

**Health Policy**

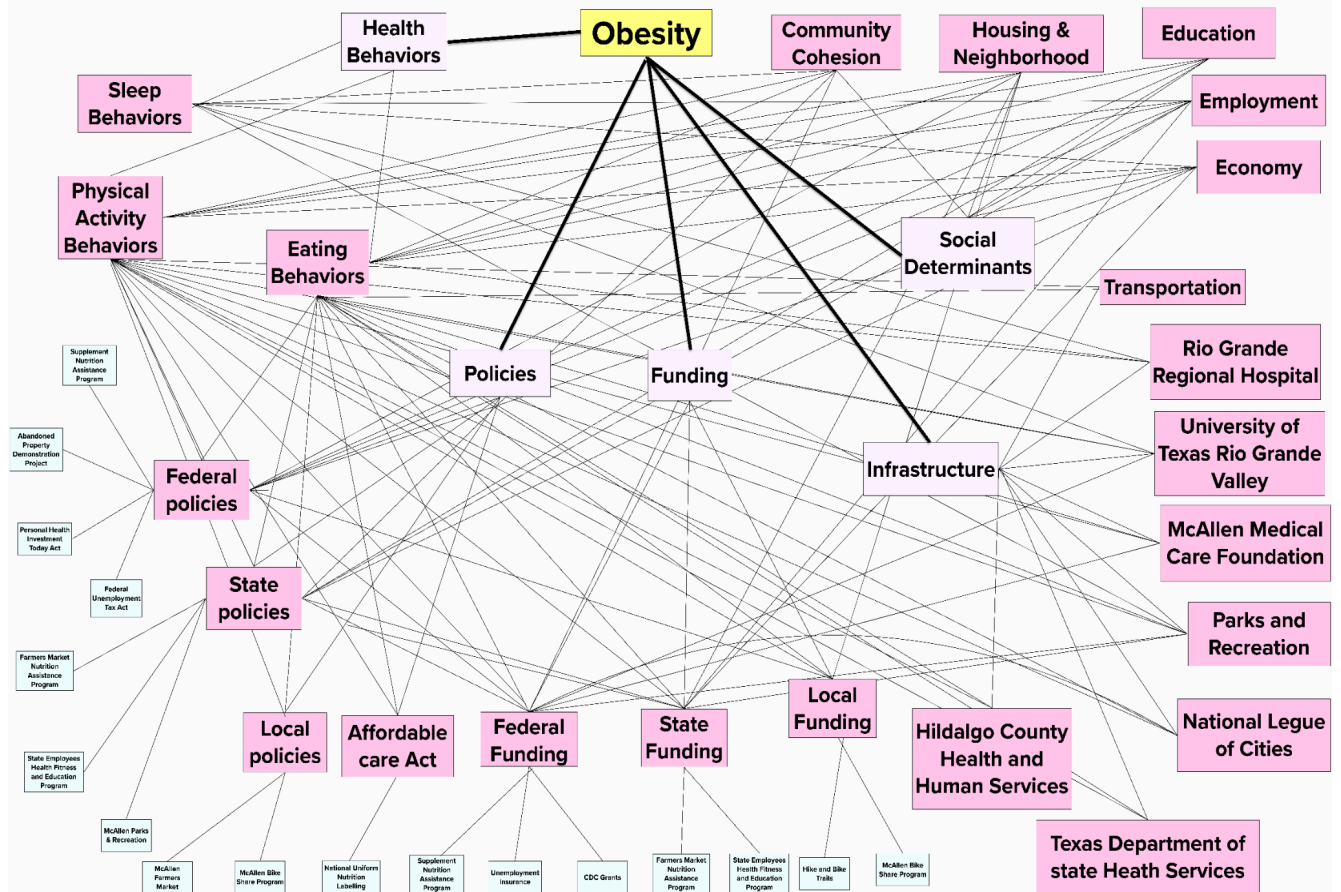
**A System Map of Obesity in Adults in McAllen, TX**

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## A Systems Perspective of Obesity in Adults in McAllen, TX - Overall Systems Maps



## Health Policy

### A System Map of Obesity in Adults in McAllen, TX

#### Health Issue

According to WHO (2021) Obesity or Overweight is defined as excessive or abnormal fat accumulation in the body which presents a risk to health. Obesity rates in the USA have more than doubled since 1980 (Harvard T.H. Chan) with obesity rates of 44.90% in McAllen city, TX known as America's fattest city (Rachel et.al., 2021). Review of this literature focuses on building evidence-based system maps on health behaviors and social determinants associated with obesity and their interrelationships between them. Blue dotted line in the map indicates the relation between social determinants and health behaviors.

