condition of resilience is the existence of both risks and promotive factors that either help bring about a positive outcome or reduce or avoid a negative outcome, RT is focused on strengths rather than deficits (Fergus & Zimmerman, 2005). RT rejects the traditional notion that resilience is a static, individual trait that is either present or not present in the individual (Fergus & Zimmerman, 2005; Southwick et al. 2014). Instead, it views resilience as existing on a continuum that may exist in varying degrees across multiple domains of life, drawing on individual, social and contextual

variables to overcome the negative effects of risks exposure (Fergus & Zimmerman, 2005; Southwick et al., 2014; Unger et al., 2013; Zimmerman, 2013).

Three models of resilience have been identified - compensatory, protective, and challenge (Fergus & Zimmerman, 2005). In the compensatory model, promotive factors counteract the risk factor and have a direct effect between the promotive factor and the outcome, independent of the risk factor (Fergus & Zimmerman, 2005). The challenge model reflects an association between a risk factor and an outcome that is curvilinear, signifying that exposure to low levels and high levels of a risk factor is associated with negative outcomes, whereas moderate exposure to risks is related to less negative, or positive outcomes (Fergus & Zimmerman, 2005). This study will utilize a protective model, in which a protective factor reduces the effects of a risk factor on a negative outcome (Fergus & Zimmerman, 2005; Zimmerman et al., 1999), since this the focus. Risk factors are individual or environmental characteristics that increase risk for negative outcomes, while protective (i.e., resilience) factors are those characteristics that mitigate the influence of the risk factor or decrease the risk (Maring et al., 2012). For example, having a low-income background is a risk factor that increases a woman's chance of developing OW/OB weight statuses; having access to appropriate health care is a protective factor that has been found to mitigate the impact of a low-income background on developing OW/OB statuses (Banerjee, et al., 2018b).

It is important to understand that protective factors may operate in one circumstance and not another and in some circumstances a protective factor could be a risk factor (Zimmerman et al., 1999). For instance, while having access to food pantries may be a protective factor against food insecurity for women with low incomes, however

the low nutritional quality of foods offered at food pantries could be seen as a risk factor for OW/OB (Robaina & Martin, 2013). Furthermore, in a study examining internalization of weight stigmatization, it was discovered that African American women were less likely to internalize weight stigmatization compared to white women (Himmelstein et al., 2017). Though race may be a protective factor for African American women with regard to internalizing weight stigmatization, it can also be a risk factor with regard to stigmatization associated with poverty and race. Therefore, in order to develop appropriate strength based OW/OB prevention and intervention strategies tailored toward women with low incomes, it is necessary to identify protective factors that are unique to their social environments.

Social Environment Protective Factors

The focus of literature addressing OW/OB among women with low incomes has mainly been risk factors and these studies have been limited to the micro and meso levels of the social environment. As a result there is limited information in the literature with regard to the exo and macro levels of the social environment and their impact on OW/OB among women with low incomes. Because of these limitations within the literature studies examining resilience and childhood OW/OB were also examined. The connection between childhood OW/OB and adulthood OW/OB is clear (Wang, Chyen et al., 2008; Pachucki et al., 2014). In addition, women are often the head of the household in low-income families (U.S Census Bureau, 2018a). Therefore, findings from these studies could be relevant addressing OW/OB among women with low incomes. While this search also found limited results, the study findings did identify protective factors that could be transferrable to addressing adulthood OW/OB among women with low incomes.

Intrapersonal Level Protective Factors

With regard to eating behaviors, studies have shown that among women with low incomes, those with higher levels of education tend to make more healthful food choices, such as consuming more fruits and vegetables (Ball et al., 2011; Prus, 2011). A study comparing social determinants of health across the U.S. and Canada found a stronger effect of income on health in Canada and that of education in the U.S. (Prus, 2011). These findings suggest that while income and education are correlated, education represents acquisition and interpretation of health information, enabling individuals to have a better understanding of health-related behaviors and making healthier choices (Prus, 2011). Similarly, it has also been found that those with higher levels of nutritional knowledge also tend to eat more healthful foods (Dressler & Smith, 2013a).

Individual motivation has also been identified as a protective factor against OW/OB among women with low incomes. Among low-income mothers, being motivated to be good role models for their children with regard to healthful eating has been identified as a resilience factor (Chang et al., 2008). Motivation as protective factor is not limited to mothers, as studies have found that women with low incomes have reported being motivated by diagnoses such as diabetes to lose weight or in some cases having a family history of certain weight related diagnosis (e.g., diabetes, hypertension) has been a motivating factor identified by women with low incomes (Buchholz et al., 2012).

Interpersonal Level Protective Factors

Social networks are reciprocal and change over time. Women with low incomes must give and receive within the context of their social networks, creating a dynamic where at times the social network can be a burden, while other times it is a source of

support (Rady & McWey, 2019). Aspects of the social network that may serve as resilience factors for women with low incomes against OW/OB include size of the network, and cohesion within the network, such as strong sense of family cohesion (Shelton et al., 2011; Speirs et al., 2016). For example, a study exploring family sense of coherence as a protective factor against the obesogenic environment for low-income preschoolers, showed that families with a strong sense of family coherence were more likely to practice healthful behaviors (Speirs et al., 2016). This is an indication that these families may be better able to secure resources to meet the needs of the family and be better able to manage stressful situations, allowing them more energy to focus on healthful behaviors such as meal preparation and family mealtime (Speirs et al., 2016). This may explain why low-income married or cohabitating mothers are less likely to have OW/OB weight statuses compared to low-income single mothers.

For low-income single mothers, a study by Lappan et al. (2019) found that they described their social network as a source of support for coping with stress as they had someone to talk to about their problems instead of "keeping it bottled up inside." Also, in this study, parents reported incorporated meal prep into family time with their children and reported wanting to be role models for their children with regard to food selection for meals. These findings indicate that having a social support system could be a protective factor against risk factors such as the emotional eating associated with stress, weight gain associated with the body's response to chronic stress, and the risk factor of competing demands (e.g., spending time with children versus cooking.).

Institutional, Community and Policy Level Protective Factors

Because of the limited focus in the literature on these three levels of the social environment, they will be discussed together in one section. Community level resilience factors were not easily identifiable within the literature on OW/OB in the context of adulthood or childhood. Therefore they will not be addressed here.

At the institutional level, pediatricians were identified as protective factor in a study of low-income, single mothers (Lappan et al., 2019). These healthcare providers were described as helpful with regard to providing information about resources and healthy cooking tips. This particular result indicates that pediatrician offices maybe an avenue to address OW/OB among low-income mothers.

At the policy level, public assistance programs such as SNAP have been identified as a risk factor for OW/OB associated with food insecurity (Hamrick & Andrews, 2016). However these programs were identified as protective factors by low-income mothers, including those who said the benefits did not last for the month. This perception may be reflective of women with low incomes putting their children's needs first (Bove & Olson, 2006; Martin & Lippert, 2012). In other words, though the benefits do not last for the month, every little bit helps them with meeting the needs of their children, therefore programs such as SNAP are perceived as helpful.

Summary

The findings in this literature review highlight the importance examining both risk and protective socio-environmental factors for OW/OB among women with low incomes at all environmental levels, not just the intrapersonal, interpersonal (social supports) and institution level (e.g., neighborhood food environment, walkability). There is a significant

gap in literature with regard to the understanding the influence of the social environment beyond the institutional level (meso) on OW/OB among women with low incomes. Many studies examining OW/OB and this population are focused on identifying risks, with researchers being the ones who label a factor as a risk based on significant associations found through statistical tests. While these results are helpful in identifying interventions, often they do not identify existing protective factors among this population, which limits the scope and effectiveness of interventions. Additionally, findings from studies focused on risk may not always correspond with the views of women with low incomes. For example, SNAP participation is labeled a risk factor associated with food insecurity in adulthood OW/OB studies, but a childhood OW/OB studied found it to be a protective factor (Lappan et al., 2019; Hamrick & Andrews, 2016). The lack of focus on protective factors in studies exploring OW/OB among women with low incomes is another gap in literature. To address these identified gaps in literature, this dissertation will identify protective factors within the social environment that reduce the effects of socio-environmental risks associated with OW/OB among women with low incomes.

Research Questions:

1- How do women with low incomes living in neighborhoods with limited access to healthful foods describe their experience with engaging in healthful eating?

2- How do women with low incomes living in neighborhoods with limited opportunities for physical activity manage to engage in consistent physical activity?

3- How do women with low incomes with children present in the home living in neighborhoods with limited access to healthful foods and limited opportunities for

physical activity describe their experience with engaging in healthful eating and physical activity compared to women with low incomes with no children present in the home?

4- How do women with low incomes feel about their weight?

CHAPTER THREE
METHODOLOGY

Introduction

The literature addressing OW/OB among women with low incomes has often focused on the risk factors that influence their health behaviors (e.g., eating and physical activity). However, most women with low incomes do not have an obese weight status, and some women who do have OW/OB weight statuses have had success with engaging in healthful behaviors to lose weight. The stories of the women with low incomes who engage in healthful behaviors that support maintaining a healthy weight or losing weight have rarely been told. This study was designed to investigate the protective factors that exist among women with low incomes that decrease the negative influence of identified risk factors such as food insecurity, low levels of physical activity, motherhood and weight stigma.

This chapter will describe the methodology of the study: population, setting and sampling techniques; study design, data collection, analysis and validation of findings; and role of the researcher, ethical considerations, philosophical assumptions, and expected impact of the study.

Narrative Qualitative Inquiry

The primary purpose of this research study is to identify protective factors against OW/OB that exists within the various levels of the social environments of women with

low incomes by examining the lived experiences of these women with managing risks that can contribute to gaining weight. A qualitative methodology is appropriate for this study because this method allows the researcher to probe more deeply into the meaning and social context of the experiences of the participants (Rubin & Babbie, 2017). In this case, the existing literature provides an extensive quantitative description of the association between OW/OB promoting behaviors and various risk factors (e.g., food insecurity, motherhood, weight stigma and physical inactivity) that exist in the different levels of the social environment among women with low incomes (Ashe et al., 2018; Ball et al., 2006; Gundersen & Ziliak, 2015; Himmelstein et al., 2017; Hinkle et al., 2011, Martin & Lippert, 2012). However, these studies do not explain the experiences of women with low incomes with regard to managing these risk factors and engaging in healthful behaviors that inhibit weight gain. A qualitative study allows for exploration and understanding of the meaning women with low incomes ascribe to existing mechanisms within the social environment that may serve as protective factors to lessen the strength of the relationship between risk factors and OW/OB.

This qualitative study will use a narrative research approach. Narrative research originated from multiple disciplines including, history, literature, anthropology and sociology, and explores the lived experiences as told by individuals (Creswell, 2013). Defining features of narrative research that make it useful for this study include: a collection of stories from individuals that are intended to convey information; observations and documentation; analysis can be made about what was said (identification of themes); and the stories occur within specific places or situations (Creswell, 2013). This study will use the personal experience story which is a narrative

study of the participants' personal experiences specific to managing limited access to healthful foods, physical activity, motherhood and possible exposure to weight stigmatization. By allowing participants to share their personal experiences of coping with these risk factors, we gain a better understanding of protective factors that exist within the different levels of their social environments. Use of a narrative approach may come closer to representing the context and integrity of the lived experiences of those being studied than questionnaires do (Anderson & Kirkpatrick, 2016).

Philosophical Foundation

This study sought to understand the realities associated with managing multilevel risk factors associated with OW/OB among women with low incomes through the lived experiences of each participant, thus the philosophical assumptions are ontological in nature. Ontology is the study of reality asking the question what is the form and nature of reality and what can we know about it (Guba & Lincoln, 1994). The philosophical paradigm that undergirds this study is constructivism. Constructivism views reality as constructed by people based on lived experiences. It assumes that knowledge, regardless as to how it is defined, is constructed in the minds of people, and that thinking people have no alternative but to construct what they know based on their own experiences (de Zeeuw, 2001). Constructivism lends itself to helping us better understanding how some women with low incomes, though exposed to the same obesogenic environment, manage not to have a weight status of obese or have managed to lose weight, possibly transitioning to a lower weight status (i.e., obese to overweight or overweight to healthy weight). This is because constructivism suggests that people bear exclusive responsibility

for creating knowledge as a way of addressing their concerns and enhancing effective survival (McWilliams, 2016).

Research Design

Population and Setting

Adult women (≥18 years old) with low incomes in Hamilton, OH (the county seat of Butler County, a suburb in the Cincinnati Metropolitan area) are the focus of this study. Hamilton, OH was chosen as it has a poverty rate of 20.2% which is higher than the poverty rate of the state of Ohio (14%), Butler County (10.7) and U.S (12.3%; U.S Census Bureau, 2018b). Additionally, the Cincinnati metro area has an OW/OB rate of 68% which is slightly higher than the national average of 63% (Greater Cincinnati Community Heath Survey, 2017). Like national trends, obesity rates (BMI ≥30) for the area's adult low-income population (45%) is greater than those with higher incomes (29%; GCCHS, 2017).

Recruitment

The study utilized convenience and snowball sampling to recruit a purposive sample representing women across a range of motherhood and weight status. Specifically, both women with children present in the home and home who did not have children in the home were recruited, as well as women who had normal, overweight, and obese weight statuses. Participants were actively recruited from central locations that offered resources to people with low income. These locations included two Butler County Health clinics, a YMCA, a YWCA and an employment class offered by the local community action agency. The two health clinics were selected because they both serve people with low incomes and have Women Infant and Children (WIC) offices embedded

in them. The YMCA is located near multiple low-income housing complexes. Informational booths were set up at these locations to solicit participants and the YWCA exclusively serves women. Recruitment occurred by inviting women over to the booth to learn about the study. Printed materials used for recruitment was a one-page handout written in basic English for easy readability and included language and images affirming of women with low incomes. Printed materials were assessed using the Flesch Reading Ease Readability Formula. Studies have reported a reading comprehension level of mid-9th grade within the low-income population (Delgado & Weitzel, 2012). Written materials for this study were written at a 7th grade level to increase likelihood that participants will be able to read and comprehend the material. This one-page handout was also placed around the neighborhood in places such as laundromats, hair salons, and Planned Parenthood.

Inclusion/Exclusion Criteria

Participation was restricted to women with low incomes (age $\geq$18) with a BMI 18.5 or higher, who are eligible for government funded, income-based, food assistance programs such as WIC and SNAP and are primarily responsible for food shopping and preparation in the home. While women who do not qualify for these programs may still be considered low income, the impact of food insecurity may look considerably different due to the lack of resources (i.e., WIC and food stamps) available to them. Women who were aware they were pregnant or were two months or less postpartum were excluded as they would have been experiencing a recent change in eating and physical activity habits due to pregnancy as recommended by medical professionals (Institute of Medicine, 2009). Participants had to be fluent in English to participate.

Sample Size and Saturation

The study's sample size is 14, with 8 participants having children present in the home and 6 participants having no children present . There is no clear consensus on appropriate sample sizes for qualitative inquiry. Crouch and McKenzie (2006) suggest that the word "sample" is not an appropriate description of the respondents in qualitative research as it is not the individual person being sampled, but instead variants of a particular social setting (the real object of the research in question) and of the experiences arising in it. In other words, research participants are "instances of states", rather than just individuals who are carriers of certain designated prosperities, conceptualized as states arising within a particular set of circumstances, continuously engaging with their environment (Crouch & McKenzie, 2006). In this study the object of the research questions is the experience with coping (protective factors) with risk factors within the social environment that influence OW/OB among women with low incomes.

While some have suggested a sample size as small as one to two for narrative inquiry (Creswell, 2013; Creswell & Creswell, 2018), others suggest saturation of data typically occurs around 12 interviews (Guest, Bounce & Johnson, 2006). However, Hennick, Kaiser and Marconi (2017), postulate that while code saturation may occur with fewer interviews (e.g., 9), meaning saturation is not achieved until around 16-24 interviews. In other words, reaching a point where no more relevant codes can be identified is the first step in the saturation process. The researcher must also reach a point where the meanings behind these codes have been saturated as well.

The concept of saturation in and of itself comes with a certain level of ambiguity, consequently leading to the varying suggestions around sample size. Saturation has its

origins in the grounded theory approach to qualitative research and is now applied to many other qualitative approaches (Hennick et al., 2017; O'Reilly & Parker, 2012), as is the case with this study. While there are various forms of saturation, the original was theoretical saturation (O'Reilly & Parker, 2012). When used in the context of grounded theory, the focus of theoretical saturation is to develop a theory to explain a social phenomenon and there is a procedural structure to its application that does not exists when applied to other qualitative approaches where the focus of saturation is sample size instead of adequate data to develop a theory (Hennick et al., 2017; O'Reilly & Parker, 2012). In other qualitative approaches (e.g. narrative approach) saturation means collecting data until no new information or details about generated information is produced (O'Reilly & Parker, 2012). Thus we are left trying to decipher from the existing literature how much is enough to reach the forms of saturation typically used in other qualitative approaches like the narrative approach.

While the authors listed above may not have consensus on sample size for the narrative approach to qualitative inquiry, there does appear to be agreement that data collection should occur until saturation is reached. To determine when thematic saturation was reached for this study, the methods for assessing saturation outlined in Hennick et al. (2017) were used as a guide. To assess for code saturation the specific steps utilized from Hennick et al. (2017) were: reviewing each interview transcript in the order the interviews were conducted; searched for any new codes and new code characteristics; searched for the presence of previously identified codes in the interview; and repeated this review for each transcript. To assess for meaning saturation the specific steps utilized from Hennick et al., (2017) were: selection of codes central to the research

questions; reviewed coded data to search for the code in the first interview, noting dimensions of the issue described; searched for this code in subsequent interviews in the order they were conducted noting new dimensions; and repeating this process for all codes. Saturation was also examined within the subgroups of women with children present in the home and women with no children present in the home following the steps outlined above. Of the eleven parent codes identified in this study, nine were present in interview one and all eleven were present by the tenth interview (Figure 4). Only one new parent codes emerged after the second interview; new meanings (i.e., child codes) for identified parent codes continued to emerge with no new significant code meanings being identified by interview 14 (Table 2).

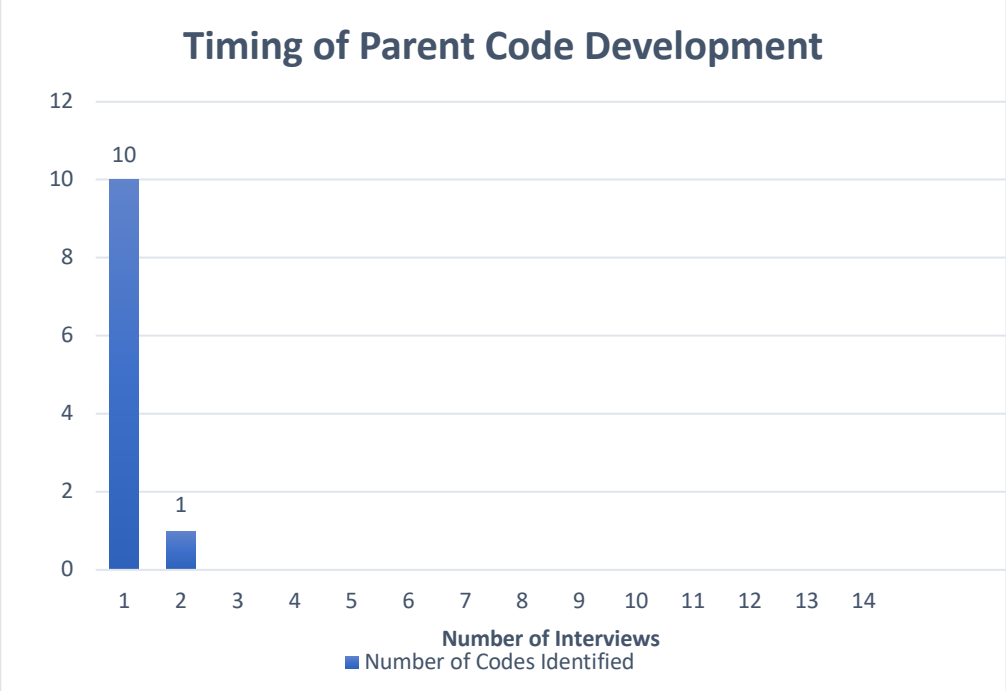

Figure 4. Timing of code development

Table 2. Parent Codes by Interview Where Child Code (Meaning) Was Identified

Parent Code	By Interview 6	By Interview 12	After Interview 12
Adverse Life Event	Abuse (1) Automobile accident (6) Death of loved one (1) Kicked out of house as teen (3) Placed in foster care (3) Substance abuse (4) Teen pregnancy (4)	None	None
Biological/Mental Health Influence	Medical Condition (1) Medications (1) Coping Skills (1)	Breastfeeding (7) Genetics (8) Stress (8)	
Cost of Food	Decrease price (1) Pantries (1) Produce shelf life (1) SNAP (1) Sales/discount bins (3) Specialty foods (3) WIC (1) Full service grocery stores (1)	None	None
Eating Habits	Access (1) Attitudes toward food/eating (2) Cooking techniques (1) Employment (1) Gardening (5) Consume healthy foods (1) Consume less healthy foods (1) Consume junk/fast foods (2) Teenage years (2) Time constraints (3)	None	None

Table 2. (continued)

Principal Code	By Interview 6	By Interview 12	After Interview 12
Interpersonal Social Influence	Community support (4) Family (2) Friends (2)	None	None
Motivation	Children (1) Clothes (2) Family member health (2) Personal health (1)	None	None
Parent/Caregiver Influence	Access to junk/fast foods (1) Child as caregiver (3) Home cooked meals (2) Role model (2) Rules (1)	None	None
Physical Activity	Access (1) Child/teen activity (1) Daily routine/caregiver responsibilities (1) Employment (2) Neighborhood safety (1)	Fear of injury (10) Time constraints (11)	Use of videos at home (14)
Source of Information	Classes in community (4) Healthcare professional (1) Internet (2) School (4) WIC (1)	Employment (7) Television (10)	None
Stigma	Weight (1)	Poverty (10)	None
Weight Perception	Appearance (1) Health (1) Locus of control (2)	None	None

Notes. Numbers in parentheses denotes the interview number where the meaning was first introduced.

Data Collection

Demographic information was collected via a short questionnaire at the time of recruitment. This information included age, income, education, employment, household composition (i.e., children present/not present in home) status, race, height and weight, cohabitation status, sexual orientation and enrollment in government food assistance programs. Height and weight were measured via a tape measure and scale and used to calculate BMI at the end of the interview, unless participant declined. One participant declined to have her height and weight measured. The remaining participants were informed of their height and weight, and their BMI was shared with them if they wanted to know. Semi-structured individual interviews were conducted with participants to collect data. These interviews were conducted by the study's author, a clinician with 20 years of experience working with women with low incomes. All interviews were face to face and participants had the option of meeting in their homes or a private room of a public library. Only one participant requested to meet at the library; all other interviews occurred in participants' homes. Each interview was recorded and transcribed verbatim, including paralinguistic features of the interview, such as voice tones or pauses. Each interview lasted approximately 30-60 minutes and each participant was given a $10 gift card for her time.

These semi-structured interviews did not use a traditional interview guide typical of qualitative research. The narrative approach does not set out with a fixed agenda or a specific line of questioning (Anderson & Kirkpatrick, 2016). Instead the interview began with a broad question that was paired with follow-up probing questions that align with focal interests that were identified from the literature, such as food insecurity,

motherhood, physical activity and weight stigma. (Appendix A; Anderson & Kirkpatrick, 2016). These probing questions were used when participants did not address an identified topic area in response to the broader question. As the study progressed, and it became obvious no new codes were emerging, additional probing questions were used to solicit additional meanings for the established codes.

Data Analysis

First Cycle Coding

Data analysis occurred through a process of examining the raw data and reducing this data to themes through an iterative coding process. This analysis was conducted by the study's author and one other coder. Immersion in the data by reading transcripts without coding them was the first step in the analysis. According to Bradley, Curry and Devers (2007), doing this helps identify emergent themes without losing the connections between concepts and their context. Analytic memo writing occurred after all coding sessions. This aided in reflecting on the coding process, code choices, how the process of inquiry is taking shape, and the emerging patterns, categories, and themes, in the data (Saldaña, 2013). While data was not coded during this first reading, precoding did occur during this phase. Precoding is the highlighting of passages of text that standout or seem significant (Saldaña, 2013). Process coding and In Vivo coding was used during the first cycle of coding. Process coding (gerunding) is used to denote action in the data such as conceptual concepts associated with resilience such as coping, managing, or adapting (Saldaña, 2013). Additionally, process coding supports the researcher in examining participants' interactions with the environment in response to situations, with the purpose of reaching a goal or handling a program (Corbin & Strauss, 2008). In Vivo coding

entails using a word or short phrase from the actual language found in data (Saldaña, 2013). In other words, the language of the participants was used to help develop and define codes. In Vivo coding is in line with the narrative approach as it prioritizes and honors the participants' voices.

Situational Mapping

Before the second cycle of coding occurs, the first cycle of codes were analyzed through the process of situational mapping. Situational maps help to stimulate thinking in the researcher by getting the researcher to "get into and then around in" the data (Clark, 2005). Three types of situational maps were used in this study – abstract, ordered and world/arena. Abstract situational maps (also referred to as messy maps; Appendix B1) involves jotting down on a piece of paper all human and nonhuman elements in a situation (Clark, 2005). An ordered situational map (Appendix B2), is a strategic way of organizing the elements from the messy map by examining the relationships among them. (Clark, 2005). The world/arena map (Appendix B3) aids the researcher in examining higher level social structures (meso and macro levels) composed of groups of people that reflect social action (Clark, 2005). In the world/arena map the fluidity and actions among these social structures become visible, thus their role is better understood in the phenomenon being studied (Clark, 2005).

Second Cycle Coding

The second cycle of coding was focused coding. Focused coding, also a grounded theory technique, can be used with other coding methods to categorize data (Saldaña, 2013). Focused coding searches for the most frequent or significant codes in the data in order to develop the most salient categories with a goal of developing themes without just

yet distracting attention to their properties and dimensions (Saldaña, 2013). This type of coding enabled comparison of newly constructed codes across participants' data (Saldaña, 2013). Once the 19 preliminary codes were identified, these codes were compared to find similarities; codes with close similarities were combined to make the final set of 10 parent codes. After the parent and child codes were finalized, they were then applied to all transcripts to analyze the data.

After coding was completed, Analysis of the Narrative (paradigmatic mode of analysis), a method of narrative data analysis developed by Polkinghorne (1995) was used. Polkinghorne's Analysis of the Narrative has three key elements: 1) describes the categories of particular themes while paying attention to relationships among categories; 2) uncovers the commonalities that exist across the multiple sources of data; and 3) aims to produce general knowledge from a set of evidence or particulars found in a collection of stories, hence underplays the unique aspects of each story (Kim, 2015). This method of narrative data analysis complemented the coding system used to begin the data analysis process. The In Vivo coding highlighted the uniqueness of each story (element three). The themes generated through the coding process were the result of establishing categories and identifying the relationship between these categories (element one). In addition to analyzing each individual's story, analysis was completed to compare the life stories of women with children present in the home to women with no children present , and African American participants to non-Hispanic White participants.

Use of codebook. Codes can accumulate quickly and change as analysis progresses (Saldaña, 2013). Therefore, a record was kept of emergent codes in a separate file, a codebook. In this book, codes were compiled and described, including an example

from the data as a point of reference. Codes were developed as the data was analyzed and applied to transcripts and refined through this iterative process. Generation of codes was data driven (DeCuir-Gunby, Marshall & McCulloch, 2011). After codes were finalized, they were examined through the study's theoretical framework (SEM and Resilience Theory) to determine the fluidity of the code with regard to being risk or protective and to determine its place within the various levels of the social environment.

Trustworthiness

While the concepts reliability, validity and generalizability are often used to describe the quality of scientific rigor for quantitative research methods, application of these concepts to qualitative research methods have mischaracterized qualitative research methods as being less rigorous, thus less valuable than quantitative research methods (Amankwaaa, 2016). However, one might say that comparing quantitative to qualitative research is like comparing apples to oranges. This is not quite accurate. The two research inquiries are more like two different types of the same fruit, with the fruit being scientific inquiry. Both research methods seek to describe or better understand a specific phenomenon through the use of proven research techniques that answer the questions "who, when, where, how or why" (Leung, 2015). However, their methods used for describing or better understanding a phenomenon is what separates quantitative and qualitative research studies. Quantitative research focuses primarily on the statistical interpretation of numerical data, whereas qualitative research primarily focuses on phenomenological interpretation of nonnumerical information (Leung, 2015). Nonetheless, both forms of research inquiry must utilize methods that establish rigor, or trustworthiness, which is the language used in qualitative studies (Amankwaa, 2016).

Lincoln and Guba (1985) established four criteria for establishing trustworthiness - credibility, dependability, confirmability and transferability. Credibility is confidence in the truth of the study and its findings (Lincoln & Guba, 1985) and is deemed the most important criterion (Polit & Beck, 2014). It is considered to be analogous to internal validity (Connelly, 2016). Examples of strategies used to establish credibility include peer debriefing, memoing and member checking (Amankwaa, 2016; Connelly, 2016). Dependability refers to the stability of data over time and over the conditions of the study (Polit & Beck, 2014). In other words, were the processes of inquiry consistently used throughout the study (Williams, 2012). Examples of strategies used to establish dependability include maintenance of an audit trail of written materials that outline the activities of the researcher (e.g. memos and field notes; Amankwaa, 2016; Williams, 2012). Confirmability is the quality of the results produced by the inquiry with regard to how well the results are supported by components independent of the inquirer and the degree to which the findings could be repeated (Polit & Beck, 2014; Williams, 2012). Confirmability is considered to be similar to objectivity in quantitative research (Connelly, 2016). Strategies that establish confirmability include member checking, reference to other studies that confirm the study's findings, and triangulation (Amankwaa, 2016; Connelly, 2016; Williams, 2012). Triangulation in qualitative research is the use multiple data sources related to the study to enhance understanding and to ensure that the account is rich, robust, comprehensive and well developed (Amankwaa, 2016). Transferability is the extent to which the study's findings are transferrable to other times, settings, people and situations (Amankwaa, 2016). Though it is considered comparable to generalizability, transferability is different in that it is the

reader, not the researcher who determines if the findings are applicable to their situation (Connelly, 2016). The researcher facilitates transferability by providing a clear, detailed description of the time and context in which the study took place (Williams, 2012).

Multiple strategies were used to ensure the trustworthiness of the study's findings. Throughout the study, this researcher worked closely with a peer who served as a second coder and participated in peer debriefings with the researcher. The second coder is a fellow doctoral candidate who is also a master's trained Social Worker with over 10 years of experience as a clinician in the health care field in an urban area. The second coder also has extensive experience working with populations with low incomes in the context of medical and mental health service delivery. The second coder identifies as a white, woman with an obese weight status. This collaboration began within the first few interviews of the study, and peer debriefing involved discussing the data collected as it occurred, identification of themes emerging in the data, and seeking feedback from the peer with regard to code development based on the data. This process prevented bias from having only this researcher's perception of the data.

This peer was also used to establish interrater reliability. Historically, interrater reliability was measured by the percent of agreement which was calculated as the number of agreement scores divided by the total number of scores; this method did not account for random agreement (McHugh, 2012). To address this, Joseph Cohen introduced Cohen's kappa which is one of the most commonly used statistics to test interrater reliability (McHugh, 2012). Cohen's kappa requires two raters to determine the consistency in ranking items or classifying items into mutually exclusive categories (DeCuir-Gunby et al., 2011). Using the established codebook, this researcher and co-

coder independently coded excerpts of data in Dedoose (www.dedoose.com), a web based application used to analyze qualitative data. This process involved using the Dedoose Training Center where the researcher entered designated codes and excerpts that represented variations in the collected data. The co-coder then went into the Training Center and applied the designated codes to the selected excerpts and Dedoose calculated the kappa coefficient. A kappa coefficient of at least .80 is considered to represent strong agreement (McHugh, 2012). The kappa coefficient for this study was .87. This rate of inter-reliability increases this trustworthiness of the study's findings.

Memoing occurred after each meeting to capture and further process ideas that materialized during the debriefings. Memoing also occurred throughout the study including after each interview, activities related to coding session, during the process of analytic mapping, and any time the researcher had significant thoughts about the data or the study in general that needed to be processed. Fieldnotes were written after each interview and reviewed during data analysis. These written materials establish an audit trail. These steps contribute to establishing the study's credibility, dependability and confirmability. Additionally, triangulation of data sources occurred through a review of documents related to regulations for what foods can be purchased through the WIC and SNAP programs (Appendix C) increasing the study's confirmability.

Member checking was used by reviewing the findings with participants and soliciting their feedback via one-on-one meetings and phone calls. Member checking involves presenting portions of the finished report to participants and soliciting their feedback with regard to accuracy (Rubin & Babbie, 2017). In this study, member checking involved an informal meeting with participants to share the study's findings and

researcher's interpretation of the findings with the participants. The presentation involved sharing of identified central themes, noted differences in strategies for managing barriers between groups based on the presence of children in the home or no children present in the home and differences between weight status; discussion of mid and higher level social structures using structured and world/arena maps as a guide; and some of researchers recommendations. Specific examples from the participant's life story were injected throughout the discussion to ensure her story was accurately represented. Feedback was solicited from them with regard to whether they felt their experiences were accurately represented and if they agreed or disagreed with the suggested recommendations. Feedback was recorded via handwritten notes. Participants were in agreement with findings and suggested recommendations. Some offered comments confirming the researcher's interpretations and offered additional suggestions for recommendations. Examples of confirmation of researchers interpretations included participants reiterating the differences between WIC and SNAP programs and that impact on eating habits and the impact of children's food preferences on food purchases. Another participant recommended that the BMI scale be changed, suggesting that it was not accurate because people are all different sizes.

To facilitate transferability, the methodology section of this study contains a detailed description of the context of the study (e.g., description of population and setting, rationale for sample size, assessing saturation, and a description of data analysis). The results sections of this study contains what Creswell & Creswell (2018) refer to as "thick, rich" description. This study's write up, includes a robust description of the participants and includes multiple passages of data that support the researcher's analysis

and interpretation of the data. This includes any evidence contradicting identified themes presented. Charts are used to list descriptors of participants to include age, race, education, employment status, weight status, sexual orientation and motherhood status. To add a visual component to the information presented, charts were also used to reflect risk and identified protective factors existing at different levels of the social environment (intrapersonal, interpersonal, institutional, community and policy), and to reflect different perspectives of participants based on motherhood and weight status.

Disclosure of researcher bias through use of reflexivity is utilized. For instance, the next section discloses the role of this researcher in the study beyond data collection and analysis.

Role of Researcher and Ethical Issues

Role of Researcher

As the principal researcher in this study it is necessary to describe my role and disclose any potential bias brought to the study. All initial interviews, member checking, coding and data analysis was conducted by this researcher. The researcher was also responsible for establishing trustworthiness. This researcher identifies as an African-American, woman with an obese weight status. This researcher is a master's trained Social Worker with over 20 years of experience working with populations with low incomes in urban areas. During this time, six years was spent working with mothers with low incomes, many of whom experienced weight stigma, food insecurity and had limited access to physical activity. Because of the researcher's identification as a woman with an obese weight status, and past experience with this population (women with low incomes), this researcher engaged in reflexive thinking and documentation through the use of field

notes and analytic memo writing to address potential biases through the study. Though, the researcher shares the experience of having a higher weight status with the participants, there is no shared experience of motherhood, low income or food insecurity – the primary descriptors of potential participants.

Ethical Considerations

This study was approved by the University of Louisville's Institutional Review Board (Appendix D). Ethical considerations involve informed consent, privacy and confidentiality. Due to possible low literacy rates of participants (Stewart et al, 2014), the written consent form was written in a language that was easy to understand. This form was orally reviewed with each participant to confirm understanding. The written form and discussion included informing participants they have a right to not participate and they had a right as a participant to answer only questions they felt comfortable responding to and to disclose only information they felt comfortable sharing. Participants were made aware that anything disclosed during the interview was be confidential.

Confidentiality with regard to data storage was addressed by keeping the recording device secured in a locked file cabinet when not in use. The written questionnaire used to collect demographic information used a code name for use in identifying participants recorded interviews. These documents were stored in a locked filing cabinet. The interviews were transcribed verbatim by the study's author and all identifying information was removed. Once the interview was transcribed, it was transferred to a password protected USB stick that was also stored in a locked filing cabinet, only accessed by this researcher, and the interview was deleted from the device. Only transcribed interviews for this study were stored on the USB stick. The data will be

stored for three years after the end of the study (time frame required for federally funded studies). After this all documents and USB sticks will be destroyed.

CHAPTER FOUR
FINDINGS

The literature paints a vivid picture of deficits that exist within the lower levels of the social environments (i.e., micro and exo) of women with low incomes that increase their risk for having OW/OB weight statuses. However, discussion of risk factors present in higher levels of the social environment and stories of resilience against OW/OB among women with low incomes are largely missing from the existing literature. The overall objective of this study was to identify protective factors against OW/OB within all five levels of the social environments of women with low incomes using a narrative inquiry qualitative research approach.

This chapter will present the findings of this study based on the methods of analysis of data described in the previous chapter. Following presentation of demographic information, the chapter is organized into three sections. The first section presents the study's research questions and answers. This section will also present findings across weight status. When applicable, findings that reflect differences related to race/ethnicity will be presented. Analysis based on race and ethnicity in this study focused on differences between African American and non-Hispanic White participants since there was only one participant in the Hispanic group and mixed race group. The next section is the chronological ordering of participants' lived experiences in their own words. The last section is the identified risk and protective factors categorized according to the SEM.

Interpretations of these findings and their implications will be presented in the next chapter.

Participant Characteristics

Table 3 outlines the characteristics of participants in this study (n=14). All participants in this study have low income backgrounds and receive SNAP or WIC based on self-report. The majority of the participants were either non-Hispanic White (n=7) or African American (n= 5). One woman identified as Hispanic and one identified as mixed race. Participants had weight statuses of healthy weight (n=3), overweight (n=3) or obese (8). Education levels of the participants included no high school diploma (n=3), high school diploma/GED (n=7), associates/vocational degree (n=3) and bachelor's degree (n=1). The average age of the participants was 42.5 years old, with the oldest participant being 61 and the youngest being 25.

To examine Research Question 3, 8 participants had children present in the home and 6 did not. Of those with children in the home, all were the biological parent and one was an aunt who is raising a niece and nephew. Of those with children present in the home, six were single and two were cohabitating. Eleven participants identified as heterosexual, two identified as bisexual and one did not answer.

Table 3. Demographic Characteristics

Characteristic	n (%)
Race/ethnicity	
Black, non-Hispanic	5 (36)
White, non-Hispanic	7 (50)
Hispanic	1 (7)
Mixed race	1 (7)
Weight Status	3 (21)
Healthy weight	3 (21)
Overweight	8 (57)
Obese	
Education	
< H.S. diploma	3 (21)
H.S. diploma/GED	7 (50)
Associates/vocational degree	3 (21)
Bachelor's degree	1 (7)
Age	
18-25	1 (7)
26-35	3 (21)
36-45	3 (21)
46-55	4 (29)
> 56	2 (14)
Motherhood Status	
Children present	8 (57)
Children not present	6 (43)
Sexual Orientation	
Heterosexual	11(79)
Bisexual	2(14)
No response	1(7)

Research Questions

Research Question One

How do women with low incomes living in neighborhoods with limited access to healthful foods describe their experience with engaging in healthful eating?

To solicit information about their experiences, participants were asked the following probe questions when necessary:

- What does healthy eating look like for you now?
- Who or what keeps you from eating healthy?
- Who or what helps you to engage in healthy eating?

All participants discussed engaging in some form of healthful eating despite identifying multiple barriers that limit their access to healthful foods. Participants associated healthful eating with increasing consumption of fruits and vegetables, following the recommendations of the USDA, and using certain cooking techniques (i.e., baking). When asked, "what does healthful eating look like for you?" responses included,

> *Less meat, more of the um, healthy greens and fruits and vegetables and beans.*
>
> *I eat fruits and vegetables all the time. But it's always a meat a potato, a vegetable and a fruit option at my house.*
>
> *Well I do know the, uh, used to be called pyramid, what it called, My Plan, now? … the green vegetables are healthier. I uh, I probably eat at least, one or two servings a day, which still isn't the required amount. But it's better than nothin'.*
>
> *Just eating a well-balanced meal with all my food groups in it.*

In addition to describing types of foods eaten, another recurring theme presented by participants with regard to healthful eating was the type of cooking techniques used to prepare foods. These techniques include baking, grilling, air frying and using slow cookers. Trending in the data was the notion that these techniques were healthier than frying foods. Those who did report frying foods when cooking also reported limiting how often frying was used as a cooking technique.

Findings Across Weight Status

Participants within the healthy weight status group described consistently engaging in healthful eating and using cooking techniques that support healthful eating. They also expressed preference for organic foods. An example from a participant with a healthy weight status include:

> *You know, no matter what income you are on there's always a way around McDonalds. You know, people, anymore use fast-food as their go to. And honestly, if you let a McDonald's burger sit in your back seat for a year and half 2 years, it's gonna still be the same. It's disgusting! Because all that bad stuff that's in it, you know it just doesn't…ewww! … You know, like if I go, I really don't like to, but I'll get their salad which is a little bit more expensive but honestly in the long haul you're gonna stay fuller longer. You're not going to get hungry right away or feel bloated afterward. You're gonna still have energy to pump the rest of the day.*
>
> *And I try to eat organic chips. Organic vegetables. Organic meats. You know if I'm going to have meats I try to have organic meats. You know, milk, I eat organic milk. You know, I don't eat the regular milk.*

Participants within the overweight weight status group described eating mostly healthful foods with limited consumption of junk food and being inconsistent with healthful eating habits.

> *Just eating a well-balanced meal with all my food groups in it. … Salads. I eat lots of salads. ... But because of the way I eat, I don't eat a lot of junk food. I mean my guilty pleasure is I drink like 2 pops a day.*
>
> *MyPlate! … I don't always follow it. I uh, I probably at least, one or two servings a day, which still isn't the required amount. But it's better than nothin. …*
>
> *Like I, I have my days where I might eat a salad or something and then I'm back to eating stuff I ain't supposed (chuckles) to and drinking a lots of pop.*

Participants within the obese weight status varied in their reports of healthful eating. Some reported consistently trying to eat healthier foods, others described being

inconsistent, while others reported little to no healthful eating. Most described continuing to eat unhealthful foods on a regular basis. Examples of comments made include:

> *Cause I still eat what I eat. I just don't eat as much. But I need to start eatin' salads and fruits more. All that good stuff that I'm supposed to eat more. If I could just learn how to that instead of pop. Cause I'm a pop person. And that's a thing that probably puts on a lot of weight*.

> *So I'm trying to get it back stable. More steady. Like, make sure I get the healthy breakfast in the morning. Make sure I eat something for lunch, something for dinner. But not over doing it. You know what I mean?... I love vegetables! But…if I ain't in the mood to do it, I grab me a cheeseburger, some French fries, some potato chips, you know.*

> *Um, you know what, my eating habits are terrible!*

Comparisons within Race/Ethnicity

African American and non-Hispanic White participants described engaging in healthful and unhealthful eating habits, with most in each group describing wanting to decrease consumption of junk foods. There was a noted difference with regard to cooking techniques. African American participants were more likely to mention "frying" as a cooking technique compared to non-Hispanic White participants. However, one African American participant stated she did not like to use frying as a technique. However, her dislike for the technique was not motivated by health but instead the effort needed to fry foods. She stated,

> *And I really don't got to have it fried. Cause I'm really kind of lazy. I like all my stuff baked. I like to put it in the oven and go on ahead and watch some TV or find something else to do and come back to it. When it comes down to umm, like even now, they got the air fryer. I even enjoy that, cause you can put your stuff in there and go on. I ain't got time to be foolin' with no grease poppin' everywhere and to drain that stuff on no paper towels and crap. No. No thank you.*

Summary

Types of foods and cooking techniques identified as healthful by participants reflect a basic level of nutritional knowledge. However, nutritional knowledge alone is not a strong enough protective factor against OW/OB among women with low incomes as they often experience barriers to healthful eating. The following is discussion of barriers and how participants manage them based on analysis of the data (Table 4).

Barriers to Healthful eating

Cost of Food

For participants trying to engage in healthful eating, many discussed how healthful foods cost more than unhealthful foods. For example, a participant stated, *"…but what I realized was that eating healthy is more expensive then not eating healthy. I was like, oh my God!"* For some, compounding the impact of the cost of food as a barrier to healthful eating was the concern that monthly SNAP benefits do not last for the entire month. Others talked about SNAP benefits not lasting if they attempted to purchase an adequate amount of healthful foods. One participant stated it this way, "*But if you try to buy all healthy stuff you really wouldn't be able to make it all month. Like, at all.*" And a different participant stated, "… *and healthy eating honestly cost more. They don't give you enough stamps for that.*"

The cost of food was the most frequently identified barrier to accessing healthful foods. However, the reiterative process of analyzing the data revealed two underlying concerns expressed by participants related to cost of food – cost of specialty foods and the shelf-life of fresh produce.