#### Health Behaviors

Health behaviors are defined as the individual's actions towards their health. There are several obesity promoting behaviors among which this literature review focuses on eating behaviors, physical activity behaviors, and sleep behaviors.

**Eating Behaviors:** High cost of healthy food when compared to junk food has an association with healthy eating behaviors of individuals (Rao et.al., 2013). For instance, a bag of chips is cheaper than broccoli and feeding a family of four at a Wendy's is cheaper than cooking a healthy meal at home (Mark Bittman, 2011). In a research study Traversy & Chaput, (2015) found that heavy consumption of alcohol is linked to elevated risk of weight gain and development of obesity. 78.3% of the population at McAllen drink alcohol at least once in a month (City data 2021). Consumption of larger portion sizes than required is a primary energy intake environmental driver and moreover, studies suggest that large portion size is associated with an increase in obesity prevalence in the United States (Barbara & Kirsty, 2014). Energy density is defined as the number of calories per gram of food and high energy density foods consist of added sugars, fats, they are highly tasty, cheap and convenient (Jason et.al., 2007). Research studies indicate that intake of high energy density food is associated with an increase in obesity incidence rates in the United States (Jason et.al., 2007). 7% of the population at McAllen consume high energy density foods i.e., fast-food, frozen foods and ready to eat foods (City data, 2021). There is huge availability of fast-food centers at McAllen, TX (Alfonso, 2019).

Consumption of Sugar Sweetened Beverages (SSB's) are one of the leading causes of obesity and its associated comorbidities in the United States (CDC, 2021). SSB have little nutritional value and the feeling of fullness when compared to solid food is low and therefore, overall energy consumption increases resulting in unhealthy weight gain (WHO, 2019).

Away-from-home foods are less nutritious, have higher energy density and include larger portions and therefore, frequently having foods outside home increases the risk for obesity (Ayala et.al., 2008). 3.9% consume away from home foods in McAllen, TX (City data 2021). The number of fast-food centers are greater than the number of grocery stores in McAllen, TX (Staff, 2018). Interventional studies suggest that improving nutritional knowledge resulted in a decrease in weight status of individuals which indicated that lack of nutritional knowledge is one of the leading causes of obesity (Laz et.al., 2015). Food insecurity is a structural barrier for individuals to consume healthy nutritious food which impacts their healthy eating behaviors and

results in obesity (Pan, 2012). Many residents of Rio Grande valley (McAllen city) in South Texas are food insecure (Staff, 2018).

**Physical activity:** McAllen has the highest share of physically inactive adults i.e., 36.9% (Sandra, 2020). Motivation is an important driving force for an individual to sustain his health behavior. Lack of self-motivation towards physical activity directly affects the activity level of individuals which results in obesity (Teixeira et.al., 2012). Social support is another important driving force of physical activity and evidence from research studies suggests that individuals with high social support especially from family for physical activity are engaged in more leisure time physical activity (Gabrielle et.al., 2017). Built Environments (BE) includes proper building distribution, spaces that support physical activities (sidewalks, bike trails, parks, recreation centers) and it has strong association with increased physical activity among people within the built environment (Salvo et.al., 2018). According to Whitecare, McAllen has about 80 parks including those at public schools (Sandra, 2020). Fear of injury especially in diabetic obese people is another factor preventing people to activity engage in physical activity and therefore, reducing the fear of injury may encourage people to exercise more (Huebschmann et.al., 2011). Self-efficacy is one of the major determinants of physical activity and once self-efficacy for physical activity is obtained there is an increased chance for the person to engage in that behavior for a longer period despite obstacles (Pekmezi et.al., 2009). As the age of the person increases muscle mass and strength decreases which in turn decreases physical activity (Suryadinata et.al., 2020). According to recent Wallethub studies McAllen-Edinburg-Mission has the worst food and fitness options (Sandra, 2020).