Specialty Foods. Specialty foods in the context of this study are those foods needed to satisfy a dietary restriction related to a medical diagnosis or foods perceived to be the healthiest food option (i.e., organic foods). Some participants reported primarily eating organic foods because of "current trends on what's good to eat," and "…it doesn't have all them antibiotics and extra stuff that they like to kill us with." Participants also listed medical diagnoses that require them to eat specialty foods like gluten free, sugar free, or lactose free items and discussed how these foods cost more in comparison to regular foods. A participant with Grave's Disease that has dietary restrictions but also prefers organic foods stated,

> *The cost of it. Yeah the cost of it. Organic food is way more expensive. Gluten free food is way more expensive. You can get a little bitty frozen pizza for 99 cents with all the junk in it and you can go get a gluten free on that's good for you and it's $6. And so there's a huge difference between $1 and $6 for a pizza that's this big… .*

Shelf Life of Fresh Produce. Also related to the cost of food was the recurring issue of the short shelf life of fresh produce. Multiple participants complained about fresh produce spoiling before they could consume it. Examples of participant statements include:

> *I mean I wish I could afford to buy just salads and keep it fresh every day. It's just hard.*
>
> *You know if it came in portions where you're not throwing half of it in the garbage where's it's going bad either. That has a lot to do with it to.*
>
> *Like when you get strawberries and stuff. And you know you have to get like, 4 or 5 days later you have to get new strawberries again because half of them are rotten in your container. So yeah. A better way to know how to eat them. Yeah, and not lose half of 'em. Rotten bananas on the counter. Yeah, those things.*

Transportation

Participants with and without cars described primarily shopping at major full service grocery chains. Those with access to grocery stores via their own car reported shopping whenever they needed to when resources were available, while those reliant on others or having to ride the bus reported typically shopping once a month. Those dependent on the bus for their transportation needs did not view the bus favorably with regard to grocery shopping. These participants did not mention the use of other forms of public transportation (e.g., taxi or ride share) as a means of getting to the grocery store.

Those who either walked, relied on others for transportation, or rode the bus to the grocery store described how these modes of transportation impacted their purchasing of fresh produce. One participant who primarily walks anywhere she has to go stated,

> *It's hard to carry that a mile back to your place or whatever. And when you carry the fruits and vegetables you're risking bruising them and then you won't be able to eat them in the day and stuff like that.*

A participant that relied on others for transportation stated,

> *Just to buy the fresh stuff, buy the stuff and keep it fresh. Like, not havin' a ride to go when I need to get some more. Just like, 'cause if I buy in bulk it just doesn't stay fresh.*

Beyond accessing a specific type of food like fresh produce when needed, for some, transportation was listed as a barrier to accessing food in general whether it be via grocery stores or food pantries. Participants spoke of the problems associated with riding the bus to grocery shop as it relates to having children and to safety. A participant with no car described her transportation concerns this way when discussing having no full service grocery stores in walking distance of her home,

> *Well there's none in walking distance. And right now having to walk, so if I don't get a ride to the store I can't get stuff like that anyways. But, there's restaurants*

> *close. But there ain't no stores that close. That kind of… that part sucks. I guess I could take the bus but who wants to do that with kids here.*

Another participant described her concern for safety when riding the bus stating,

> *I'm not a big transportation person. I have a bus pass and I never use it. Umm, I have an issue with that because I've been on public transportation before and been robbed. Umm, lost my stuff. People stole my stuff.*

Managing Barriers to Healthful eating

Cost of Food

SNAP Benefits. In their quest to engage in healthful eating, participants listed a variety of steps they take to manage the cost of food. The most frequently mentioned avenue for managing the cost of food was the use of SNAP benefits. Though several participants reported that their monthly SNAP benefits do not last for the entire month, participants often reported purchasing healthful foods during the beginning of the month with their SNAP benefits because this is when they could afford them. One participant said SNAP benefits helped her to eat healthful because, *"I can use the SNAP benefits to buy the more expensive foods,"* while one who described herself as "craving vegetables and fruit" stated that SNAP benefits, *"… helps supplement my income. It helps me be able to eat the kind of foods I want."* Another spoke specifically about the purchase of fruits and vegetables stating,

> *And then it's also when we are able to buy the more expensive things like um, different fruits and vegetables that we can't get the, like, the second half of the month because we just can't afford to. We buy most of our fresh fruits and vegetables with our food stamps because that's the most expensive thing.*

Though not related to managing the cost of healthful food, a participant shared how the rules governing what can and cannot be purchased with SNAP benefits (e.g.,

ready to eat foods such as fried chicken; Appendix C) help her to make healthful choices when shopping. She stated,

> *But it do help out by, there's certain foods you can get on the food stamps card and some things you can't. And that's a good thing because like their chicken and stuff like that, hot food? That's me all day, like. But I know I can't get it on a food stamps card. Umm, so that's the difference but they do help out. They help out a lot.*

WIC. WIC was also often mentioned as a government assistance program that supported healthful eating. In fact it was often mentioned as a facilitator for healthful eating without provocation from this researcher. In contrast to SNAP benefits, WIC was not perceived to "run out" before the next allotment was due and was described as allowing for "free" food as it provides coupons for specific foods, including fresh produce (Appendix C). One participant who previously received WIC stated, *"But when I did get WIC, that was good thing because I stayed eating healthy because I could get the fruit and the different vegetables and stuff like that."* Other participants stated, *"Um, well WIC now allows you to get fresh fruits and vegetables. Um, and so that's a help because it's free,"* and *"And you got fruits and vegetables and cereal and all that stuff for free. So you didn't have to use your food stamps or pay for it."*

WIC was also mentioned as a source of information that promoted healthful eating. One participant who used to receive WIC discussed how the program provided her with healthful menus. Similarly, another participant when asked where she gets her information about healthful eating replied, *"Umm, I'd say WIC. They do try to, you know, tell you how to, you know, tell you how to prepare your food. They do give lists of what's really health."* Another participant described attending a "primary care carnival" in her

community and reported WIC was a vendor giving out information on healthful eating and offering samples of various foods.

Other Methods. In addition to utilizing government food assistance programs, participants utilized other techniques to manage the cost of food. The most often mentioned technique was budgeting. For this group budgeting typically involved taking steps to decrease the cost of food by using coupons, seeking out already reduced price items via sales ads and discount bins within stores, or forgoing or reducing the purchase of junk foods or snacks in order to have more money to spend on more healthful foods. The following are examples given by participants:

> *Um, the biggest thing is you look at the bargain bin. Because the apples in there may be a little dented up or the potatoes or anything might be a little more dented up. But if you eat them pretty fast or freeze them, you can get relatively kind of cheap things for more.*

> *I try and find the best deals. I'm a couponer. I don't cut coupons, but I do the digitals. I'm always looking for free samples and free new stuff to try so that I know I am getting my best dollars' worth.*

One participant had a different take on how to make her SNAP benefits last longer. While she did report using sales ads to get items at a discounted price, she also reported eating out "a lot" in order to make her SNAP benefits last longer. This participant also reported time constraints related to her work schedule with regard to preparing meals at home and reported "grabbing a breakfast sandwich" on the way to work and stopping to buy carry out on the way home from work. She also described growing up in an environment where eating out was the norm.

Many participants reported using food pantries as a means of offsetting the cost of food. Pantries were most often reported as a means of supplementing the food budget and as a means of obtaining healthful foods. With regard to supplementing the food budget,

one participant stated, *"You have a lot more to supplement your grocery shopping. That's how I feel. Saves money!"* Food pantries were also used to secure non-food items such as disposable diapers and household items.

Participants also described being able to get healthful foods directly from food pantries. One participant who had been to a pantry the day of her interview stated,

> *The food pantries here in Hamilton are nice because they have fruits and vegetables. Fresh produce. Actually I just came from a food pantry today. That's funny that you ask. 'Cause it, I got a lot, they have a whole aisle that's got nothing but fresh produce and fresh vegetables. So it's real nice for me. 'Cause you get four nice full big bags of it. So I got a lot of fresh stuff.*

Another participant felt the pantry promoted healthful eating not only through the selection of healthful foods but also through the physical set up of the pantry. Based on this participant's description it appears the physical arrangement of the pantry does not promote less healthful foods in comparison to the setup of a retail food store. The participant described her experience with food pantries as follows:

> *A lot, because when you go to those food pantries you don't see a lot of snacks and stuff, like you see a little bit, but you see more beans and [inaudible] and wheat bread and different stuff, like, and it just catch your eye. When you walk in there, like, all they playin'! You gotta eat healthy? But… so it is a difference, umm, going to the pantry than the grocery store. I love going to the pantry. They have fresh fruits and vegetables and stuff like that. So I like it. I done utilized a couple of 'em. It's great. It's really great.*

Not all participants share such strong positive views of food pantries as it relates to support of healthful eating. Others found the foods offered to be less healthful (e.g., canned foods) or even outdated. Some participants stated,

> *Umm, but for the most part you're gonna get canned goods and things like that, that's packed with sugar and sodium. Umm, but you just make do with what you can as far as the minimal money.*

> *Well, umm, usually with the pantries, usually they have canned, canned goods, boxed food and sometimes they have [inaudible] and meat. Usually they don't*

have vegetables, whatever vegetables, you know, canned vegetables. You know, every now and then you met get a pantry that has like fresh corn or fresh greens. But that's usually not often. It's every now and then.

Interpersonal Supports

Support from family members and friends aided some participants with engaging in healthful eating by helping them access these foods. Participants who made reference to help from family and friends most frequently described this support being either resources or transportation to grocery stores or pantries. Examples include:

Like I said, I haven't had to use the pantries or anything. But my mom was helping me too, like if I needed something.

And my mom, we go grocery shopping, she takes me grocery shopping… .

Well it's far. For there I do get a ride. My family helps me a lot.

Motivation

Though not directly related to the cost of food or managing one's food budget, many participants discussed internal and external factors that motivated them to engage in healthful eating despite barriers. Motivation for wanting to eat healthful in the context of this study are internal and external incentives for participants to engage in the activities mentioned above to assist them with accessing healthful foods. The most frequent motivator mentioned was to either improve or maintain the participant's current physical and/or mental health. Conditions participants reported experiencing included diabetes, Chron's Disease, Grave's Disease, back strain caused by upper body weight, hypertension, asthma, cardiac issues, depression and anxiety. For example, when asked "what helps you to eat healthy?" one participant replied, *"I help myself really, because I've noticed if I eat healthier, I feel better."* Another participant stated, *"So, umm, you*

know, and to me health is important because I've been sick my entire life and if you don't eat right, you don't feel right."

Some participants were motivated by the current health condition of family members or having a family history of certain weight related diseases. One participant who has an obese weight status reports actively trying to lose weight by engaging in healthful eating and physical activity so that she can donate a kidney to her mother. Another participant with an obese weight status stated,

> *Yes, especially at times when I'm like, I'm gettin' older and I'm like, okay, you know you need to be, you know, especially when I know that diabetes run in the family. My momma got it and my sister got it. Like yeah, what you gonna' do? You know, you next up! Like, time to get yourself in order at least do better.*

Some who have children present in the home were motivated to eat healthful in order to set an example for their children and to improve their health in order to be more active with their children. One mother explained it this way, *"Because if I'm not healthy then I can't, you know, be with my kids and give them what they need if I'm not healthy."*

Another recurring motivator for participants wanting to engage in healthful eating was to have their clothes fit or to wear a certain size. A participant with a healthy weight status stated,

> *And now I've went back down to about 150 again. I would rather be up in the 160's. That way I feel comfortable and my clothes don't fit anymore. Everything is falling off. You don't feel as healthy when you're too skinny. Just as you don't when you're overweight.*

A participant with an obese weight status stated,

> *Because my whole life, I was like a 13 and then I had the kids. It was like, easy to put the weight on but it was harder getting' off. Umm, so that's my main thing. I want to get back, not to that 13 but at least like 15 or something. … Like, um 15/16. I was cool with that. I was able to just flow and move. Now when I walk I'm huffin' and I'm puffin' and I get tired real quick. I'm like nah. So those are some of the things, too, that are helping me want to lose some of this weight.*

Table 4. Management of Barriers to Healthful eating

Barriers to healthful eating	Management of barriers to healthful eating
Cost of food	• Coupons • Sales ads • WIC • Using SNAP benefits to buy more expensive foods (i.e., fresh produce) • Help from family/friends • Use of food pantries • Motivation to eat healthful
Transportation	• Access to a car • Rides from family/friends

Summary

The findings in this section reflect how the barriers impacting access to healthful foods for women with low incomes have multiple layers. While overall cost of healthier foods is a barrier, the issue of cost is exacerbated for those with special dietary needs. We also see how significant differences between government run food assistance programs impact access to healthier foods. Though food resources are limited across the sample and limited transportation is a barrier for some, all describe their primary source for obtaining food to be full service grocery stores and food pantries. None describe relying on convenience stores to purchase foods. This magnifies the issue of frequency of access to healthier foods. In other words, those who are only able to grocery shop once a month due to limited access are not consuming recommended amounts of fresh produce because they are not able to purchase it and keep it fresh for the whole month. Lastly, these findings for Research Question 1 highlight the level of strategic planning women with low incomes are willing to engage in to access healthful foods.

Research Question Two

How do women with low incomes living in neighborhoods with limited opportunities for physical activity manage to engage in consistent physical activity?

To solicit information about their experiences, participants were asked the following probe questions when necessary:

- What does physical activity look like for you now?
- Who or what keeps you from engaging in physical activity?
- Who or what helps you to engage in physical activity?

While most participants described some form of engagement in physical activity, most participants did not report consistent engagement in physical activity. Only seven of the fourteen participants described engaging in physical activity on a consistent basis. Of the remaining seven, five described getting some physical activity, albeit inconsistent, and the other two described having little to no physical activity beyond their daily routine. Walking was the most often reported form of physical activity. For those engaged in consistent physical activity, walking was generally done on purpose for the sake of getting physical activity. For those who were inconsistent with engaging in physical activity, walking was described in the context of not having transportation and having to walk to run errands. Other recurring trends for physical activity included dancing, climbing stairs, and physical activity related to either employment or caring for young children.

Findings Across Weight Status

Participants with a healthy weight status described engaging in physical activity consistently. The most common form of physical activity mentioned for this group was walking and they described it terms of distance. No one in this group held a membership

to a gym or area recreational center however one does own a treadmill that she uses almost daily. Descriptions of their physical activity include:

> *I walk probably 2 miles a day at the ball field if not more. Up and down the football field [inaudible]. Yes I'm walking everywhere.*
>
> *Normally I would go to work and come home and get on the treadmill and do like 5 miles, 10 miles on the tread mill.*
>
> *Lot of walking. Umm, because I have no transportation right now. .... Umm, I do walking, at least a mile every day. And up to 20*

Participants with an overweight weight status varied in their description of the level of physical activity. Walking was the primary form of physical activity mentioned. One described walking frequently, while the other two associated most of their activity with their daily routine. Participants with an overweight weight status reported,

> *I do walk to work and walk to the little store. Occasionally, I will walk around downtown a little extra. But I am not good with the physical activity. My job is physical. I clean.*
>
> *So I'm always outside with the kids. But now I'm actually having to get up with them and… I take them to the water park and stuff like that and I play with them there. But I don't exercise or nothing.*
>
> *Like I said, instead of taking the elevator I'll take the steps. Instead of driving, if I can walk, I'll walk a couple of blocks, instead of driving a couple of blocks.*

Participants with an obese weight status presented with varying levels of physical activity and different types of activities. Participants in this group who described engaging in physical activity reported having or planning to get a gym membership, dancing, and going up and down stairs. Some reported engaging in little to no activity. Participants with an obese weight status described their physical activity as follows:

> *So I try to walk because it's the easiest thing to do. We have a large amount of stairs here. I try to go up and down those when the kids are in school. Like, when I took one to the bus stop, I'd walk the stairs a couple times. Then it would be time to get somebody else on the bus. .... So I try to walk. I try to do a lot of walking.*

And then when nobody was here I would dance like an idiot and no one would see me.

Umm, I'm a home health aide, so my job is to help my clients up, give 'em their shower, umm, walk some of them. Like on the bike trail. Um, one of my clients, uh, he's gotta bike. He rides bikes, like maybe around the block, umm, he got his own like workout machine, so when I'm at work I'm doing exercise because I do do a lot of moving around helping them, so… I get a lot of exercise. But when I come home I have been walking these past couple of days. I go down to the riverbank and I walk maybe a mile and come back.

None basically. Every blue moon I might get out and get a walk.

I really don't get, well, since I guess, fall came, I really haven't been gettin' any, physical activity. Now before, umm, how long's it been, I guess spring, summer, I was doing good. Health. Umm, gym, where I, I was tryin' to lose weight. So, they have this thing where you come, once a week and you work out. So I was doin' that.

Summary

Despite participants' reported activity levels varying, there were some recurring barriers to physical activity described regardless of participants' reported activity level. There were no noted differences based on race/ethnicity. The following is a discussion of barriers and promoters for physical activity based on analysis of the data (see Table 5).

Barriers to Physical Activity

Physical Ailments

The most frequently mentioned barrier to engaging in physical activity was some type of physical ailment. Of the physical ailments mentioned, chronic physical pain was most often mentioned. Another recurring ailment mentioned was fatigue associated either directly with a medical condition or the treatment of a medical condition. A participant with Chron's Disease stated,

I know, um, after treatment, the day of, the day after and the day after that, I'm usually not good for anything. And um, I feel sick and just tired. And I mostly just rest.

Several participants experiencing chronic pain described associated this pain with a medical conditions. One participant who engages in physical activity consistently, reported having lifelong medical issues due to being born addicted to drugs and alcohol, and recently learning she has Elhers-Danlos which she described as a "tissue mutation" caused by a "genetic disorder." She described her pain like this,

> *I do have, with the physical ailments that I deal with, I deal with a very high pain level. I mean every day, all day, I have, I deal with at least a 4 or higher level of pain, which I do not take pain medication for. Umm, so there's some days I can't even get up and go. Like I struggle just to shower.*

Another participant who engages in physical activity inconsistently reported having arthritis in her back and a condition called uveitis, a medical issue causing inflammation of the eye and light sensitivity. For her not only does her back pain limit her activity but also she describes being in the sun as painful for her. A participant who does not engage in any physical activity reports having intense nerve pain in her feet due to peripheral neuropathy making it difficult to walk.

There were also participants who described pain as a barrier to physical activity that was unrelated to a medical condition. Two participants had been in automobile accidents that left them experiencing chronic pain. One was in a car accident which injured her foot, leaving her with screws in her foot and wearing a brace while working for support. She described engaging physical activity that was only related to her daily routine. Another participant was hit by a drunk driver two years ago and now has chronic back pain making it difficult to walk for extended periods. She stated, *"but I do a little bit of walking but not much. … And just because it kills my back."*

Unsafe Neighborhoods

Since walking was the most frequently listed form of physical activity, participants were asked about the role of their neighborhood in inhibiting or promoting walking. Several participants reported feeling unsafe to walk in their neighborhoods. Participants who expressed safety concerns described living in neighborhoods where they hear gun fire and experience congregations of men standing around drinking and urinating outside. One participant described her son being cut on a broken beer bottle while he played outside. Another participant stated, *"Um, well, I really don't want to go walking around the neighborhood cause it's not very, such a good neighborhood. People get shot and stabbed here a lot"* when asked about walking around in her neighborhood.

However not all participants felt their neighborhoods were unsafe. Two older participants (over 50) reported that while they did not feel safe to walk around their neighborhood at night, they did feel safe walking during the day. Some participants who describe consistently engaging in physical activity, reported walking to nearby places within and near their neighborhoods instead of driving for the sake of getting physical activity.

Promoters of Physical Activity

No Transportation

While a lack of transportation was listed as a barrier for healthful eating by some participants, it also serves as a promoter for physical activity for some participants. Most participants who reported inconsistent physical activity did describe engaging in walking by default due to not having transportation. One participant stated, *"Um, well, now… it was just like, 2 weeks ago I was driving everywhere and now my car is…done…so now*

I'm having to walking." In contrast, another participant who recently gained transportation stated, *"Yeah, cause I'm not walkin' no more every since I got my car back. I got another car. I just not…I been lazy. I guess that's why my weight is on me. Cause I used to be a walker.*"

Access to Physical Activity Opportunities

Participants who described their immediate neighborhoods as being unsafe to walk in, reported having access to nearby designated walking paths, parks just outside of their neighborhood, and the neighborhoods of relatives. These are examples of participants accessing physical activity opportunities outside of their communities:

> *I do get out and exercise, like I said, I go to the river or even at the high school, I walk that track sometimes because my kids have football over there.*
>
> *I like walking through my mother-in-law's neighborhood. She lives, probably like, 3 minutes that way. It's more a subdivision. It's okay there. We can walk around there with the dog. We don't have one, but my mother-in-law does.*
>
> *I won't walk around here at all. Honestly. Thank the Lord that I got a car. If I was to go anywhere, I mean, last time I did decide to get out and walk I drove over here to the local trail. You know we have a bike trail that runs along the river. I drove over there and walk and did as much as I could. But other than that, no, I wouldn't dare walk around here.*

Commercial gyms and recreational centers were also an opportunity for physical activity that emerged in the data. With regard to commercial gyms, only Planet Fitness was mentioned by participants who are currently members or planning to open a membership. It has memberships as low as $10 per month, per one participant's report. Another participant reported having a membership to the YMCA and another mentioned seeking a "scholarship" for membership to the YMCA. Gyms and recreational centers were viewed as offering a variety of activities and this was appealing to those not able or interested in walking, as well as those who do not like walking in their neighborhoods.

These are some of the perspectives presented by participants on gyms and recreational centers:

> *I can't use my feet.* [due to nerve damage] *I could be doing sits up. I could be doing, like, upper body work. I just…not, so hopefully next month, um Planet Fitness has their plan for like 10, either 10 or $20. I'm gonna get in that for a month.*
>
> *I'm not sure with my age and the arthritis I'm not sure how much I could really do now. I have thought of joining, I'm not really elderly yet, I have thought of trying for a scholarship membership with the YMCA. And just go over there and see what kind of exercise machines I could do. I would love the swimming. Even a water aerobics class.*
>
> *7 pounds down! Um, or I'll go to Planet Fitness some time.*

Interpersonal Relationships

Interactions with family, friends and healthcare professionals are examples of interpersonal relationships that trended throughout the data and in some instances represented promoting physical activity. Interactions with children was the most frequently mentioned family interaction impacting physical activity. This trend was not limited to those with children present in the home, as participants with older children who lived outside of the home also talked about going on activities with their adult children that involved physical activity, especially those who are now grandmothers. Other familial relationships that promoted physical activity included significant others or caring for an older relative. Descriptions of these interactions include:

> *And I help take care of my mother too. … So, I go out there and do stuff with her and take her, and like mow her grass and, you know, weed eat and throw her garbage out. Clean her house. I do all that for her also.*
>
> *We'll go to a park. Sometimes I do, I decide to walk my kids to school. Umm, their school is right down the street. We don't have to get in the car and drive everyday unless it's a really cold, rainy day. Umm, mainly parks though. I play with the kids at the park.*

The guy that I'm with now, he's more of a…he a little bit more health conscience. You know he uh, he definitely likes to take his walks. He'll offer me to go and I probably been on about maybe three of 'em.

Um, I got a girlfriend, she work out every day. Like she on track with everything, eating healthy, exercising. She don't play. She kinda helping me, um, get on track. She teach me different recipes and stuff, uh, different exercises I can do, like in the house when I don't get to go to the gym and stuff like that. So yeah, she is my support system. She help me out a lot. Try to make sure I do right.

Table 5. Barriers and Promoters of Physical Activity

Barriers	Promoters
Physical ailments/chronic Pain	No transportation
Unsafe neighborhoods	Access to physical activity opportunities
	Interpersonal relationships

Summary

The findings for Research Question 2 reflect the various levels of physical activity of women with low incomes as well at the limited variety. About half of the participants described some level of frequent activity while the other half described little to no physical activity. As expected, most the physical activities described involved activity that is free and can be done alone such as walking. While safety in the neighborhood was a barrier for some with regard to walking, chronic pain was mentioned quite often as a barrier. This indicates that women with low incomes need access to physical activity opportunities that provide a greater variety of options such as those that are non-weight bearing such as swimming, strength training or bike riding.

Research Question Three

How do women with low incomes with children present in the home living in neighborhoods with limited access to healthful foods and limited opportunities for

physical activity describe their experience with engaging in healthful eating and physical activity compared to women with low incomes with no children present in the home?

To solicit information about their experiences, participants with children present in the home were asked the following probe questions when necessary:

- How does having children impact your eating habits?
- How does having children impact your physical activity?

In addition to analyzing responses to these probe questions, the entire transcript was analyzed to identify differences that emerged in the data between participants with children present (CP) in the home and participants with no children present (NCP) in the home. The key differences between the two groups that emerged from the data were opportunities for physical activity (including perceptions of neighborhood safety), impact of interpersonal relationships on eating habits and physical activity, sources of information about healthful behaviors, and the impact of chronic pain on physical activity.

Opportunities for Physical Activity

Participants with CP had more opportunities for engaging in physical activity. While walking was the most frequent form of physical activity listed by participants in both groups, women with CP also listed their activities related to their children as a primary source of daily physical activity. This activity included daily chores like cleaning up after the children, supervision of small children who needed to be "chased after," lifted and/or carried, and taking the children out for activities such as going to the park. It was not uncommon for participants with CP to describe being exhausted due to their caregiving responsibilities. Additionally, those who had older school aged children

involved in activities outside the home described engaging in physical activity while at their children's practices.

There were no noted differences within participants with CP based on being single or cohabitating with regard to physical activity involving children. However, single participants with CP more frequently cited time constraints as a barrier to engaging in physical activity compared to cohabitating participants with CP. One single mother replied, *"No. Too, too busy runnin' around in the car. … We just be busy, always busy. Sometimes from morning to night. But I get lazy at times like this,"* when asked about engaging in physical activity.

Safety Concerns. Concern for safety in the neighborhood trended mostly among participants with CP and was more often identified as a barrier to walking in the neighborhood. All participants with CP who expressed concern for safety in the neighborhood described going outside of the neighborhood for physical activity. In contrast participants with NCP who expressed concern about neighborhood safety still walked around their neighborhood despite their concerns, taking steps to remain safe. One participant with NCP described taking safety precautions as follows,

> *But you always have to be prepared for something. And um, if I'm walking in a bad area or going through a part of town that's not real safe, I always carry some kind of sharp something. I usually carry a little pocketknife that's accessible. I keep it right here on my side or on my necklace.*

Also, there were noted differences between those who grew up in their neighborhood and those less familiar or newer to the neighborhood in which they lived. For example, one participant described refusing to walk in her neighborhood. When asked what was happening in her neighborhood to deter her she stated,

> Nothing. I don't want nobody to see me around here walkin'! Like un un. Ain't nothin' wrong. I grew up around here. Like I said, my mom live down the street. My sister live across the street from her. It's fine.

Meanwhile another participant who has lived in her neighborhood for about a month stated,

> *I don't even want to be outside here cause there's someone constantly fighting.*

Examples of differences in responses between two participants who live in the same neighborhood when asked how the neighborhood impacts physical activity include:

> *It doesn't hinder it or, or, help, it doesn't affect it in any way. This is a nice place I live in.*

> *For walking, it's real scary at night, so I won't do it at night. But during the day it's okay*.

Interpersonal Relationships

Both participants with CP and those with NCP described how their eating and physical activity behaviors were influenced by interpersonal relationships and there were noted differences. Participants with CP were most influenced by their children and significant others, whereas participants with NCP were most influenced by their friends and adult family members.

Participants with CP described how the presence of children impacted their eating habits. There were no noted differences with regard to the impact of children on eating habits between single participants and cohabitating participants with CP. The two most frequent influences were being motivated to role model healthful eating habits for their children and catering to their children's preferences for certain foods, especially as this relates to the food budget. Participants with NCP described motivations for eating healthful that tended to be internal (e.g., improve health, clothes fitting). Participants with NCP's grocery shopping was solely influenced by their budget and their own preferences,

whereas those with CP described having to take into consideration what the children wanted to eat. Examples of how participants with CP described their eating, cooking, and food purchase experience with regard to healthful eating include:

> *It's kind of hard. Cause if I was by myself I would just be eatin' salads majority. But I know the kids ain't gonna want to eat what I want to eat if I did diet.*

> *Like I'll make like baked chicken and potatoes and macaroni and cheese and stuff like that. But the kids really don't eat because they are used to easy stuff like pizza. … Well why am I going to make two or three separate meals for everybody because I can't really afford that.*

> *My children! And chicken and fries and fries and chicken! I mean, spaghetti, um, chicken and dumplings, um breakfast for dinner. It's not, then I have to cook like three different meals to feed everybody. Cause there's always something that somebody will not eat. And it's ridiculous.*

There was a notable difference in how participants with CP and those with NCP manage their food budget. In contrast to participants with CP who purchased junk foods to accommodate their children's preferences, participants with NCP choose to forgo the purchase of junk foods, for the purpose of limiting consumption. One participant stated, *"I intentionally when I go to the grocery store I don't buy a whole thing of cookies or a whole thing of cupcakes."* Another participant with NCP stated,

> *I just make smart choices, I think. When I go to the grocery store I never buy junk food. It's all healthy stuff. Food! And then I get home and I'm like, man I wish I had some potato chips or something. But I don't have it in the house. So, to get it requires me walking somewhere to get it. And sometimes I'm too tired to walk, so I just, I do without junk food pretty much.*

Another notable difference with regard to the monthly food budget was participants with CP more frequently mentioned that their SNAP benefits not lasting for the month and they more frequently described using food pantries when their food runs out. Most participants with NCP reported their SNAP benefits last for the month and

described using food pantries in conjunction with their SNAP benefits. In other words, they do not wait for their SNAP benefits to run out to use a food pantry.

Sources of Information

While both groups described getting information that supports healthful eating from healthcare professionals (e.g., primary care physician or mental health professional) and physical activity, participants with CP had an additional healthcare resource - pediatricians. Another difference between the two groups was the Internet. Only the participants with CP mentioned the Internet as a source of information for healthful eating habits and physical activity. Some participants discussed looking up information on Google. One stated, *"The Internet, Google whatever you are looking for. What you can eat without the gluten or the soy in it. All that, so yeah. The Internet."*

Chronic Pain

While both participants with CP and those with NCP described chronic pain as a barrier to physical activity, in comparison, participants with NCP more often described chronic pain keeping them from being active and less often described it as a motivator for physical activity. Participants with CP either described chronic pain as a motivation for physical activity (e.g., being active to lose weight to alleviate knee pain) or worked passed it because they still had to care for their children. In other words, participants with CP continued to engage in activities related to caring for and interacting with their children.

Though not found to be a trend in the data but a salient comment from a participant with CP was the idea of being afraid to get injured as a reason for limiting physical activity. This participant described having chronic hip pain due to past

involvement with sports. She stated, *"Uh, constant pain every day in my right hip. Bursitis. Uh, I beat my body up playing sports*." She went onto express her fear of being injured stating,

> *Now that I'm older, I'm like oh my God I don't want to hurt myself. … And just afraid I'm going to hurt myself. The fear of hurting myself and having to take care of all these people scares me to death. Because if I'm down then no one is getting' taken care of. So I just do what I need to do to get by. I don't go out and play ball with them. I might pass in the yard but that's about it. But other than that – no. Don't do no toe touches with her. Don't try to do cartwheels. So, yeah. The fear of getting hurt. … Cause got friends my age that go out there and get hurt playin' ball or doing stuff with their kids. And they were laid up for like 6 weeks at a time. And I'm like, I can't afford to do that.*

Summary

The findings for Research Question 3, highlight the impact of having children present in the home. For instance, these findings suggest that the presence of children increases the family's food bill not only because there are more people to feed but also because those with children may cater to the food preferences of their children. In this study, the findings of this chapter indicate that those with NCP have greater freedom to in their food choices, limited primarily by budget restraints. The findings also suggest that those with NCP may also have more freedom in their food choices because they use food pantries to supplement their food budgets instead using them as a last resort after their food has run out as described by participants with CP.

The findings also show that having CP is not an automatic barrier to physical activity. But it also shows that those with CP consider daily parenting responsibilities to be physical activity though it may not be enough to meet daily recommended levels of physical activity. Furthermore CP in the home may influence perceptions of safety as

those with NCP did not describe refusing to walk around their neighborhoods in comparison to those with CP.

Research Question Four

How do women with low incomes feel about their weight?

To solicit information about their feelings about their weight, participants were asked the following probe questions when necessary:

- How do you feel about your weight?
- How do others feel about your weight?
- What thoughts and feelings come to mind when you hear the word obesity?

The overarching concept of weight perception had four main themes - appearance, health, locus of control and stigma. Participants described their weight and word obesity in terms of either appearance or health. Many of the statements describing their own weight or their thoughts on the word obesity reflected societal weight stigma. A recurring theme when discussing weight was a sense of responsibility for one's weight. This was called locus of control. These themes will be discussed with regard to the overall group of participants and in the context of differences within weight status and race/ethnicity.

Appearance Versus Health

Appearance as a measurement of one's weight was the most frequent theme when participants expressed their feelings about their weight, followed by health. Participants tended to describe their weight in terms of how they feel about their appearance and how they believe others feel about their appearance. Examples include:

> *Umm, they probably are like, dang, look at that fat girl. But I feel like, um, everybody has a different body type as well. I mean everybody carries their weight differently! I mean I have chicken legs with this little short fat body. It's just, it is what it is. I mean I hold it all here (pointing to her torso). It's like, I got two spare tires and a floating device. Pretty much. But I mean my arms and my*

legs are really skinny. It's just, I'm just big around the…everything else.(obese weight status)

Right now I'm uncomfortable with it. I would like to weigh a little bit more than what I do. (healthy weight status)

Um, I actually just lost a bunch of weight. I was like 180, I might be 160 now, cause I've lost a lot. … I mean honestly I was fine with my weight. … I don't know. Like I don't want to get too skinny.(overweight weight status)

Some participants viewed their weight and believed other viewed their weight through a health lens. In the context of this study health as a description of weight refers to using language reflective of actual weight, BMI, weight status or overall health. Examples include:

Cause I… think for my height and weight. … I should probably be around 140 pounds. I've been told this. I've looked through pamphlets and seen charts. But I'm about 40, 50 pounds overweight. (overweight weight status)

Umm, I don't know. I mean, I know that I've gotten bigger. So, I don't like my weight. Keep sayin' I'm gonna lose weight, it just ain't happen yet. … I mean I guess if I lose the weight I would be more healthy. (obese weight status)

Umm, but my dad he always like, told me, like, you need to lose that weight. At one point I was having problems with my heart and he used to tell me, you know you gotta lose some weight and get your body back healthy to yourself. (obese weight status).

Participants with a healthy weight status expressed views that reflect dissatisfaction with their weight and measured their weight based on appearance or how their clothes fit. Examples include:

I would love to be thinner. … Just because my clothes would fit better. And I would be, like the way… the size I feel I should be instead of having to always try to diet to get back to, you know to fit into my clothes. I keep growing out of my clothes.

Right now I'm uncomfortable with it. I would like to weigh a little bit more than what I do.

Participants with an overweight weight status consistently expressed contentment with their current weight, although one reported this has not always been the case. Examples include:

> *I'd like to lose some weight. But at the same time sometime, um, like okay, um, overweight but I don't stress about it… In my 40's I did when I was, late 40's when I first started going through menopause. I stressed … I guess I accept it.*
>
> *I'm comfortable with it.*

Participants with an obese weight status expressed a desire to lose weight to improve appearance and/or health. Examples include:

> *I know I need to lose weight. I look in the mirror and see I need to lose weight but, like, I just don't feel like it, sometimes. I don't feel like I'm as overweight as I am.*
>
> *Cause I do need to get some of this weight off of me. Cause it's probably affecting my blood pressure. Cause I do have high blood pressure. I have that issue and I know I take my pills like I'm supposed to. But they keep sayin' that's dangerous. Cause that's, that is number one. I need to start eatin' healthy cause I blood pressure issues…*

Participants with a healthy weight status had mixed views, with some wanting to weigh more and one wanting to weigh less. Examples include:

> *I would love to be thinner. … Just because my clothes would fit better. And I would be, like the way… the size I feel I should be instead of having to always try to diet to get back to, you know to fit into my clothes. I keep growing out of my clothes.*
>
> *Right now I'm uncomfortable with it. I would like to weigh a little bit more than what I do.*

Comparisons within Race/Ethnicity

In comparison to non-Hispanic White participants who varied in their satisfaction with their appearance, African American participants expressed greater satisfaction with their overall appearance. While they expressed a desire to lose weight, they were not

motivated to reach a BMI that reflected a healthy weight. Their motivations were generally health related or wanting to change a specific aspect of their body, usually their stomach. Examples include:

> *Umm, I guess with me as long as it looks nice to me then it doesn't matter what anybody else thinks.*
>
> *I feel like it's okay with me. But I still do want to lose a little bit in my stomach. But it's not that big a deal.*
>
> *Cause I know I'm not, like, really out of shape, out of shape. I'm just thick. I thought I was just thick, like big boned. Umm, I know my stomach. I need to work on that. But umm, I don't feel like I'm all that fat. I mean I might be thick.*

Differences with regard to perception of weight were also reflected when an African American participant shared her thoughts on the differences between White women and Black women with regard to carrying excess body weight. She stated,

> *But now it's different. You know, everybody…the term is, what I hear in the shop is, no offense, they say the White girls is thick and black girls are just gettin' fat! It's what they say. You see a lot of them White girls now. They got them butts, the hips on 'em and everything else. Like where y'all come from with all that?... Because you know, where we kind of came, when we would just have hips and butt. You know we would have all the stuff in the right places. Now we're kind of feelin' more rounder. And now they're gettin' the thighs and the hips and the breast and stuff like that. Some of 'em payin' for it but some 'em I'd say is natural.*

Locus of Control

Despite the barriers identified with regard to engaging in healthful eating and physical activity, a frequent theme within the data was a sense of responsibility participants expressed about addressing their weight. This theme was seen within each weight status and race/ethnicity with no noted differences within these groups. Examples of participants expressing an internal locus of control include:

> *I managed to get it done. Like I said, it's just something I'm gonna have to get used to if I wanna eat healthy. … It was a little push, but I can maintain it though.*

I mean it's something that I want to do, so I just gotta keep going forward with it. No matter what happens I gotta get back on that eating healthy track. (describing affording healthful foods)

Nobody. I mean (name removed) tries to keep me from drinking soda, which is a great thing, but, even that, it's me. It's what, it's what I try to do. I try to drink my smoothies and try to stay away from like canned foods and stuff like that. I try to eat more fresh vegetables. (describing what helps her to engage in healthful eating)

You know I took the classes, I was going to get the gastric sleeve done. Probably about 2 years ago I went to a couple doctor's appointments. And, then I decided not to do it. I'm like I just, I'm like, I really kind of feel like it's the easy way out. I'm like I really can beat it. To me, you know I feel like I control my mind and my body. You feel me? (describing how she feels about her weight)

Weight Stigma

In the context of this study, weight stigma refers to any comments that represent stereotypes about weight, bias against higher weight statuses, or contempt for higher weight statuses. Weight stigma was a recurring theme within the data not only when participants described their feelings about their weight but also when discussing their thoughts and feelings. Many participant expressed some level of stigma about weight. The most frequently expressed form of stigma was the stereotype that someone who has an obese weight status is "really big." To support their claims, many mentioned television shows like My 600lb Life as their reference point. Descriptions of obesity include, *"That's somebody that's really really big. Like I see them shows, obesity shows," "Out of control," "… low self-esteem,"* and *"Um, really bad overweight. Like, obesity is where I feel like you can't really walk, and you gorge yourself with food."*

Participants, including those with an obese weight status, expressed negative emotions or thoughts when describing themselves or others with an obese weight status. These comments include:

I don't see how people do it. How do you let yourself get that big?(obese weight status)

I think, um, just genuine, genuine, or general, um, hard to stay attractive. I've actually even said before that I would rather die than be obese. (healthy weight status

It makes me sad because the first time a doctor called me obese I cried. … It just makes me want to cringe really. Because I'm, I'm terrified to be in that category. Because people in that category are shunned basically…. It's just I hate to think of myself as obese. I hate it. (obese weight status)

Lived Experiences: A Narrative Overview

The first portion of this chapter described the current life experiences of participants with regard to engaging in healthful eating and physical activity. In addition to present time information, the interviews also captured the individual life stories of participants related to weight management. To solicit this information, participants asked, "tell me about your experience with managing your weight throughout your life and were probed with the statement "tell me about your eating and physical activity behaviors when you were a child and in your teen years" if they did not provide this information in their initial answer to the overarching question. This section will share the prominent themes identified in the life journeys of participants, in chronological order from childhood until now using their own words. Each excerpt identifies weight status and race/ethnicity. To avoid redundancy, this section will not revisit recurring themes presented in the previous section (e.g., cost of food, transportation, barriers to physical activity, current interpersonal relationships, and motivation). Table 6 presents themes that emerged in the data that reflect experiences having an impact on participants' eating habits and physical activity that either promoted or inhibited weight gain. These themes

include adverse life events, biological and mental health influences, attitudes toward food or eating, employment, influence of parent/caregiver, and sports/child play. Participants' journeys are broken into three timeframes- childhood, teens, and adulthood.

Adverse Life Events

In the context of this study adverse life events (ALE) are any events having a negative impact on participants' eating or physical activity behaviors occurring at any point in time in participants' lives. ALEs experienced by some participants during childhood include sexual abuse and death of a parent. During teen years some participants experienced teen pregnancy, and same experienced being kicked out of the home by a parent. Teen pregnancy was the most frequently reported ALE during the teen years. ALEs experienced during adulthood by some participants include being hit a drunk driver, death of a significant loved one, substance abuse, and domestic violence.

Biological/Mental Health Influence

Biological and mental health influences refers to any influence related to the body or the mind that promote or inhibit weight gain, including stress management. Chronic pain will not be presented again as a biological influence unless it occurred during the childhood or teen years. No mental health influences were reported during childhood by participants. One participant reported she believed she had an eating disorder as a teen. Most participants discussed mental health concerns in life occurring during adulthood. The most common mental health concern was depression. Also, participants discussed the impact of stress on their eating and how they manage stress in the context of adulthood including negative coping skills such as emotional eating.

During childhood, biological influences include being born with low birthweight and addicted to drugs and alcohol. During teen years, biological influence included ongoing back pain associated with weight. Most participants discussed biological influences in the context of adulthood. In addition to chronic pain mentioned in the previous section of this chapter, other biological influences included the impact of medications on weight gain, impact of breastfeeding on weight loss, and the role of genetics in weight status.

Parent/Caregiver Influence

Parent/caregiver influence refers to experiences with their parent/caregivers during participants' childhood and teen years. It does not apply to interactions with parent/caregivers during participants' adulthood. During childhood, participants described parent/caregivers promoted healthful eating by role modeling the behavior, providing healthful meals, and having structured mealtimes and rules around accessing junk foods. Parent/caregivers were described as inhibiting healthful eating by having little to no rules around snacking, providing junk food, or preparing less healthful meals. During childhood, some participants described having to prepare meals for the family or take care of younger siblings while the parent worked. During teen years, some participants described having to be responsible for feeding themselves due to parent/caregiver's work schedule or moving out of the home due to not getting along with parent/caregiver.

Attitude

Attitude refers to participants' attitudes toward eating or food in general, displayed throughout their lives. The most frequent attitudes described during childhood

were being a "picky eater" or "eating whatever." The most often described attitude during teen years was an attitude of not caring about weight and therefore eating whatever. This attitude was often connected to engaging in activity at a level that hindered weight gain. However, one participant described taking "control" of her health by purchasing and consuming healthful foods after being on her own at age 18. During adulthood, participants described attitudes that ranged between disinterest in healthful eating and wanting to only eat healthful foods. Some participants' attitude toward eating was that no food was off limits, therefore unhealthful foods were okay to eat in lesser quantities.

Employment

Employment refers to the impact of types of jobs participants' have had throughout their life that have impacted their eating behaviors or physical activity levels. No participants reported any employment during childhood. The most frequently reported job during teen years was working in fast food restaurants. While working in fast food restaurants did increase access and consumption to junk food, for some it also increased physical activity because they had to walk to work. Employment opportunities described in adulthood for some increased nutritional knowledge and promoted healthful eating. Participants also described their adulthood jobs in terms of being laborious or sedentary. Most participants in the study were not currently employed.