**Sleep Behavior:** Population study and laboratory studies indicate that Short sleep duration causes metabolic changes in the body which in turn results in obesity and its related comorbidities (Taheri, 2006). Exhausting physically has positive effects on sleep, during surveys people stated that they get better sleep and fall asleep easily if they are physically exhausted (Hedin et.al., 2020). Blue light emitted from mobile phones, television and other screens decreases production of melatonin hormone in the body which controls sleep-wake cycle. Study conducted by Foerster et.al., (2019) suggest that Increased screen time and Increased use of mobile after lights off in the night causes sleep disturbances, poor sleep quality, and increased sleep onset latency. Psychiatric disorders and sleep duration are interrelated i.e., psychiatric disorders may cause insomnia and in turn insomnia may result in sleep disturbances which in turn results in metabolic disturbances and obesity (Krystal, 2012).

### Social Determinants

SDoH are defined as "the conditions in which people are born, grow, live, work and age. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels" (WHO, 2017). SDoH for obesity includes housing and neighborhood, education, economy and community cohesion.

**Housing and Neighborhood:** Availability of supermarkets in the neighborhood is important to develop a food environment that can help in preventing obesity (Krukowski et.al., 2010). A research study of reviewing 41 studies in eight different countries suggested a strong relation

between access to convenience stores in neighborhoods and obesity among children and adults (Junguo Xin et.al., 2019). According to Alfonso (2019), increased convenience stores and cheaper grocery stores are the cause of obesity in McAllen. Food desserts are the areas in which people have little or no access to healthy and affordable food and residents in neighborhood with food desserts are more likely to be obese (Michele et.al., 2012). According to Texas A&M University nearly half of Rio Grande valley (McAllen city) is food desert (Staff, 2018). In research studies it is found that public transportation is associated with a 0.43% decrease in obesity rates in the United States (UICE, 2019) suggests the importance of public transportation in neighborhoods. Lower rates of obesity were observed in neighborhoods with access to sidewalks, recreational centers, parks, bike trails (Pucher et.al., 2010).

**Economy:** Obesity rates are greater than 145% in counties where poverty rates are greater than 35% which indicates that poverty and obesity are interlinked (Levine, 2011). According to city data (2019) 20.7% of residents in McAllen have an income level below poverty line. Obesity and income are related bidirectionally low-income people are more likely to become obese and on other hand obese people work in low-income jobs due to labor–market discrimination and public stigmatization (Kim, 2018).

**Employment:** Longitudinal studies made by Monsivais et.al., (2015) in two different samples in the UK revealed that unemployment and insecure employment has a long-term cumulative effect on the weight of the population. Obesity prevalence rates are high among unemployed and insecure employed individuals. According to the U.S. Bureau of Labor Statistics the unemployment rate in McAllen is 11.7% as of March 2021 (Department of Numbers, 2021).

**Education:** In the United States it is observed that obesity prevalence is high among low educated individuals (KIM, 2016). According to the Wallethub 2019 report McAllen is the least educated city in the USA with 148th rank (McCann, 2020). Education can be used in raising awareness about comorbidities related to obesity. A study conducted by Sonya, (2010) revealed that increasing awareness can reduce the risk of non-communicable disease like obesity among children and adults. In the research studies it found that nutritional education and physical activity education among obese people was found to be productive as people lost weights (Fossati et.al., 2004).

**Community Cohesion:** Community cohesion helps in improving social networks. Individuals with large social networks have more chances to engage in healthy behaviors than people who have one friend (Serrano, 2019). Socially cohesive groups provide greater social support which is in turn associated with decrease in BMI (Cuevas et.al., 2020). Close-knit communities are those with the highest level of "collective efficacy" which characterize social cohesion and Research study from 3,000 households, including 807 adults in 65 neighborhoods in the Los Angeles area suggested that close-knit communities' obesity rates are low (Cohen et.al., 2007).

## **Federal, State, and Local Policy Enhancements.**

### **US Federal Policies**

#### United States Code, Title 7- AGRICULTURE, Chapter 51- Supplemental Nutrition Assistance Program (SNAP): 7 USC §2036a: Nutrition Education and Obesity Prevention Grant Program

SNAP is the nation's largest federal nutrition assistance program working to fight hunger in the United States which plays a vital role in improving nutrition among eligible low-income individuals or families. SNAP offers nutritional benefits to supplement the food budget of eligible low-income families allowing them to buy healthier foods and become self-sufficient. The USDA (US Department of Agriculture) Food and Nutrition Services (FNS) administers the program through its national network of FNS field offices. Eligible individuals will receive an electronic benefit transfer card resembling a debit card to purchase eligible food at authorized food stores. In 2014, 46.5 million people living in 22.7 million households received benefits from SNAP across the United States (SNAP-ED facts sheets, 2016).