Sports/Play

Sports/play refers to participants' involvement in organized sports at some point in their lives and their descriptions of physical activity as children. Most participants described being very active during childhood through playing outside with friends and

engaging in activities such as swimming, bike riding and roller skating. Many participants reported having toys that promoted physical activity such as basketballs, skates, scooters and bicycles. Some reported playing organized sports during childhood. However this theme was most often seen during teen years. Several participants reported playing organized sports at school or in the community that included basketball, soccer, track, volleyball, softball. Only one participant reported continuing to engage in sports into adulthood. Her involvement with sports continued until she was around 30, at which time, her son was old enough to be involved in sports, so she turned her attention to his needs.

Table 6. Participants' Journeys

Themes	Childhood	Teen Years	Adulthood
Adverse Life Events	*When I was 10… my dad was killed by a drunk driver.* **(HW,W)** *My mom died when I was 8 years old and nobody talked about her when she died. … I got like, inappropriate attention from my father. And so I picked up weight because I learned to hate my body.* **(HW, W)** *The reason I have so much anger with her[mother] though, cause when I was 12 her second husband molested me. And she didn't believe me.* **(OB,W)**	*And then, um, when I was 17 I got pregnant. So I ate everything!* **(OB, W)** *Cause the first kid I had, I was 16.* **(OB,W)** *…because my dad kicked me out when I was 18 years old because I left uh, clothes in the washing machine.* **(HW, W)** *I got pregnant at 15, going on 16 and I had my first child at 16.* **(OB, AA)**	*When my mother died I lost probably over 100 lbs. Because I didn't eat at all.* **(OW, W)** *Well, I spent a lot of my time, uh, I'm not gonna lie, I was on um, drugs really bad and in and out of jail.* **(OW, W)** *After I lost my daughter, I had nothing but cake and ice cream for about a year.* **(HW, H)** *I like my fruit but there's a lot I can't eat cause I ain't got no teeth. … Because when I was hit by that drunk driver he knocked them all out of my mouth. … We was hit November 9. I didn't wake up until December 20th. … I'm terrified of red trucks.* **(OB, W)** *I had a bad car wreck. … But the screws that's holdin' my foot together is inside of the arch. …every time I actually like step it's like, it hurts. I don't do too much walkin'. … I don't do too much walkin'.* **(OB, AA)**
Parent/Care-giver Influence	*I started cooking for my family when I was 9 years old. I started taking care of the house when I was 9 years old. … I ended up being the adult.* **(OB, W)** *Um, my mom instilled good eating habits in us.* **(HW, W)** *My daddy had us riding bikes, we walked on the bike trail every morning at 6 o'clock. …I think we only would go out to eat one day*	*Mom started working night shift and you fended for yourself. Lucky to have a peanut butter and jelly sandwich here and there. Growing up without power sometimes…* **(HW, W)** *I didn't get along with my stepdad … I mean I didn't get along with him when I was growing up. Since I was working and I was 18 I just went ahead and got my own place.* **(OB, W)**	

	and that was Sunday because both him and mom worked and they didn't want to cook. But every other day we had vegetables. They made us drink milk. We didn't have the potato chips and all of these snack cakes and stuff. We weren't permitted to eat like that. ***(OB, AA)*** *…my mom kind of, she one of those feeder people. … if we would go somewhere when there were issues, she'd be like, ok well, um, let's just say Frisch's is her favorite place. She would be like you know, umm, 2 Big Boys, onion rings, and maybe like a dessert piece of pie or something like that. And it's like, ok, I just thought that it was like normal to eat.* **(OB, AA)** *…my grandma cooked, so, she let us eat whatever we want to eat, how much we wanted to eat, so…* **(OB, AA)**	*I moved out at 16, so it was about a year span I really didn't eat a whole lot because I was trying to pay bills and I really didn't know about getting on government assistance and stuff like that back then.* ***(HW, W)***	
Attitudes toward food/eating	*I wasn't a picky eater. I always ate what was in front of me.* **(OB, W)** *I was a very picky eater when I was young.* **(HW, W)** *I just remember being a vegetarian. And all I ate was soup then. I didn't eat meat. I don't know why.* **(OB, W)**	*So, I started to eat healthy and watch what I was eating and bought my own food. And you know, once I started working and everything and buying my own food I really changed my diet drastically.* **(HW, W)** *Once I hit those teenage years, I was just busy runnin' the streets. All the time. I started eating fast foods. Just junk. You know, because mom and dad wasn't there to force me to eat these green beans…* **(OB, AA)**	*I crave good [healthy] foods. I want to eat foods like that.* **(OW, W)** *I don't want to eat healthy right now.* **(OB, W)** *Umm, it's okay to eat, but not eat as much. Yeah, so. It's okay to eat. I tell myself that now. It's okay to eat but cut it down. You can eat. You can enjoy the things that you like but cut 'em down so it's not effecting your health, your weight.* **(OB, AA)**

	…well um, childhood, um, I wasn't caring about my weight, so um, I usually just eat anything, **(OB, AA**)	*I just was able to eat what I want, when I wanted.* **(OB, W)** *…during teenager life, um, I still was just eatin' what I want to eat.* **(OB, B)**	
Employment		*I had a job since I was like 15. But I used to walk to work but then when I got to work I was eatin' Rally's I was eatin' McDonald's, you know, cause I was there.***(OB, AA)** *And I worked at Frisch's, so I was bringing Frisch's home a lot and just eating fast food.* **(OB, W)** *But I worked at restaurants too, so whatever I could get there for free, I ate.* **(HW, H)** *I started workin' when I was like 14 years old. So then I had my own money. I can go eat at McDonald's. Or you know just, Wendy's and all that stuff. I worked at Taco Bell and I probably ate their food while I was even workin' there.* **(OB, AA)**	*I got a little job at Panera Bread. All their food's antibiotic free. …everything's awesome there. And I noticed when I …eat there…And then I'd think, the next day, man I feel pretty good. After about a month of eating there and eating like that every single day I felt tremendous!* **(HW, W)** *I worked at a health food store too. So I used to really like working at the health food store and learning.* **(OB, W)** *I was working at Amazon and so we, you know we worked pretty hard there. Sometimes especially when we were doing the sort and we were picking up boxes and stuff. We can really work up a sweat. Um, and stay in sweat mode for quite a while.* **(HW, W)**
Biological/Mental Influence	*But I've been sick pretty much since birth. Umm, I wasn't fully developed as a baby. I was, umm, left in the hospital for about a month and half I guess until they let me go because I only weighed about 4 lbs. I was addicted to drugs and alcohol.* **(HW, H)**	*Yeah, teenager life, it was back problems. Umm, doctors did tell me it was my weight. And then so is my chest, my breast. They was huge. So it was just like always a backpain, lower back. They said I should go on like a diet. Try to umm, do some arm workouts. I wasn't payin' attention to that cause I'm a teenager and I don't really be on listenin'. So um, it was just, I mean, my back problems just kept going on until I was like 18.* **(OB, AA)**	*Umm, since I started Remicade, umm, you always gain weight after you start a new thing, because you actually digest some food better.* **(OB, W)** *The antidepressants and stuff like that, definitely make you pack on pounds.* **(HW, H)** *Cause my metabolism always run high. Yep. And I think family genes has something to do with it because everyone in my family is pretty thin.* **(HW, W)**

		Um, when I became a teenager around about 12 and half years old, I became anorexic. Um, from 12 to about almost, I think it was almost 16, I weighed like 85 to 90 pounds. **(OB, W)**	*So I went back from having my baby weight to regular weight real quick… I breast fed.* **(OW, W)** *We always was big. My sister is a, heavier set chick too. My baby sister, she kind of always been a real small. …She had a different father. My baby sister. Yeah, they all were real small. Like, they short. My sister probably about 5'1". She was real short. She's always been real petite. Me and my other sister, we almost identical.* **(OB, AA)** Coping skills/stress management: *It makes me not eat all.* **(HW, W)** *I do occasionally drink but that's only on the weekend and maybe once a month.* **(HW, W)** *Um therapy and sleep.* **(OW, W)** *Drink. Yeah, yeah, yeah. We party here.* **(OB, AA)** *Go somewhere and get out the house where I ain't thinkin' about stuff. Or I just go find something to do.* **(OB, AA)** *Usually healthy by eatin'. It's usually healthy, cause when I stress I eat. …I listen to music cause that's like my stress reliever. … I try to write things down to figure out if there's another way to see whatever the issue is.* **(OB, AA)**
Sports/play	*When I was a young kid I was always into some kind of sports.* **(HW, W)**	*I played sports for many years and I was always really thin. And never really ate right,*	*I still played sports all the way until I was like 30 years old.* **(HW, W)**

	But I always, like was outside swimming and stuff like that. **(HW, W)** *Riding bikes, roller skating, swimming, whatever. Playing,* **(OB, W)** *I rode bikes and walked the neighborhood with all the other girls.* **(OB, AA)**	*didn't eat anything I was supposed to.* **(HW, W)** *Cause like I, back then I was playing sports. I wasn't worried about overeating.* **(OB, W)** *I used to play soccer for the school.* **(OB, W)** *Umm, jr. high I played basketball* **(OB, W)**	

HW= Health weight OW= Overweight OB=Obese
W= White AA=African American H= Hispanic

Findings Across Weight Status

Participants with an obese weight status often reported becoming pregnant as a teen and/or working in fast food restaurants as a teen. Examples include:

> *I had a job since I was like 15. But I used to walk to work but then when I got to work I was eatin' Rally's I was eatin' McDonald's, you know, cause I was there.*
>
> *And I worked at Frisch's, so I was bringing Frisch's home a lot and just eating fast food.*
>
> *And then, um, when I was 17 I got pregnant. So I ate everything!*
>
> *Cause the first kid I had, I was 16.*

With regard to the themes presented in this section, participants with an overweight weight status mostly described adulthood experiences. Examples include:

> *So I went back from having my baby weight to regular weight real quick… I breast fed.* [Biological Influence]
>
> *I crave good [healthy] foods. I want to eat foods like that.* [Attitude toward eating/food]
>
> *When my mother died I lost probably over 100 lbs. Because I didn't eat at all.* [ALE]
>
> *Well, I spent a lot of my time, uh, I'm not gonna lie, I was on um, drugs really bad and in and out of jail.* [ALE]

Participants with a healthy weight status described experiencing death of a significant loved one (ALE) at various points in their lives and decreased eating in response to stress during adulthood. Examples include:

> *When I was 10… my dad was killed by a drunk driver.*
>
> *After I lost my daughter, I had nothing but cake and ice cream for about a year.*

Comparisons within Race/Ethnicity

In comparisons to African American participants, non-Hispanic White participants more often described experiencing an ALE during childhood. African Americans did not describe any childhood ALEs and the only teen year ALEs was teen

pregnancy. Adult ALEs varied in both groups. In comparison to non-Hispanic White participants, African American participants did not report being "kicked out of the home" or "moving out" of the home during teen years. Additionally, African American participants had less reports of participation in organized sports in comparison to non-Hispanic Whites and described more experiences of parent/caregiver influence that promoted unhealthful eating during childhood.

Additional Findings

Cultural Influence

In response to the question "how has race or culture impacted your eating or physical activity behaviors?", many participants did not endorse any cultural influence on their current eating and physical activity behaviors. Those who acknowledged cultural influences generally discussed it with regard to their family's ethnic background or geographic background with regard to types of foods eaten in the home during childhood. Example include:

> *And I think it was just part of their culture. Southern - meat and potatoes, fried fried fried.*
>
> *Like I said, my mom wasn't the healthiest cook. But I developed my own habits. So, she did cook a lot of German food and it was good but not really healthy.*
>
> *Well my grandpa was German. We got Cherokee, German and Italian in the family. … They make a full course meal. Like if we made spaghetti, like spaghetti with meatballs, we made a salad, we make our own bread, and whatever.*
>
> *Even like growing up, I'm not the typical black eater. … I hate greens. I hate potato salad. … you ain't gonna catch me eatin' no chitlins', pig feet and stuff like that. I'm not that kind of black girl.*

One participant talked about her extended family's eating habits when asked about cultural influence. She stated,

> *My family stay fryin' a lot of stuff too. They stay fryin'. That's all we do is fry stuff. Sometimes we can have our moments where we want baked food, healthy style. Like, it's majority fried food.*

One participant discussed cultural influence as it relates to poverty and the food environment that exists within low income neighborhoods. She stated,

> *Umm, well, I guess I say, cause like most, since I am livin' like in um, I guess poverty or low income, that most of the food, like the stuff they sell at the stores in umm, low poverty neighborhoods you always find the corner stores or the restaurants like, that sell that just the fried foods, fried fish and fried chicken. It's usually not healthy things available in low neighborhoods. Low income neighborhoods. So when you go to the store you usually have to get um, the bread, the pasta, the fried…, you know, all that healthy stuff that's available to you.*

Poverty Stigmatization

The participant mentioned above discussed the influence of poverty on the food environment in her community but did not describe experiencing any stigma or bias related to poverty. This was also the case with most participants as they shared their lived experiences associated with managing their weight throughout their lives. Although stigma associated with poverty was not a trending theme within the data, it did emerge within two participants' stories. One participant described experiencing bias from others when grocery shopping and using her SNAP benefits. She stated,

> *So you may get dirty looks, but people don't know your story. So I just go, okay, whatever. [inaudible] you don't know my story. I'm raising two kids that aren't even mine. … They kind of scoff at you. Like they're better than. You know and they kind of give you like, this woman's got this, which I do, I didn't buy this (holds up cell phone). I have a nice phone. I wear nice clothes. And they look at you like, why's she got a phone? Why can't I get it? You're the one that's got it. How? And they don't realize I'm raising a 9 year old and a 10 year old that I've had… my boy was a 17 when I got a one year old and a two year old.*

Another participant made comments that counter the stigma associated with being poor, as she described her experience of growing up in a family with low income. She shared

this portion of her story in the midst of offering counter comments to stigma associated with having an obese weight status. She stated,

> *My mom had a nanny for us. We lived in the projects. She had that nanny. The lady cooked for us and she made the beds and everything else. … we always had the best. We always had a nice house. I don't care if it was in the hood. We always had a nice car. She always dressed us real real nice. Our hair was always done. … And like now that I'm an adult, it's like I still carry that on. I've never been like, oh she's just a big girl. I've always been up to par. I've always been real clean. You know. I ain't lookin' like nothing today, but I always got my makeup together. You know I've always got my hair, toes, and nails and stuff done. You know, I'm just always put together. … I've just always kind of been had like the nicest cars. Always kept a nice house. Just always kind of been on the upper end of the crowd. Even though I'm like…fat…that just ain't never kind of been the issue. I've always had like best of the designer clothes, the best shoes.*

Risk and Protective Factors within the Social Environment

A final level of analysis of the data involved organizing the themes by risk and protective factors. The findings outlined in this chapter reflect 11 parent codes that were developed by grouping together similar child codes that emerged through analyzing the data using the techniques described in the previous chapter. Sixty four child codes were grouped together to create the 11 parent codes. Figure 5 shows the parent codes and the corresponding child codes.

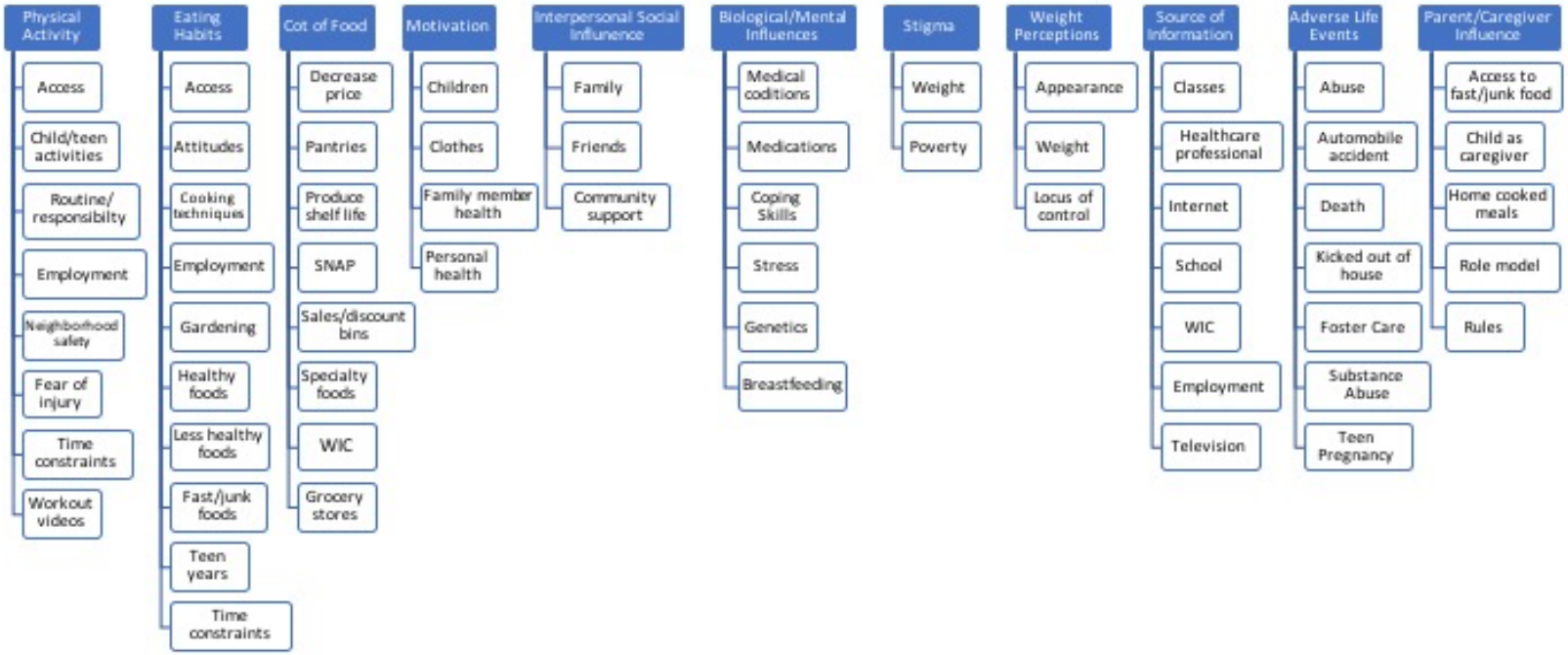

Figure 5. Parent/Child Code

These parent and child codes represent risk and protective factors that exist within the participants' lived experiences associated with managing their weight. Both risk and protective factors were identified within each parent code with the exception of the ALE and stigma parent codes where only risk factors were identified. Many factors transitioned between being a risk for OW/OB and protecting against OW/OB. This transition was seen within and between individual stories. In other words, for one participant the same factor could be risk in one situation (e.g., no transportation to grocery store) and protective in another situation (e.g., having no transportation promoted physical activity). Likewise a factor that was protective for one individual (e.g., children as a motivator for healthful eating and physical activity) was seen to be a risk factor for another individual (e.g., children as an inhibitor for healthful eating and/or physical activity). Other examples of transitioning factors include SNAP benefits, daily routine/responsibilities, attitudes toward eating and food, medical conditions, coping skills, and employment. Examples of risk factors that remained risks for OW/OB throughout the participants' experiences include abuse, medication, death, and unsafe neighborhoods. Examples of protective factors that remained protective against OW/OB throughout participants' experiences include WIC, certain techniques used to manage food cost (e.g., use of sales ads and couponing), and breastfeeding.

Figure 6 depicts the placement of risk and protective factors identified in this study within the context of the SEM. Analysis of the data showed that identified risk and protective factors are present within all five levels of the participants' social environments. Several risk and protective factors situated within the lower levels (i.e., individual, interpersonal and institutional) of the social environment are influenced by

higher levels (i.e., community and policy). For example, SNAP benefits are situated in the individual, institutional, community and policy levels. Participants receive and utilize SNAP benefits (individual level) at food retailers located near them that accept SNAP benefits (institutional level). Participants may experience stigmatization for using SNAP benefits (community level). Criteria for SNAP benefits, eligibility, amount of monthly allotment, and rules governing what items can be purchased with SNAP benefits is decided at the policy level.

Observation of these connections were amplified through the process of situational analysis. The abstract situational map for this study (Appendix B1) shows several human and non-human elements taken from the data that were discussed by participants with regard to their experience with managing their weight throughout their lives. The ordered situational map for this study (Appendix B2) reflects the relationship between the human and non-human elements taken from the abstract map. The social world/arena map for this study (Appendix B3) situates women with low incomes in an arena focused around the OW/OB epidemic in the U.S, and that arena is placed within the larger U.S. public health domain. This map shows five large social worlds within the OW/OB arena - the U.S. government, the health care industry, the media, social movements, and the food beverage industry.

The U.S. government is composed of numerous sub worlds relevant to OW/OB among women with low incomes. For example, it is the USDA that oversees the SNAP and WIC programs. Both of these programs impact the eating habits of women with low incomes. The FDA oversees the food and beverage industry and the U.S. Department of

Labor oversees the federal minimum wage, labor laws, and job development. Participants in this study were either unemployed or had jobs that paid low wages.

Though overseen by the FDA, the food and beverage industry is a powerful world germane to this study as it is involved in every aspect of food in American society, from the production of all foods, to the pricing of foods, to the advertisements that influence food consumption. Sub worlds within the larger social world of the food and beverage industry pertinent to this study include the National Restaurant Association and the National Association of Grocers. Cost of food, access to grocery stores and fast food restaurants were non-human elements impacting the eating behaviors of the study's participants.

Related to the larger world of social movements pertinent to this study were the sub worlds of the war on poverty, women's rights movement and the movement to address fat shaming in society, advanced by the National Association for the Acceptance of Fat People. The social movement world plays a role in societal norms associated with how people are viewed based on weight status and/or income level.

Smaller worlds relevant to this study include state and local governments, local non-profit agencies (e.g., food pantries, agencies that provide financial assistance to the poor), the education system, and non-governmental professional organizations that advocate for healthful living among vulnerable populations such as the American Association of Pediatrics, American Medical Association and the National Association of Social Work.

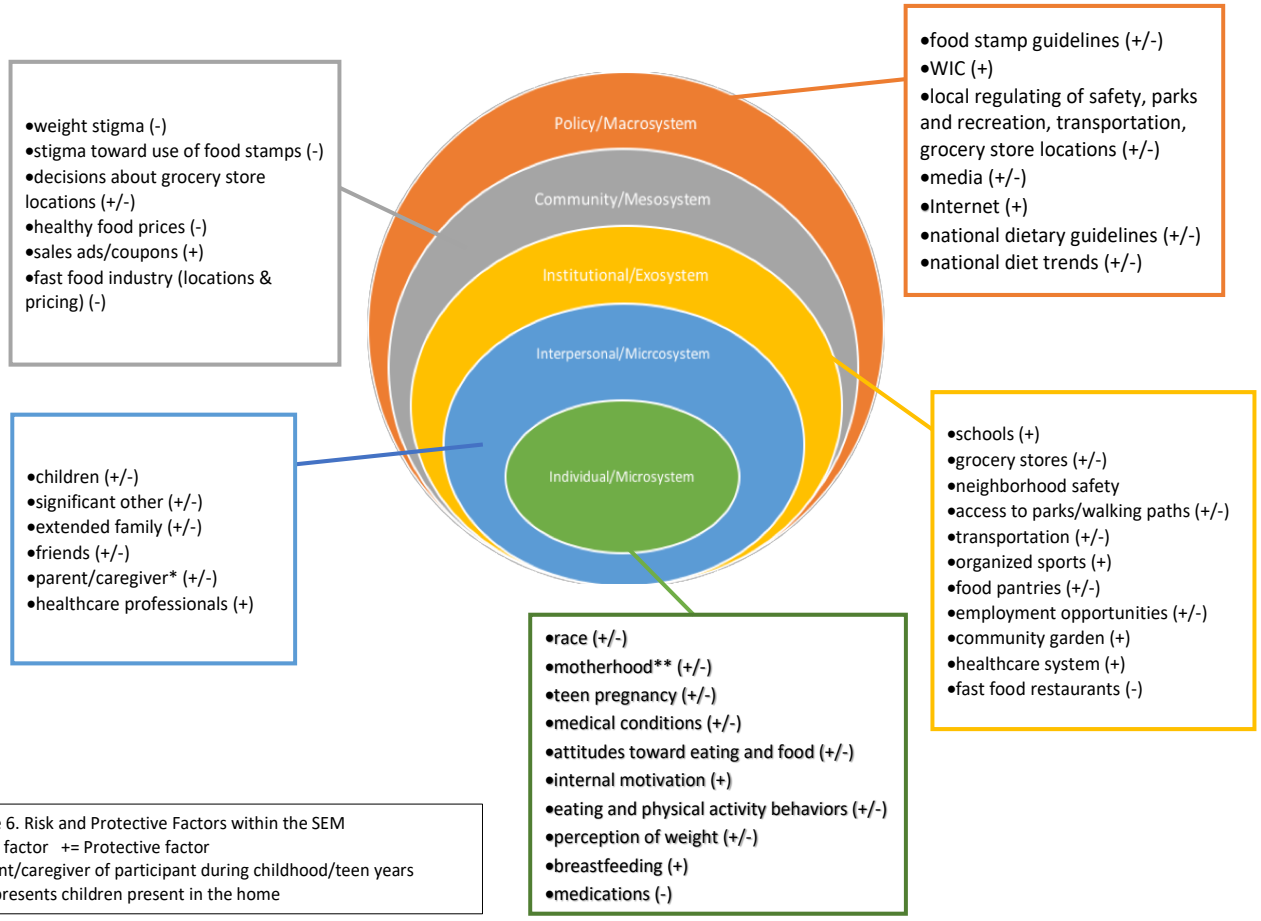

Figure 6. Risk and Protective Factors within the SEM
-=Risk factor += Protective factor
*Parent/caregiver of participant during childhood/teen years
**Represents children present in the home

Summary

This chapter presented the study's findings. It offered better understanding of the risk factors for OW/OB within the social environments of women with low income. It also described how women with low incomes manage these risk factors, allowing us to identify protective factors that exists within the social environment. Specifically, this chapter outlined the various risk and protective factors that impact women with low incomes' ability to engage in healthful eating and consistent physical activity. It also illuminates the variability within the nature of these factors, with some factors being risk in certain situations but protective in other situations. Additionally, the findings show how risk and protective factors are present throughout the life span of the women in the study.

CHAPTER FIVE
DISCUSSION

Introduction

More than two thirds of the U.S population have OW/OB weight statuses; however, women with low incomes disproportionately have OW/OB weight statuses. The obesogenic environment that exists within the U.S impacts people within all income levels but places a greater burden on women from low income backgrounds. Existing literature has explained OW/OB among women with low incomes from a deficit perspective while existing protective factors within the social environment of women with low incomes has received less attention. In addition the focus has primarily been on the individual and their immediate social environments, with less focus being placed on distal levels of the social environment. The purpose of this study was to explore existing protective factors against OW/OB within the proximal and distal social environment of women with low incomes that help them to manage environmental barriers to engaging in weight related healthful behaviors. After summarizing the research questions and offering a brief description of research methods used in this study, this chapter is organized as follows: summarization of findings, application of the SEM, implications for practice and research using the SEM as a guide, limitations, and conclusion.

Research Questions

The four research questions address the central aim of this study, to understand how women with low incomes navigate barriers to weight related healthful behaviors

within the social environment. Research Question 1 sought to address how women with low incomes manage to engage in healthful eating in an environment with limited access to healthful foods. Research Question 2 sought to address how women with low income manage to engage in consistent physical activity in an environment with limited opportunities for physical activity. Research question 3 sought to address how the presence of children in the home impact weight related health behaviors in an environment with limited access to healthful foods and opportunities for physical activities. Lastly, Research Question 4 sought to understand the role of weight stigma in the lives of women with low incomes.

Methods

To answer these questions this study utilized a qualitative narrative inquiry approach. A qualitative narrative approach was most suitable for this study for two main reasons. First, a qualitative approach allows for gaining insights not possible through quantitative methods. And second, our experiences are shaped by the sum totals of our lives, a narrative approach captures the life stories of participants. A purposive sample of women with children present in the home and women with no children present in the home, with varying weight statuses was recruited using convenience and snowball sampling. Individual interviews were conducted, audio recorded and transcribed verbatim by the researcher. Data analysis was reiterative and identified recurring themes and most salient themes. Code development was driven by the data. Trustworthiness was established by creating an audit trail (e.g., memos and fieldnotes), member checking, triangulation, establishing interrater reliability, and peer debriefings.

Summary of Findings

The findings presented in the previous chapter highlight the nature of barriers to engaging in healthful eating and consistent physical activity for women with low incomes and how these women manage those barriers. This section summarizes these findings organized with barriers being discussed first, followed by protective factors.

Barriers to Healthful Eating and Physical Activity

Limited Access to Healthful Foods

As expected the primary barrier to engaging in healthful eating by the women in this study was the ability to access healthful foods. Access was mostly reported to be restricted by cost of healthful foods and lack of transportation. While the findings did not reveal any new barriers not already identified in the literature they did reveal the multiple layers of the existing barriers. We know from the literature that cost and location of full service grocery stores are the primary components of food insecurity and that food insecurity is a significant barrier to women with low incomes engaging in healthful eating (Hernandez et al., 2017; Ivers & Cullen, 2011; Larson & Story, 2011). What we learned from this study is that cost of food as a barrier is not limited to the cost of fruits, vegetables and lean meats, and transportation as a barrier is more complex than just getting a ride to the store. We also learned how these women manage these barriers. These areas are described in more detail below.

Cost of Food. Some woman in the study identified additional layers to the cost of food. Those being specialty foods and the short shelf life of fresh produce. Several women in the study identified having medical conditions that impose special dietary restrictions on them. Many of these restrictions required them to purchase foods that have

a higher price such as gluten free, sugar free, and lactose free foods. This further limits the elasticity of their food budgets. Women with low incomes have poorer health outcomes than their higher income counterparts (Galea & Vaughn, 2019; Gundersen & Ziliak, 2015). Therefore, it is important to understand that those with health conditions impacting their dietary needs may experience an additional financial burden associated with the cost of food. This impacts their ability access healthy foods. Additionally, not being able to access needed specialty foods that mitigate the impact of their health condition (e.g., sugar free foods for someone with diabetes) could serve to agitate the medical condition and/or cause health care providers to view this population as non-compliant with recommendations.

Shelf Life of Produce. Impacting all women in the study was the short shelf life of fresh produce. Fresh produce is not a food that can be purchased at the beginning of the month in a quantity that last for the whole month as it will spoil. As with previous studies, many in this study indicated that their SNAP benefits do not last for the month (Dinour et al., 2007; Hamerick & Andrews, 2016). Findings suggests that those who's SNAP benefits run low or run out by the end of the month are forgoing the purchase of fresh produce during this time of the month since it is more expensive. Furthermore participants with limited access to transportation may have sufficient SNAP benefits or other resources but can only get to the store once a month, limiting the amount of fresh produce purchase as to avoid waste of food and resources.

Transportation. Similar to other studies examining barriers to healthy eating among women with low incomes, transportation to full service grocery stores was also a barrier for the women in this study (FRAC, 2019). However, the findings of this study

deviated from previous studies in that the women in this study did not report relying on local corner stores for food. All of the women in this study described shopping at major retail grocery chains for purchasing food. Although public transportation is available in Hamilton, women in this study who do not have their own cars, reported relying on others for rides or walking to the grocery store and to food pantries. Some of the woman with no cars opted not to ride the bus to the grocery either due to safety concerns or having to maneuver the bus system with small children. In this study the issue with transportation was not the absence of it but more so the frequency of available transportation or the ability to carry fresh produce a long distance without bruising it for those opting to walk. This study's findings suggest that transportation as a barrier to accessing healthy foods is more complex than simply having basic access to public transportation. In other words, increasing the number of bus routes to local grocery stores would not have solved the transportation issue described by the women in this study because they do not use the bus.

Children Present in the Home as a Barrier

Compared to women with no children present in the home, women in the study who had children present discussed not being able to afford recommended quantities of healthful foods in the context of attending to the food preferences of their children and having enough food for the month. In addition to purchasing foods preferred by children, some described making differing main food dishes for meals or only eating less healthful foods on a regular basis because these are the foods their children prefer. No one with children present identified that they made decisions regarding nutrition due to having a child with special dietary needs. This suggests that parenting style with regard to nutrition

may be an additional component of managing the monthly food budget for women with low incomes who have children in the home. Additionally, catering to the food preferences of children, or just the sheer presence of additional people to feed, may be contributing factors to SNAP benefits not lasting for the month. Woman in this study who reported that SNAP benefits did not last for the month tended to be those with children present in the home. All but one woman with no children present reported their SNAP benefits lasted for the month.

Also those with children present described time constraints as a barrier to engaging in healthful eating and physical activity. This coincides with findings from other studies examining barriers to healthful eating among women with low incomes who have children present in the home (Baruth et al., 2014). In this study, time constraint was described in terms of having limited time for meal preparation and limited time for physical activity outside of that associated with direct care of younger children. This concern was primarily heard from single women with children present in the home. This suggests that time constraints as barrier to engaging in weight related healthful behaviors among women with low incomes is not only associated with the presence of children in the home but also household composition (i.e., single versus cohabitating). This also may help explain why single women with low incomes who have children present have higher levels of OW/OB compared to those who are married or cohabitating with children present in the home (Tucker & Lowell, 2016).

Physical Ailments

Previous studies have indicated that women with low incomes engage in less physical activity due to time constraints associated with motherhood and having limited

opportunities for physical activity (Baruth et al., 2014; Molitor et al., 2016). While these reasons were also endorsed in this study, several women also described physical ailments as a barrier to engaging in consistent physical activity. Chronic pain related to a medical condition, a previous injury or aging (e.g., arthritis) was the most cited barrier to engaging in consistent physical activity. Additionally, fatigue associated with certain medical conditions or the treatment of medical conditions was also listed as a factor. The literature has shown that women with low incomes have disparate rates of chronic health conditions (Oates et al., 2017). The findings of this study add another dimension as to why this population may engage in less physical activity that has not been previously considered.

Unsafe Neighborhoods

Unsafe neighborhoods as a barrier to physical activity among women with low incomes has been well established in the literature (Dubowitz et al, 2015; Prus, 2011). Results of this study were no exception. Although, neighborhood safety was listed as a concern for women in the study, this concern as a barrier to engaging in consistent physical activity was mostly reported by those with children present in the home. In comparison to women with no children present who cited neighborhood safety as a concern, women with children present who also cited this concern were more likely to report refusing to walk in their neighborhoods. Additionally, women who still lived in the neighborhoods they grew up in had less concerns for safety than those who were less familiar their neighborhoods. Similarly, a few women who lived within the same neighborhood offered differing perceptions of safety. These findings indicate that perception of safety may be more significant than actual crime statistics when

considering interventions to address unsafe neighborhoods as a barrier to physical activity among women with low incomes.

Adverse Life Events

Women in this study described experiencing adverse life events that negatively impacted their eating and/or physical activity behaviors including trauma. Previous studies have shown an association between traumatic experiences and OW/OB through unhealthful eating habits such as emotional and binge eating (Mason et al., 2014; Meyer & Stanick, 2018; Ruffault et al., 2018). This was also seen among some of the woman in this study who experienced trauma. Those who did experience trauma describe events occurring during childhood and during adulthood. Although these events negatively impacted the eating habits of some, those who reported engaging in emotional eating and gaining weight, also reported not retaining the excess weight long term.

Two women who experienced trauma have a current obese weight status. One denied any changes in eating habits, reporting she was already consistently eating unhealthful foods prior to the trauma beginning (intimate partner violence). The other one, who was hit by a drunk driver, reports this event improved her eating habits but significantly decreased her physical activity due to chronic pain. She attributes her weight status to low levels of physical activity.

Based on these findings this researcher believes trauma may not be the primary factor leading to long-term weight gain but instead secondary to individual internal factors that may or may not help one manage trauma. For example, two women in this study reported experiencing sexual abuse as a child. One described gaining weight due to an increase in consumption of food; the other described reducing food consumption. In

both situation, eating habits were negatively impacted by trauma, but in different ways. Further research is needed to understand why some who experience trauma develop and sustain OW/OB weight statuses and others do not. Some of the results of this study indicate that a desire to regain control over one's life may be a contributing factor for those who returned to their baseline eating habits and continue to maintain a healthy weight status.

Stigmatization

The findings of this study did not suggest any direct connection between experiencing stigma related to poverty and the eating and physical activity behaviors of the women in the study. Stigma associated with poverty was mentioned far less frequently than stigma associated with weight. Poverty related stigma was discussed from the perspective of receiving "dirty looks" from others and low income neighborhoods having lower quality food environments. The study's findings do indicate weight related stigma impacting the lives of women in the study. Although internalization of weight stigma was not directly mentioned, many women expressed dissatisfaction with their weight related to their appearance. This includes those with a healthy weight status. More interesting, the women who had an overweight weight status all expressed contentment with their weight. Additionally, African American woman, all of who had an obese weight status, expressed a greater satisfaction with their weight with regard to appearance compared to non-Hispanic White women with an obese weight status. Weight was less frequently described in terms of health across the sample.

These findings suggest to this researcher that the women in this study were highly influenced by societal norms that have reconceptualized weight status from an

appearance perspective instead of a health perspective. Based on these findings, this researcher proposes that the reconceptualization of weight based on appearance, in conjunction with two thirds of the population having OW/OB weight statuses, has created a new normal with regard to appearance. This new normal leaves those with healthy weights believing they are "too skinny" and those with an obese weight status but on lower the BMI scale, measuring their weight based on the appearance of those with a higher level BMI obese weight status. Meanwhile, those with an overweight weight status are left feeling "okay" about their weight because this weight status has become the new perceived "normal" weight. This reconceptualization of weight may also be a contributing factor to race/ethnicity being a protective factor against body dissatisfaction while simultaneously being a risk factor for having OW/OB statuses among the African American women in the group.

In the case of poverty and weight related stigmas, none of the women acknowledged engaging in any unhealthful behaviors associated with either stigma. In fact, most denied experiencing mistreatment associated with their weight and most denied others expressing concern about their weight. However, findings did suggest that the women felt a sense of responsibility for their weight status. Despite the many barriers to engaging in healthful eating and physical activity behaviors described by the women, all of them expressed ideas indicating they believed they were ultimately responsible for their health behaviors regardless of outside influences.

These findings lead this researcher to believe that societal norms that have conceptualized OW/OB as the fault of the individual and ignore socioenvironmental influences, may be driving this sense of responsibility within the study's participants.

These findings also indicate that this sense of responsibility may be a contributing factor to reports of inconsistent healthful eating and physical activity behaviors for some of the women in the study. Some women in the study described healthful eating and physical activity behaviors as their baseline behaviors. While others described healthful behaviors as a means to an end, with the end being weight loss. These women were inconsistent with engaging in healthful behaviors and often oversimplified their role in managing their weight with comments like, "I know what I need to do, I just need to do it." This researcher argues that weight stigma is so pervasive in society that the women in this study who "diet" to lose weight do not recognize they are being negatively influenced by weight stigma, as "dieting" has been shown to be associated with regaining of weight (Hutchinson, 2011). Therefore, these women may be in a perpetual cycle of "yo-yo" dieting.

Promoters of Healthful Eating and Physical Activity

Increasing Access to Healthful Food

Several protective factors within the social environment that help mitigate the impact of barriers to healthful eating were identified. Most of the women in this study described a variety of tactics used to increase access to healthful foods. Women in this study described budgeting resources, using government assistance programs (i.e., SNAP, WIC), sales ads, coupons, pantries and, relying on their immediate social support system to offset the cost of food. While resources such as SNAP and food pantries have sometimes been identified as risk factors for OW/OB in other studies (Lappan et al., 2019; Hamrick & Andrews, 2016), in this study they were also protective in nature. Despite reports of SNAP benefits not lasting for the entire month, most of the women in

the study described how SNAP benefits enabled them to purchase healthier, more expensive foods such as fruits, vegetables and lean meats. Some of the women also reported utilizing food pantries that offered fresh produce and promoted the selection of more healthful foods by making them more visible in comparison to how grocery stores promote foods.

These findings not only highlight protective factors at the disposal of women with low incomes but also highlight their ability to problem solve through strategic planning. In order to strategize on how to access healthful foods, one must have some level of awareness of what constitutes healthful foods. Therefore, these findings also indicate that the women in this study have at the least a basic conceptualization of healthful eating as many described eating more fresh fruits and vegetables, limiting canned and processed foods, using cooking techniques that limit the addition of fats, and limiting their sugar intake by cutting back on soft drink consumption. This also suggests that one's level of nutritional knowledge in addition to access to healthful foods may play a larger role in protecting against OW/OB than one's access to healthful foods alone. The women in this study all presented with limited access to healthful foods due to limited resources, however those that expressed higher levels of nutritional knowledge were more strategic in their efforts to access healthful foods. Finally, while basic nutritional knowledge appeared to be present across the sample, African American woman were more likely to describe using "frying" as a cooking techniques. This suggest that food preferences related to race/ethnicity may offset the impact of nutritional knowledge on food selection, thus impacting food budgeting.

Mother - Child Relationship

Pediatricians. It is not surprising that health care providers were the most frequently mentioned source of information for healthy eating and physical activity among the women in the study regardless of motherhood status. A positive association has been found between increased fruit and salad consumption among adults with low incomes and primary care physician advice (Lorts & Ohri-Vachaspati, 2016). This study also showed that women with children present in the home also received information about weight related health behaviors vicariously through their pediatricians' recommendations for their children. There is a strong link between childhood and adulthood obesity (Pachucki et al, 2014). Based on these findings this researcher suggest that pediatricians could play an important role in helping women with children present in the home engage in weight related healthful behaviors by educating them on the connection between their health behaviors and their children's overall wellbeing.

Source of Information. It was also not surprising that the media (e.g., television) was a source of information for some in the study regardless of motherhood status. Some described cooking shows as a source of information for cooking techniques and others listed commercials as a more general source of health information. What was surprising in the study was the use of the Internet as a source of information. Only women with children present in the home mentioned the Internet as a source of information, suggesting that these women are more likely to take the initiative to seek out health information related to eating healthy and physical activity. This researcher interprets this to be further evidence that interventions that target the relationship between mother and child could play a pivotal role in addressing OW/OB among women with low incomes as

well as childhood obesity. This point is made further by the women in the study who described WIC as a source of information for healthful eating since WIC is geared toward both the mother and the child, not just the child. In fact, women with low incomes become eligible for WIC prior to giving birth. WIC is available at the onset of pregnancy, whereas SNAP benefits are not available for an unborn child (USDA, n.d.).

Motivation. Women in the study, regardless of motherhood status, described motivation for engaging in weight related health behaviors to be related to improvement or maintenance of their own overall health, concern for a family member's health, or concern due to a family history of a specific health issue (including obesity). However, the findings of this study show the power of the mother-child relationship with regard to motivation. For example, medical conditions and chronic pain were barriers to physical activity across the sample, however, women with children present in the home continued to engage in physical activity associated with their parenting responsibilities, including taking the children on recreational activities. Additionally, women with children present managed to engage in outdoor physical activity with their children despite their perception of neighborhood safety. Most of the women with children in this study described taking their children outside of the neighborhood to engage in activities if they perceived the neighborhood to be unsafe. Creating ways to engage in physical activity for their children indicates that when women with children describe time constraints as a barrier to physical activity, they may be referring to solitary physical activity and not overall physical activity.

Parent/Caregiver Influence. So far we have viewed the mother-child relationship in the context of how children present in the home impact the eating and

physical activity behaviors of the women in the study. Results of the study related to eating and physical activity behaviors during study participants' childhoods allow us to examine the impact of the mother-child relationship from a different perspective. Women in this study described the role their mothers (or fathers and grandparents in some cases) played in shaping their eating and physical activity behaviors early in life. Although some women in the study described growing up in households with very loose rules around mealtimes, in between meal snacking, and consumption of junk food, others attributed their nutritional knowledge and positive attitudes toward eating and physical activity to their mother or another caregiver role modeling appropriate health behaviors and setting boundaries around food. These women described growing up in homes with structured mealtimes, limited or no access to junk food, minimal between meal snacking, and having "no choice" but to go outside and play. Findings related to the childhood eating and physical activity behaviors juxtaposed with the findings related to current behaviors suggest that eating behaviors learned earlier in life have a greater impact on adulthood eating behaviors in comparison to the impact of physical activity behaviors learned early in life on adulthood physical activity behaviors. Women in this study described mimicking the eating behaviors learned during childhood in their adult lives. Those who were allowed to eat junk foods and had unstructured mealtimes have loser attitudes toward healthful eating and report engaging in unhealthful eating habits now, whereas most of those who described having structured meals times and limited access to junk food, continue to practice these behaviors.