#### United States Code, Title 12-BANKS AND BANKING, Chapter 13-NATIONAL HOUSING, 12 USC §1701z-4: Abandoned properties demonstration project

Under this section preference will be given by the secretary to demonstration projects that, in his judgement, may reasonably expect to halt the process of abandonment in the demonstration region within two years and provide for novel ways to address the problem of housing abandonment. Projects under this section related to obesity are

- Repair of streets, sidewalks, playgrounds, parks, public buildings, and publicly owned utilities in order to satisfy the demand of areas revitalization and continuous usage.
- Establishment of community amenities or recreational areas such as public playgrounds.
- Improving trash and garbage collection, proper cleaning of streets and other necessary services to area revitalization and maintenance.
- Destruction of structures that have been declared structurally unstable or affect human habitation or have negative impacts on the physical or social environment of the area involved.

#### Personal Health Investment Today (PHIT) Act H.R. 3109 & S. 844:

The PHIT Act is bipartisan legislation where consumers will be able to pay for physical activity expenditures like sports and fitness equipment, bike rentals, fitness tracking devices, health club memberships, exercise videos, etc., using funds from pretax medical accounts (Health Savings Accounts and Flexible Savings Accounts). Consumer costs will be lowered, and physical activity levels can be improved among Americans through the PHIT act. At present the IRS code allows consumers to use these accounts for medical expenses like prescription, doctor checkups but if passed this act will allow consumers to use nearly 1000\$ from their pretax medical accounts on physical activity expenses and they can save 20% to 30% of fitness expenses through this Act. The PHIT Act passed the house of representatives on Aug 08, 2018, as a part of HSA bill package (H.R. 6199). However, before the Senate could vote 115th Congress adjourned. The PHIT Act needs to pass in the house again to become a law.

#### United States Code, Title 26- INTERNAL REVENUE CODE, Subtitle C- Employment Taxes, Chapter 23- FEDERAL UNEMPLOYMENT TAX ACT (FUTA), §3301-3311

The FUTA Act was passed in the year 1939. It is a federal statute that collects revenue to fund unemployment insurance and job service programs in every state. The FUTA Act mandates a payroll tax on all businesses with employees, the revenue generated is used to fund unemployment benefits. FUTA tax rate is based upon employee annual wages but is imposed

from employers but not employees. Unemployment compensation is paid to workers who have lost their jobs under FUTA and state unemployment systems.

### **Patient Protection and Affordable Care Act (ACA)**

United States Code, Title 21 - FOOD AND DRUGS, Chapter 9- FEDERAL FOOD, DRUG, AND COSMETIC ACT, SUBCHAPTER IV - FOOD, 21 USC §343-1- National uniform nutrition labeling

The Federal Food, Drug, and Cosmetic Act (FD&C Act) is a federal law governing food products under FDA's (Food and Drug Administration) jurisdiction. Nutritional labelling provision of Affordable care act was amended in the (FD&C Act), which mandates chain of restaurants and similar retail food establishments at 20 or more locations, doing business with similar brand name and sell substantially similar menu items, must include calorie and other nutritional information of standard menu food items. Under this provision of ACA food sold from vending machines should include nutritional labelling.

### **Texas State Policies**

AGRICULTURE CODE, TITLE 2- DEPARTMENT OF AGRICULTURE, CHAPTER 15- FARMERS MARKET NUTRITION PROGRAMS (FMNP)

Under this statute the Department of State Health Services may establish a nutrition program to issue food coupons to WIC (Women, Infant and Child) program participants that can only be redeemed at farmers markets located in areas where the program is implemented. FMNP helps qualified individuals to improve their diets by providing them with FMNP vouchers to buy nutritious fresh fruits and vegetables at the nearest farmer's market.