Transportation as Promoter

Most of those who did not have their own car described walking as their primary form of physical activity because "I don't have a car." In this study, transportation is a prime example of a factor that vacillates from risk to protective and vice versa based on situation. Although a barrier to grocery shopping for some women, a lack of transportation also serves as a promoter of physical activity for these women. Those with no personal transportation described "walking everywhere I go" with the exception of the grocery store. These findings suggest that studies that report women with low incomes have lower levels of physical activity should not be interpreted to mean they are not engaging in any physical activity. In other words, while the activity level maybe lower than their higher income counterparts, it may not be as low as initially thought, especially for households with children present. For example, the National Household Transportation Survey conducted by the Federal Highway Administration (FHA), showed that households with children present travel over twice as much as those with no children present due to trips to daycare, school, doctor's appointments, social activities and visits to other family members (FHA, 2014). The results of that survey are seen in this study with several women with children present describing walking their children to school, and going to doctor's appointments and parks.

Employment

Similar to transportation, employment also fluctuates from risk to protective depending on the place of employment. Some women in the study described having jobs that promote physical activity while others described having jobs that promoted healthy eating. Jobs promoting physical activity included home health care, warehouse work, and

cleaning jobs. Jobs promoting healthy eating include restaurants that market more nutritious type foods and health food stores. These types of jobs create a sharp contrasts to jobs at fast food restaurants. Several participants described working for fast food restaurants during their teen years and also reported an increase in consumption of junk food and weight gain due to eating at work and taking food from work home to eat.

These findings suggest that employment opportunities available to women who live in low income neighborhoods play an important role in their health outcomes. This researcher argues that this is especially true for teenagers with low income as it is during this stage of human development that we start to exert more independence in decision making as we establish our identity (Rawson, 1974). Several women in the study described having an attitude of "I can eat whatever I want" and "you can't tell me what to eat" during their teen years. Based on the findings in this study in combination with what we know about the stages of human development, this researcher contends that having fast food restaurants as the primary source of employment for teens with low income, may have long term negative consequences on the health and wellbeing of these youth, especially if they live in food insecure households.

Organized Sports

An unexpected finding in this study was the number of women who reported being involved in organized sports during their childhood and teen years. This was surprising because the literature suggests that youth from low income backgrounds are less likely to be involved in sports in comparison to youth from higher income backgrounds (Yancy & Kumanyika, 2007). Eight of the fourteen women in the study reported participating in sports during their youth, with one continuing to engage in

sports into her thirties. While some of these women currently have OW/OB weight statuses, they reported that their involvement with sports during their teens offset their poor eating habits during that period, slowing down or limiting weight gain. In this capacity organized sports is a protective factor against OW/OB. Some also identified previous involvement in sports as a source of information for physical activity. However, of the eight with histories of participation in organized sports, only two currently have a healthy weight status, the remaining six have either OW/OB weight statuses. These findings juxtapose with participants' childhood eating behaviors indicate that childhood eating behaviors may have more of an influence on adulthood eating behaviors compared to the influence of childhood physical activity behaviors on adulthood physical activity behaviors. Women in this study who described being active as children through normal child play activities and being active during their teens through organized sports did not report maintaining this level of physical activity as an adult. Some who were involved in sports during their teens described having little to no consistent physical activity as an adult.

Summary

The findings in this study explicate the complexities of socioenvironmental factors impacting the eating and physical activity behaviors of women with low incomes by adding more depth to the distal and proximal barriers identified in the literature review from chapter two. The findings also demonstrate the fluidity of some environmental factors as they transition between being a risk or protective factor based on the individual and/or situation. Finally, the findings remind us that reports of women with low incomes having lower levels of fruit and vegetable consumption and lower levels of activities

compared to higher income counter parts should not be misinterpreted to mean they are not engaging in these healthful behaviors.

Social Ecological Model

The results of this study demonstrate the interplay between the various levels of the social environment of women with low incomes. The following is a discussion of each level of the social environment including a discussion of how identified risk and protective factors are situated within the level. This discussion is guided by the results of this study only and does not incorporate the results of previously conducted studies.

Policy (Macrosystems)

Several factors identified in this study are situated at the policy level. The federal government (e.g., USDA and FDA) not only provides oversight to food assistance programs like SNAP and WIC, it also is responsible for subsidies to farmers impacting the cost of food production (Popkin, 2010). Therefore, these policies influence food insecurity at the Individual level and influence the quality and pricing of food manufactured by the food and beverage industry at the Community level. Meanwhile some USDA policies contribute to the protective nature of government assistance programs, such as WIC allowing for "free" fruits and vegetables. The USDA also is responsible for the established dietary recommendations for Americans impacting nutritional knowledge at the Individual level.

State and local government policies also interplay with lower socioenvironmental levels. Tax dollars allocated at the state and local levels of government provide funds for parks and recreational facilities, and public safety. Local municipalities decide where parks, recreation centers and green spaces are located within the community and how the

funds will be utilized to ensure public safety. Local municipalities also work in conjunction with the food and beverage industry (Community level) to determine the location of full service grocery stores as well as fast food restaurants, impacting the food environment (Institutional level), food insecurity (Individual level) and employment opportunities (Individual level). However, development of employment opportunities is the responsibility of all three levels of government - federal, state and local.

Also at the Policy level is the media. In the context of this study the media influences the Individual level through television programming. Shows like "*My 600lb Life*" and the "*Biggest Loser*" reinforce the impression that obesity is a "real real big person" and further reinforce stereotypes associated with having an obese weight status (Community level). However, cooking shows may be a protective factor for some who do not know how to cook and are wanting to learn new recipes or techniques to enhance their cooking skills or healthful meal options (Individual level). Although not directly mentioned in the findings of this study, it is assumed that the mass marketing of junk food and fast foods in the media likely influences food choices of the women in this study by virtue of exposure through watching television.

Community (Mesosystems)

The food and beverage industry sets the pricing for food and is responsible for the production and distribution of food. In addition to location of food outlets, how the industry prices food not only contributes to food insecurity at the Individual level but also contributes to over consumption of less healthful foods as these less healthful foods tend to cost less. The difference in price between healthful foods and junk foods make it

difficult to increase the fruit and vegetable consumption of women with low incomes as availability does not translate to affordability.

National social movements associated with ending poverty, increasing inclusion (i.e., different body types seen in ads, etc.), and empowering women influence stigma associated with poverty and weight, and may have some impact on improving the quality of life for women with low incomes. National professional organizations such as the American Academy of Pediatrics, The Obesity Society, American Medical Association and National Association of Social Workers impact the Institutional level (e.g., healthcare system, child welfare system, nonprofit arena), Individual and Interpersonal levels (e.g., direct practice) and the Policy level (e.g., conducting research and lobbying for change).

Though stigma associated with weight status and poverty is situated within the Community level of the SEM, its influence is ubiquitous throughout the entire social environment. Stigma strongly influences the Policy level, including the media, concurrently being reinforced by that level. This cyclical relationship between the Community and Policy level with regard to stigma is experienced at the Individual level by the women in this study (e.g., weight perceptions based on appearance, experiencing "dirty looks" when using SNAP benefit) Furthermore, the reconceptualization of weight status has put individuals at odds with the larger health care system (Institutional level) and their individual health care providers (Interpersonal levels) as the healthcare system has not changed its conceptualization of weight.

Institutional (Exosystems)

At the Institutional level is neighborhood safety, the food environment, access to physical activity opportunities, and available jobs. These factors have already been discussed and will not be rehashed here.

Also at the Institutional level are food pantries, schools and organized sports. While full service grocery stores were not located within the low income neighborhoods of the women in this study, in general food pantries by nature of the services they provide, were only located in low income neighborhoods making them easier to access. In the context of this study, food pantries help mitigate the impact of food insecurity and provided access to more healthful foods. Meanwhile school curriculum provides health education and physical activity through mandatory gym classes and through organized sports. Additionally, organized sports are offered through local recreation centers or youth sports leagues. Schools and organized sports provide health information and increase opportunities for physical activity to the individual. However, their ability to do these things is often influenced by the Policy level (i.e, funding and curriculum mandates set by the U.S Department of Education).

Interpersonal (Microsystems)

At the Interpersonal level children, significant others, friends, extended family, teachers, coaches, and healthcare professionals are situated. In this study, these relationships are fluid in nature, sometimes serving as risk, other times serving as protective within the life of each woman in the study. While this level of the social environment has great influence on the Individual level, it is not immune to the influence of higher levels. It is at this level that educational and health related services (medical and

mental) are delivered. Teachers, doctors, social workers and so forth follow the mandates set by their governing bodies, which may or may not reinforce poverty and weight related stigma. Direct care service providers are also impacted by available resources based on decisions made at the Policy and Institutional levels.

Individual (Microsystems)

The close relationship between the Individual level and Institutional levels was seen throughout this study. While motherhood, race, nutritional knowledge, food insecurity, medical and mental health issues are Individual level factors, they are so intertwined with the Interpersonal and Institutional levels that this may explain why the influence of higher levels like Community and Policy have largely gone unstudied. With regard to the Individual level, this study's findings did illuminate the importance of those pivotal teen years, identifying them as a potential individual risk factor for OW/OB among women with low incomes.

Summary

In this section the SEM model was applied to the findings of this study. By taking a closer look at each level we can see that no one level is more important than the other. And we see that both risk and protective factors are situated within every level. Therefore, it is important that interventions addressing OW/OB among women with low incomes take into consideration the many moving parts of the entire social environment. For example, based on this study, placing a full service grocery store in the center of a low income neighborhood likely will not change their access to healthful foods as their SNAP benefits will still run out halfway through the month. Similarly, increasing neighborhood safety and creating more walking paths may not increase the physical

activity level of the women in this study whose physical activity is influenced by medical conditions or time constraints associated with motherhood. The next section will present implications for policy makers, practitioners and future research.

Implications

This section will present suggested changes at the Interpersonal, Institutional, Community and Policy levels of the social environments. These suggestions are intended to empower the individual to manage their weight through engagement in healthful eating and physical activity behaviors. These implications reflect the findings of this study in conjunction with the extant knowledge gained from the current literature and are intended to address OW/OB among low income women on a national scale. Though most may agree that a significant amount of change is needed to address this issue, they cannot all possibly be presented here. Therefore for the sake of brevity, only the most salient ones drawn from this study and the larger body of existing literature will be presented.

Policymakers

SNAP Benefits

First, monthly SNAP benefit allotments should be determined by the cost of food in the recipients' geographic location instead the current one size fits all approach. This may help the benefits last longer into the month in areas where food cost more. This variation in allotment amounts already exist for the states of Alaska and Hawaii (Center on Budget and Policy Priorities, 2018). Next, to increase access to fresh produce, SNAP recipients should be allotted a specific dollar amount that can only be used toward fresh produce, similar to the WIC program. This amount would not be in place of a current portion of benefits received but in addition to current benefits. This type of benefit

already exist in some states through programs like Ohio's Produce Perks, which allows SNAP recipients' produce purchases to be matched up to $20 at participating farmers markets (Welch, 2015). This practice should be incorporated at food retail stores that accept SNAP benefits.

Subsidies Impacting Food Cost

Currently the federal government provides subsidies to farmers that produce easily processed foods (e.g., soybeans and corn) in order to keep the cost of meat low (Popkin, 2015). Similar subsidies need to be considered for those who grow crops that are not easily processed (i.e., fresh produce) but are essentially nutritious in nature. Subsidies from the federal government for food production should align with its own recommendations for food consumption. Though the USDA recommends more servings of fruits and vegetables per day than servings of meat (USDA, 2018), it continues to subsidize the production of meat products.

Marketing of Foods

We are inundated daily with advertisements on television for junk foods and fast food. The volume of these ads in comparison to ads for healthful foods is overwhelming. While this researcher is not suggesting a complete and total ban of junk food and fast food television ads, similar to Congress' ban on cigarette ads in 1970 (CDC, n.d.), it is recommended these ads be reduced in number with even further limitations being placed on foods marketed toward children. At the very least, limiting ads toward children may offer some assistance to mothers with low income whose food intake is impacted their children's food preferences. Additionally, it is recommended that there be an increase in the number of health promoting ads on television and on the Internet related to healthful

foods and physical activity. Based on this study, the Internet is a popular source of information for women with low incomes and television is also a source of information. According to earlier estimates the USDA was spending $1.50 per person on nutrition education whereas the food and beverage industry was spending $50 per person to advertise its products (Jeffery & Utter, 2003). Current spending trends was not readily available in the current literature but based on this researcher's observation of television ads, the gap in spending has likely not decreased.

Practitioners

Traditional healthcare workers (i.e., doctors, nurses), social workers, teachers and school administrators all provide some level of service to women with low incomes at some point in their lifetime. Most influential to the weight related health behaviors of women with low incomes seems to be doctors. There are two recommendations for doctors. First, in addition to traditional standards for measuring and discussing weight (i.e., weighing on an actual scale and BMI scale calculation), PCP's should also discuss weight in a language similar to how women with low incomes (and possibly others) measure their weight. Several participants talked about "knowing" they need to "do something" about their weight because of knee pain, being winded when they take the steps, and how their clothes fit. Connecting to these women about their weight using terms that they use to indicate they need to make a change, may be more impactful than using words like "obesity" especially considering how that word invoked negative thoughts and feelings in the women in this study. It is also important to consider that some women in the study with an obese weight status viewed themselves as having an overweight weight status because they perceived obese to be only applicable to someone

"real real big." PCPs should incorporate questions like, "how do you feel when you climb stairs?", "are you experiencing any knee pain when you walk or climb stairs?" and "has your clothes size changed in the past six month?"

The second recommendation has to do with enlisting the help of pediatricians for low income women with children in the home. Mothers generally put the health of their child before their own, therefore pediatricians may have a more captive audience than even a PCP. Also, mothers more than likely have more contact with a pediatrician than their own PCP. Unless ill, adults are only recommended to go to the doctor once a year. However, up to the age of two, children go to the doctor multiple times a year. Therefore, it is recommended that pediatricians move away from only offering weight related health information about the child to also offering information that benefits the mother's weight directly. This conversation should reiterate the link between mom's health behaviors and the child's overall wellbeing. Based on this study, the connection between childhood and adulthood OW/OB flows in both directions, therefore, childhood obesity cannot be addressed without addressing adulthood OW/OB simultaneously.

A final recommendation for practitioners would be to incorporate the topic of weight and poverty related stigma into agency trainings on diversity and inclusion. As mentioned earlier, stigma is ever present throughout the social environment, even among educated professionals. Practitioners must become mindful of how our social interactions with women from low income backgrounds may reflect stigma associated with poverty and for those with OW/OB weight statuses, stigma associated with weight. In this study, participants used a variety of words to describe their weight including, "skinny," "slender", "obese," "fat," "big girl," and "plus-size." Words that were acceptable for

some participants were offensive to others. Likewise, participants in the study did not use any poverty-related words often used by practitioners to describe themselves. No one referred to themselves as poor, vulnerable, low-income, disenfranchised, underserved or at-risk. They described their lives in terms of having or not having money and being able to afford or not being able to afford something. As practitioners we should adopt a language when working with this population that empowers them instead of reinforcing stigma.

Future Research

Based on the results of this study the following research is recommended. It is recommended that a retrospective study be conducted to explore the connection between weight related health behaviors during the teen years and current adulthood weight status. In this same area, a retrospective study should be conducted to determine if there is an association between current adult weight statuses and the types of jobs held as a teenager. Prospective longitudinal studies should also be conducted to address this issue. Furthermore, teenage pregnancy was a common theme among the women in this study. Research is needed to better understand the impact of teen pregnancy on OW/OB among women with low incomes. A longitudinal study exploring differences in gestational weight gain and retention of gestational weight between teenage and adult females with low incomes is warranted.

Research should also be carried out that measures the impact of this researcher's recommendation for enlisting the help of pediatricians to address OW/OB among mothers with low incomes. The research should measure differences in outcomes (if any) between mothers with low incomes who receive health information specific to their needs

from their PCP and a pediatrician and mothers who only receive information from their PCP. Additionally, more research is needed to explore differences between single mothers with low incomes and those who are cohabitating or married. Within this study, the only noted difference between the two groups was time constraints related to physical activity and meal preparation. Factors impacting OW/OB among single mothers with low incomes in comparison to those who are cohabitating or married are not well understood.

Further research is recommended to explore the impact of society's reconceptualization of OW/OB among women with low incomes and society as a whole. While quantitative approaches could be used to measure differences and to make associations related to this phenomenon, a constructivist grounded theory qualitative approach might also prove useful to develop a working theory to explain and how weight status is understood in society.

Lastly, while research exists that explores the impact of weight stigma on women with low incomes, less research has explored the impact of poverty related stigma on the eating and physical activity behaviors of low income women. And further research is suggested to explore the impact of trauma on eating behaviors and weight gain among women with low incomes as this also is not well understood. Both of these issues surfaced within the data of this study but no salient themes emerged.

Strengths and Limitations

There is a dearth of information on the protective factors that attenuate the influence of risk factors for OW/OB among women with low incomes. This study is unique in that it was strength focused instead of deficit focused using Resilience Theory to complement the application of the SEM to the lived experiences of women with low

incomes. This study sought to identify existing protective factors within the social environment of women with low incomes based on their perspectives using qualitative methods. Unlike many studies that address OW/OB among this population that applying only the lower levels of the SEM to explain the phenomenon, this study utilized every level of the SEM to discuss OW/OB, further highlighting why it is imperative that we not ignore the meso and macro levels of the social environment of these women. This study addressed a research gap in protective factors and the impact of higher level societal structures on OW/OB among women with low incomes. This study has implications for strength based interventions at the policy and direct practice levels.

Despite the many strengths of the study, there are limitations to report. The first relates to participants' demographics. The sample lacked diversity with regard to race/ethnicity and sexual orientation. This is partly due to using a purposive convenience sample to recruit women with low incomes with a goal of stratifying based on motherhood status. Additionally, while every weight category was represented, the sample contained noticeably more women with an obese weight status in comparison to the other two weight statuses. This may be a reflection of women with low incomes having a disparate rate of obesity, making it possible that they were more likely to be encountered during recruitment activities.

Another limitation of the study was a lack of detailed descriptions of experiences with poverty related stigma. This topic did not naturally emerge through conversations with the majority of participants and the researcher chose not to inject it in an effort to limit insertion of the researcher's perceptions related to stigma associated with poverty. In line with a narrative inquiry approach, the researcher followed the stories being told by

the participants in the context of a specific situation. In this case, that situation was managing barriers they experience related to healthy eating and physical activity and their thoughts on different weight statuses. In retrospect, the researcher believes an opportunity was missed to incorporate the topic into the study after interview #10, the first and only interview describing poverty related stigma. Interviewees after this could have been asked their opinion of interview # 10's experience to solicit information. However, based on interview #10's description, no evidence that poverty related stigma has had an impact on her eating or physical activity behaviors was present in her life's story. Also, previous participants interviewed did not make any comments related to poverty related stigma, so it is possible no new information would have emerged from the remaining interviews.

Neither of the two limitations mentioned here detract from the strengths of the study mentioned above. However they were useful with informing some of the future research projects outlined in the Implications section of this chapter.

Conclusion

Women with low incomes in the U.S. disproportionately have OW/OB weight statuses. Efforts to better understand this phenomenon have mostly focused on deficits within the women themselves or their immediate social environments. This is unfortunate as this is the type of information needed by policy makers, practitioners, and researchers to develop strength-based intervention and prevention strategies to address OW/OB among women with low incomes. This study has contributed to decreasing this gap in knowledge by elucidating the complex nature of socioenvironmental factors that promote weight gain and how women with low incomes maneuver around these factors.

This study specifically focused on the resiliency of women with low incomes in managing the risk factors associated with OW/OB. This is significant in that it provided information for policy makers and practitioners who are looking to address the obesogenic environment that exists in low income communities. It also increased the knowledge base of health care professionals who work directly with this population such as doctors, nurses, dieticians and social workers. Because the study included mothers with low incomes, it also serves as a resource for those studying childhood obesity given the positive association between childhood obesity and adulthood OW/OB (Pachucki et al, 2014). Lastly, this study expanded our current conceptualization of women with low incomes with regard to their active pursuit of overcoming their obesogenic environment.

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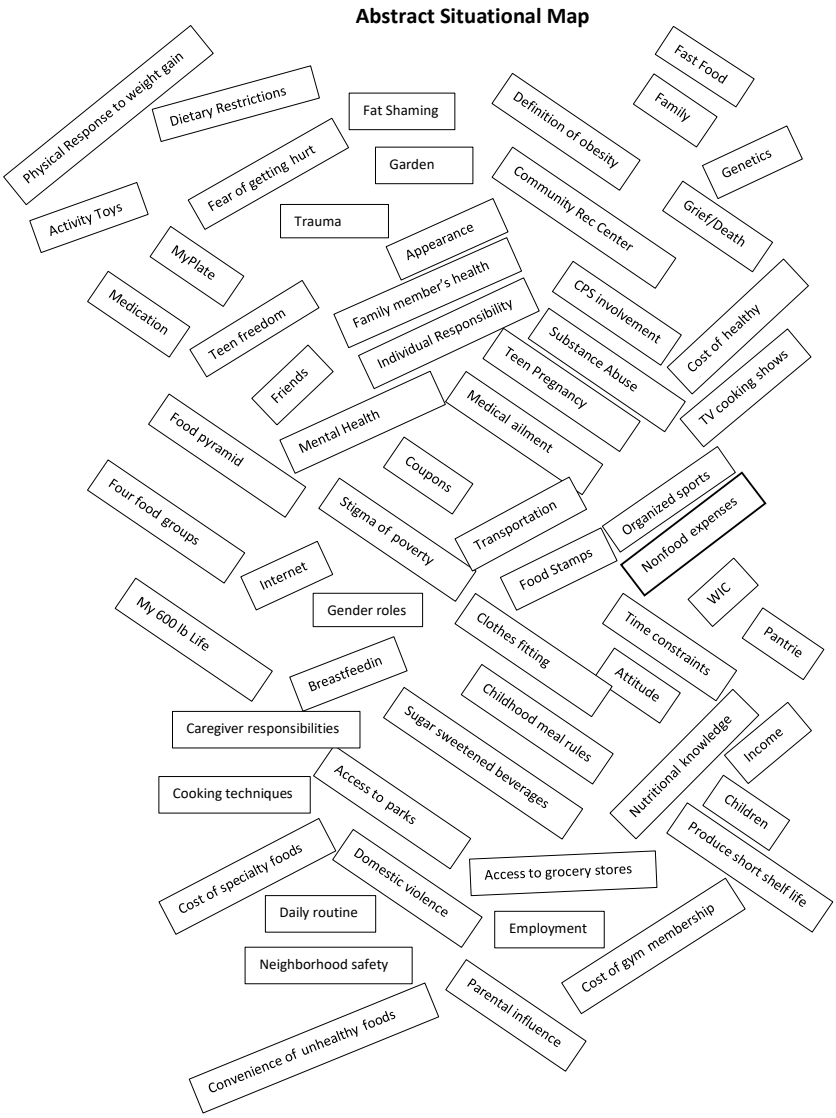
Appendix A

Introduction: (*Reintroduce myself to participant*).I have asked you to participate in this interview because I want to hear your story about managing your weight. I would like to hear anything you feel comfortable sharing about eating, physical activity and how you feel about your weight in general. This interview will last about 45 minutes. I will start with a general question and you can share as much as you like, without me interrupting. Afterward, I might ask a few follow up questions to make sure we do not miss anything. I want to make sure I get your whole story. Remember, the interview is being recorded to correctly record what you feel is important. Do you have any questions or comments before we start? (*Answer any questions/respond to comments*). Are you ready? Let's begin.

Domains (Content Areas) **Study Aims**	**Primary Question**	**Probes (secondary questions, if needed)**
Engaging in healthful eating	Tell me your story of how you manage your weight.	What does healthy eating look like for you? How do you get your information about healthy eating? Tell me about anyone/anything that helps you to eat healthy. Tell me about anyone/anything that keeps you from eating healthy.
Engaging in physical activity		What does physical activity look like for you? How do you get your information about physical activity? Tell me about anyone/anything that helps you to be physically active. Tell me about anyone/anything that keeps you from being physically active.
Attitudes and beliefs about weight		How do you feel about your weight? How do others feel about your weight? What thoughts/feelings come to mind when you hear the word obesity?
Engaging in healthful eating and physical activity as a mother		How does having children effect healthy eating for you? How does having children effect your physical activity?

Appendix B1


Abstract Situational Map
Physical Response to weight gain
Dietary Restrictions
Fat Shaming
Definition of obesity
Fast Food
Family
Genetics
Fear of getting hurt
Garden
Community Rec Center
Grief/Death
Activity Toys
Trauma
Appearance
MyPlate
Family member's health
CPS involvement
Medication
Teen freedom
Individual Responsibility
Substance Abuse
Cost of healthy
Friends
Teen Pregnancy
TV cooking shows
Mental Health
Medical ailment
Food pyramid
Coupons
Four food groups
Stigma of poverty
Transportation
Organized sports
Nonfood expenses
Internet
Food Stamps
WIC
My 600 lb Life
Gender roles
Clothes fitting
Time constraints
Pantrie
Breastfeedin
Attitude
Childhood meal rules
Caregiver responsibilities
Sugar-sweetened beverages
Nutritional knowledge
Income
Cooking techniques
Access to parks
Children
Produce short shelf life
Cost of specialty foods
Domestic violence
Access to grocery stores
Daily routine
Employment
Cost of gym membership
Neighborhood safety
Parental influence
Convenience of unhealthy foods

Appendix B2

Structured Situational Map

Individual Human Elements Actors
Low Income Women
Parents of low income women
Children
Spouse/Partner
Pediatrician

Non-Human Elements/Actants
Internet
Nutritional Knowledge
Transportation
Recreation Centers/Parks
Food Environment

Collective Human Elements Actors
Healthcare professionals
Butler Co. Jobs & Family Services
Community health clinics
YMCA/YWCA

Implicated/Silent Actors
Friends
Food and beverage industry
Local government officials
TV show about weight

Discursive Constructions of Individual
Children=motivation
Children = barrier to health behaviors
Spouse/partner = support
Spouse/partner = barrier
Friends = support
Pediatrician = source of info for healthy eating

Discursive Constructions of non-human Actants
Healthy food=unaffordable
Internet = source of health information
WIC=source of info for healthy eating
Homecooked meals= healthy
WIC= free fruits/veggies

Political/Economic Elements
Cost of healthier foods
Public Assistance
Employment opportunities

Socio-cultural/Symbolic elements
Ideas about weight/obesity
Organic= healthiest
Gender roles
Personal responsibility

Temporal Elements
Childhood/teen eating habits
Proximity to grocery stores
Time spent on caregiver responsibilities
Independence during teen years

Spatial Elements
Obesogenic environment
Physical activity during childhood/teens
Home food environment
Proximality to fast food/convenience store

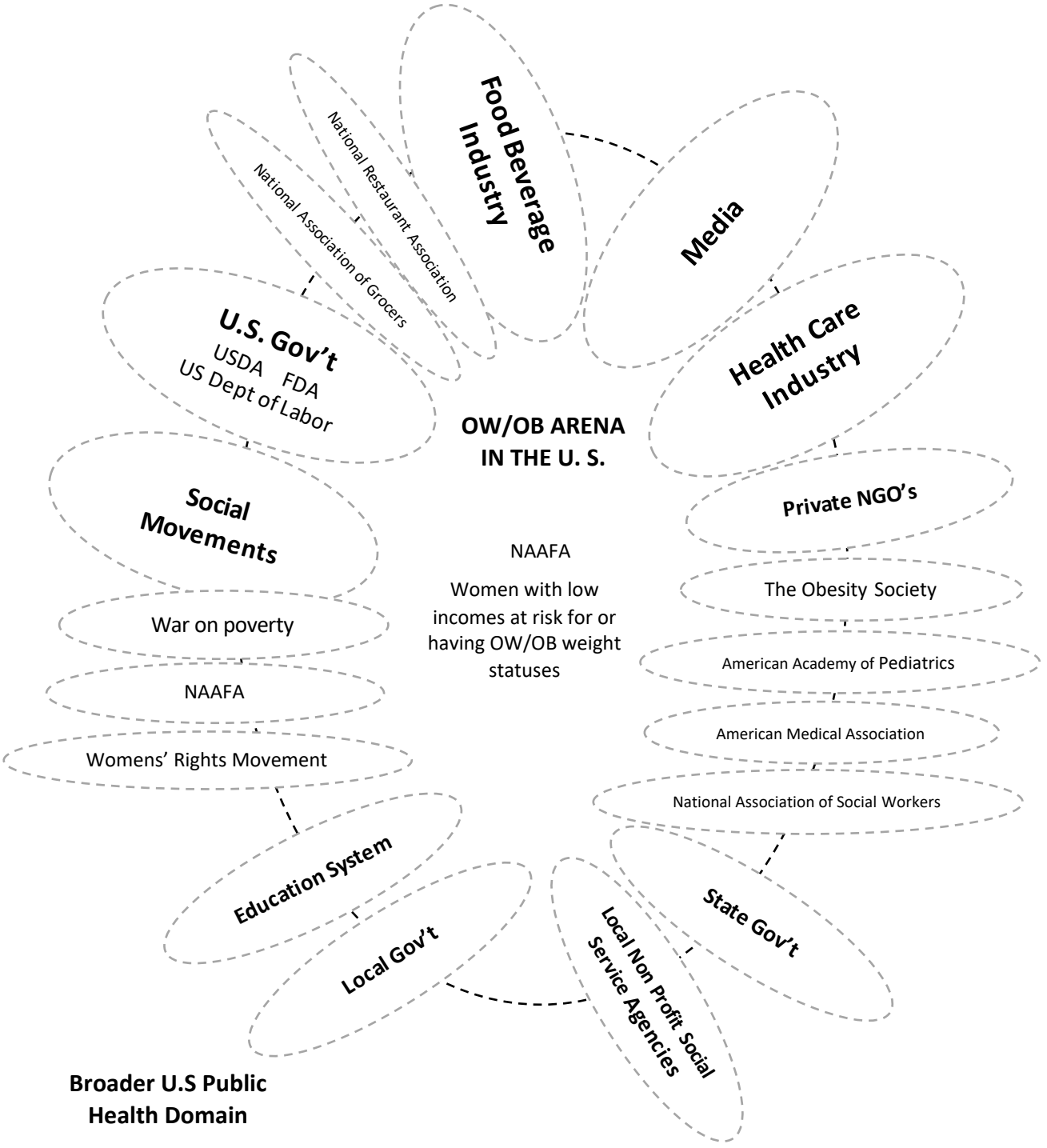
Major Issues/Debates
Obesity - health vs appearance
Pantry - healthy vs unhealthy

Related Discourses (Historical, narrative, and/or visual)
Mass media
Societal messages

Other
Adverse life events
Feelings about weight
Health issues

Appendix B3

World/Arena Map



Appendix C

Supplemental Nutrition Assistance Program Guidelines

What Can SNAP Buy?

Any food for the household, such as:

- Fruits and vegetables;
- Meat, poultry, and fish;
- Dairy products;
- Breads and cereals;
- Other foods such as snack foods and non-alcoholic beverages; and
- Seeds and plants, which produce food for the household to eat.

Households CANNOT use SNAP benefits to buy:

- Beer, wine, liquor, cigarettes, or tobacco
- Vitamins, medicines, and supplements. If an item has a Supplement Facts label, it is considered a supplement and is not eligible for SNAP purchase.
- Live animals (except shellfish, fish removed from water, and animals slaughtered prior to pick-up from the store).
- Prepared Foods fit for immediate consumption
- Hot foods
- Any nonfood items such as:
    - Pet foods
    - Cleaning supplies, paper products, and other household supplies.
    - Hygiene items, cosmetics

Retrieved from Food and Nutrition Service - https://www.fns.usda.gov/snap/eligible-food-items

Appendix C cont'd

Snapshot of Monthly Food Package for Women and Children

Foods	Children	----------Women----------		
	Food Package IV: 1 through 4 years	Food Package V: Pregnant and Partially (Mostly) Breastfeeding (up to 1 year postpartum)	Food Package VI: Postpartum (up to 6 months postpartum)	Food Package VII: Fully Breastfeeding (up to 1 year post-partum)
Juice, single strength	128 fl oz	144 fl oz	96 fl oz	144 fl oz
Milk 2	16 qt	22 qt	16 qt	24 qt
Breakfast cereal 3	36 oz	36 oz	36 oz	36 oz
Cheese	N/A	N/A	N/A	1 lb
Eggs	1 dozen	1 dozen	1 dozen	2 dozen
Fruits and vegetables	$8.00 in cash value vouchers	$11.00 in cash value vouchers	$11.00 in cash value vouchers	$11.00 in cash value vouchers
Whole wheat bread 4	2 lb	1 lb	N/A	1 lb
Fish (canned) 5	N/A	N/A	N/A	30 oz
Legumes, dry or canned and/or Peanut butter	1 lb (64 oz canned) Or 18 oz	1 lb (64 ounce canned) And 18 oz	1 lb (64 ounce canned) Or 18 oz	1 lb (64 ounce canned) And 18 oz

Retrieved from Food and Nutrition Service - https://www.fns.usda.gov/wic/wic-food-packages-maximum-monthly-allowances

Appendix D

UNIVERSITY OF LOUISVILLE

Human Subjects Protection Program Office
MedCenter One – Suite 200
501 E. Broadway
Louisville, KY 40202-1798
Office: 502.852.5188 Fax: 502.852.2164

DATE: July 19, 2019
TO: Emma M Sterrett, PhD
FROM: The University of Louisville Institutional Review Board
IRB NUMBER: 19.0638
STUDY TITLE: Identifying Protective Factors among Low-Income Women against Overweight/Obesity
REFERENCE #: 688511
IRB STAFF CONTACT: Jackie Powell, CIP
852-4101
jspowe01@louisville.edu

This study was reviewed and approved with changes by the Chair of the Institutional Review Board on 07/17/2019. The resubmitted changes were and approved by the Human Subjects Protection Program staff on 7/19/19. This study was approved through Expedited Review Procedure, according to 45 CFR 46.110(b), since this study falls under Category 7: Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies

This study now has final IRB approval from 07/19/2019 through 07/18/2022.

The following items have been approved:

Submission Components			
Form Name	Version	Outcome	
Submit for Initial Review	Version 1.0	Approved as Submitted	
Review Response Submission Form	Version 1.0	Approved as Submitted	
IRB Study Application	Version 1.0	Approved as Submitted	
Study Document			
Title	Version #	Version Date	Outcome
Interview guide	Version 1.0	07/11/2019	Approved
Flyer	Version 1.0	07/11/2019	Approved
Demographic Questionnaire	Version 1.0	06/28/2019	Approved
Written Protocol	Version 1.0	06/28/2019	Approved
Consent Form	Version 1.0	07/18/2019	Approved

Your study does not require annual continuing review. Your study has been set with a three year expiration date. If your study is still ongoing you will receive iRIS automated reminders to submit a request to continue your study prior to the expiration date above.

All other IRB requirements are still applicable. You are still required to submit amendments, personnel changes, deviations, etc… to the IRB for review. Please submit a closure amendment to close out your study with the IRB if it ends prior to the three year expiration date.

Human Subjects & HIPAA Research training are required for all study personnel. It is the responsibility of the investigator to ensure that all study personnel maintain current Human Subjects & HIPAA Research training while the study is ongoing.

For guidance on using iRIS, including finding your approved stamped documents, please follow the instructions at https://louisville.edu/research/humansubjects/iRISSubmissionManual.pdf

Please note: Consent and assent forms no longer have an expiration date stamped on them. The consent/assents expire if the study lapses in IRB approval. Enrollment cannot take place if a study lapses in approval. For additional information view Guide 038.

Site Approval
If this study will take place at an affiliated research institution, such as KentuckyOne Health, Norton Healthcare or University of Louisville Hospital/James Graham Brown Cancer Center, permission to use the site of the affiliated institution is necessary before the research may begin. If this study will take place outside of the University of Louisville Campuses, permission from the organization must be obtained before the research may begin (e.g. Jefferson County Public Schools). Failure to obtain this permission may result in a delay in the start of your research.

Privacy & Encryption Statement
The University of Louisville's Privacy and Encryption Policy requires such information as identifiable medical and health records: credit card, bank account and other personal financial information; social security numbers; proprietary research data; dates of birth (when combined with name, address and/or phone numbers) to be encrypted. For additional information:
http://security.louisville.edu/PolStds/ISO/PS018.htm.

Implementation of Changes to Previously Approved Research
Prior to the implementation of any changes in the approved research, the investigator will submit any modifications to the IRB and await approval before implementing the changes, unless the change is being made to ensure the safety and welfare of the subjects enrolled in the research. If such occurs, a Protocol Deviation/Violation should be submitted within five days of the occurrence indicating what safety measures were taken, along with an amendment to revise the protocol.

Unanticipated Problems Involving Risks to Subjects or Others (UPIRTSOs)
In general, these may include any incident, experience, or outcome, which has been associated with an unexpected event(s), related or possibly related to participation in the research, and suggests that the research places subjects or others at a greater risk of harm than was previously known or suspected. UPIRTSOs may or may not require suspension of the research. Each incident is evaluated on a case by case basis to make this determination. The IRB may require remedial action or education as deemed necessary for the investigator or any other key personnel. The investigator is responsible for reporting

UPIRTSOs to the IRB within 5 working days. Use the UPIRTSO form located within the iRIS system to report any UPIRTSOs.

Payments to Subjects
As a reminder, in compliance with University policies and Internal Revenue Service code, all payments (including checks, pre-paid cards, and gift certificates) to research subjects must be reported to the University Controller's Office. For additional information, please contact the Controller's Office at 852-8237 or controll@louisville.edu. For additional information:
http://louisville.edu/research/humansubjects/policies/PayingHumanSubjectsPolicy201412.pdf

The committee will be advised of this action at a regularly scheduled meeting.

If you have any questions, please contact the IRB analyst listed above or the Human Subjects Protection Program office at hsppofc@louisville.edu.

Peter M. Quesada, Ph.D., Chair
Social/Behavioral/Educational Institutional Review Board
PMQ/jsp

We value your feedback. Please let us know how you think we are doing:
https://www.surveymonkey.com/r/CCLHXRP

CURRICULUM VITAE

Monica M. Adams, LISW-S
8073 Mill Creek Circle
West Chester, OH 45069
Monica.Adams@louisville.edu

EDUCATION:

PhD in Social Work - University of Louisville, Louisville, KY - May, 2020
Dissertation Title: Identifying Protective Factors Against Overweight and Obesity within the Social Environment of Women with Low Incomes
Chair: Emma Sterrett-Hong, PhD

Master of Social Work – Virginia Commonwealth University, Richmond, VA – May 2000

Bachelor of Social Work – West Virginia University, Morgantown, WV – May 1994

CURRENT LICENSURE/CERTIFICATIONS:

Licensed Independent Social Worker Supervisor – 01/06 – Present

PROFESSIONAL EXPERIENCE (POST-MSW):

Cincinnati Children's Hospital Medical Center, Cincinnati, OH 45229
Social Worker – Division of Psychiatry - 03/16 – Present
Complete psychiatric risk assessments in the Emergency Department and refer child to the appropriate level of care. Report suspicions of child abuse/neglect to child protected services as needed. Provide support to families in crisis who phone into the Psychiatric Intake Response Center for help. Facilitate direct admissions from outside hospitals.

Social Work Care Manager – Division of Social Services -10/14 – 03/16
Managed a caseload of patients and families with significant psychosocial needs. Served as liaison between the medical team, community partners, and families. Completed psychosocial assessments. Developed and implemented treatment plan with family's input. Assessed for safety concerns. Supported patients and families in working toward self-sufficiency. Advocated for needs of patients and families.

Social Worker II-Division of Social Services – 04/12 – 10/ 2014
Social Worker I -Division of Social Services– 09/10 – 04/12
Performed psychosocial assessments. Encouraged family involvement in decision-making processes. Supported patients and families in managing/improving their socioeconomic status. Linked families to community resources. Provided crisis assessment and intervention. Assessed for safety concerns. Reported suspicions of abuse and neglect to children's services and appropriate law enforcement. Advocated for needs of patients and families. Educated medical staff regarding issues faced by families served. Provided field supervision to MSW students.

Fort Hamilton Hospital, Hamilton, OH 45011
Social Worker—11/08 – 11/11
Facilitated the discharge planning process. Referred adult patients and families to appropriate community resources. Completed psychosocial assessments. Conducted Behavioral Health Risk Assessments in the Emergency Department. Notified Adult and Child Protective Services as necessary. Completed documentation in accordance with hospital guidelines.

Children's Home of Northern Kentucky, Covington, KY 45011
Director of Treatment Services – 12/07 – 09/10
Provided clinical consultation and administrative oversight to the residential and community-based programs of the agency. Ensured programs complied with guidelines set forth by the agency's governing bodies. Developed/refined programs within the residential program to ensure effective service delivery. Served as a member of the Senior Management team. Developed written proposals in response to state government Request for Proposals. Provided field supervision to MSW and BSW students.

Clinical Supervisor – 02/07 - 12/07
Provided clinical consultation and administrative oversight to the residential therapists and case managers of the agency's residential program. Provided individual, group and crisis intervention counseling when necessary.

Lighthouse Youth Services, Cincinnati, OH
Assistant Program Director—08/06 – 02/07
Assisted Director with managing a group home and ensuring the program complied with agency policies as well as the agency's governing bodies. Supervised clinical staff and direct care staff. Responsible for reviewing and approving all clinical documentation. Provided individual, family and group mental health counseling, and case management services to adolescents. Completed diagnostic assessments and treatment plans. Provided field supervision to MSW and BSW students.

Clinical Supervisor – 03/06 – 08/06
Provided clinical supervision to clinical staff. Responsible for reviewing and approving

all clinical documentation. Provided individual, family, and group mental health counseling and case management services to adolescents in a group home setting. Completed diagnostic assessments and treatment plans.

Social Worker – 05/05 – 03/06
Provided individual, family, and group mental health counseling and case management services to adolescents in a group home setting. Completed diagnostic assessments and treatment plans. Provided pre-crisis and crisis intervention as needed.

St. Joseph Orphanage (Altercrest Campus), Cincinnati, OH
Clinical Therapist – 03/03 – 06/05
Provided individual, family and group mental health counseling. Facilitated pre-crisis and crisis interventions for clients as necessary. Completed diagnostic assessments and treatment plans.

Fairfax County Community Services Board, Fairfax, VA
Mental Health Therapist –05/00 – 11/02
Provided individual/group counseling, pre-crisis and crisis intervention, and case management for assigned adolescents in a residential setting.

PEER REVIEWED PUBLICATIONS:

Sterrett-Hong, E., Kincaid, C., Hardaway, C., **Adams, M**., MacFarlane, M., & Jones, D. (In press). Individual- and family-level correlates of socio-emotional functioning among African American youth from single mother homes: A Compensatory Resilience Model. *Journal of Family Issues.*

Sterrett-Hong, E., Antle, B., Nalley, B., & **Adams, M**. (2018). Changes in couple relationship dynamics among low-income parents in a relationship education program are associated with decreases in their children's mental health symptoms. *Children*, 5(7), 90.

Wallace, E., & **Adams, M**. (2015). Racial and ethnic disparities in access to dental care, and delayed dental care in older adults in Cincinnati. *The Journal Pan African Studies*,7(9), 72-82.

Beck, A., Henize, A., Klein, M., **Adams, M**., & Kahn, R. (2015). A road map to address the social determinants of health through community collaboration. *Pediatrics*, 136(4), e993–e1001.

MANUSCRIPTS IN PROGRESS

Adams, M., & Sterrett-Hong, E. (In progress). Creating true freedom in food choice in an obesogenic environment: A common good approach to ethical decision making.

TEACHING/ADADEMIC EXPERIENCE:

Field Supervisor - University of Louisville (online program)
SW670 & 672 - Social Work Foundation and Advanced Field Practicum - 2018-2019

Trainee- University of Louisville
Delphi U Principles of Online Course Design - 2018

Instructor - University of Louisville
SW636 - Death and Grief -2018

Guest Lecturer - University of Cincinnati
AFST1022- Health and Wellness - 2014 -present

Guest Lecturer - University of Cincinnati
SW4080- Social Work Field Seminar I – 2013

SERVICE

Peer reviewer for Journal of Child and Family Studies
Peer reviewer for Pediatrics

PRESENTATIONS:

Connections between Sexual Abuse and Being Overweight – Understanding Emotional Eating - Voices in Action Annual National Conference, Cincinnati, OH. 2005 and 2006

HONORS AND AWARDS:

Graduate Dean's Citation - 2020
School of Graduate and Interdisciplinary Studies Diversity Assistantship - 2016-2018
Kent School of Social Work Doctoral Assistantship - 2018-2020