The executive commissioner of the Health and Human Services Commission will adopt rules under this statute for

- food coupons, Printing, designing and denominations
- Procedure for delivering food coupons to participants
- the procedure for the redemption of food coupons by the sellers of the produce
- Any other necessary rules to carry out the purpose of this chapter

Government Code, Title 6 PUBLIC OFFICERS AND EMPLOYEES, Subtitle B. STATE OFFICERS AND EMPLOYEES, Chapter 664. STATE EMPLOYEES HEALTH FITNESS AND EDUCATION, Subchapter A. STATE EMPLOYEES HEALTH FITNESS AND EDUCATION PROGRAMS. Statute requires the Texas Department of State Health Services (DSHS) to appoint wellness coordinators statewide to develop and promote wellness model programs for state agencies. It also mandates DSHS to investigate the effectiveness of state agency worksite wellness programs and submit its results to Legislature every two years. According to the statute state agencies should

- Develop an agency wellness council
- Allow employees to participate in wellness council activities for two or more hours each month
- Allow each employee 30 minutes during normal working hours for exercise three times each week
- Allow all employees to attend on-site wellness seminars when offered
- Include financial incentives for participation, onsite clinic or pharmacy services, and additional wellness policies
- Provide eight hours of additional leave time each year to an employee who receives a physical examination and completes an online health risk assessment (HRA)
- Adopt additional wellness policies, as determined by the agency



## **Local Policies**

### Chapter 74- PARKS AND RECREATION, Article 1- CITY OF MCALLEN PARK LAND DEDICATION AND PARK DEVELOPMENT FEES

§74-1. - Requirements for park land dedication: Park and Recreation department will develop park zones. The city commission makes necessary findings based on information submitted to parks and recreation advisory boards for determining the city's needs and level of park land development and park development amount

### Chapter 74- PARKS AND RECREATION, Article 2- Parks and Recreation Advisory Board,

§74-26: An advisory board is created for parks and recreation centers in the city under this section

§74-29: The Parks and Recreation Advisory board is responsible for advising the board of commissioners on the issues concerning parks and recreation centers.

### McAllen Bike share program:

The McAllen Bike share program is a part of Let's Move! Cities, Towns & Countries (LMCTC), and is the first B-cycle program in South Texas. This program was launched in October 2015 and includes 8 bike stations and 80 bikes throughout the community. The stations are strategically located to facilitate mobility in major destination areas. Riders can access bikes at any station to reach their destination and return them to any station. Nearly 6000 riders have used the bike share program as means of transportation and covered greater than 43,000 miles. Environmental health has increased widely by decreasing carbon emission through this program. Membership rate for this program is drastically improving in the community.

### GO TEXAN program, McAllen Farmers Market:

McAllen Farmers market is a Certified Farmers Market of the Texas Department of Agriculture and is a member of the GO TEXAN program. To support the continuous production and economic advantages of locally grown agricultural products, the city of McAllen has started McAllen Farmers Market. At McAllen Farmers market consumers can purchase locally grown fresh fruits, vegetables, eggs, honey, nuts, etc., directly from producers and it also strives to educate people about the benefits of a nutritious diet. The Texas Chefs Association RGV (Rio Grande Valley) Chapter, Nutritionists and Health Coaches share their delicious, nutritious recipes prepared using locally produced fresh fruits and vegetables from Farmers Market. The goal of Farmers Market is to make local, chemical free food to be accessible to everyone in the city.

## **How Policies influence Behaviors & Social Determinants**

The Supplement Nutrition Assistance Program (SNAP) influences eating behaviors of individuals and low-income families can have access to nutritious food through this program.

The Abandoned properties demonstration project works towards repair and reconstruction of sidewalks, streets, playground, parks, recreation centers which enhances physical activity behavior and neighborhood can be physically supportive. Personal Health Investment Today (PHIT) Act encourages individuals to purchase fitness related things from their medical accounts to improve their physical fitness. The Federal Unemployment Tax Act (FUTA) grants unemployed people with funding to help them meet their daily regular necessities. The National Uniform Nutritional Labelling has an impact on public calorie consumption. Based on the nutritional labeling people tend to consume foods with lower calories which has a positive effect on eating behaviors. Farmers Market Nutrition Program at state level provides free food coupons for WIC enrolled participants to get fresh fruits and vegetables which has an impact on eating behaviors on individuals. State Employees Health Fitness and Education Programs provide various resources which influence employees to engage in regular physical activity. McAllen's

Park and Recreation statutes help in developing neighborhoods' physical activity facilities which improves individual's physical activity levels. McAllen Bike share program facilitates the residents of McAllen to have access to bikes as a means of transportation which positively affects physical activity of individuals. GO TEXAN program, McAllen Farmers Market not only allows people to have access to fresh fruits and vegetables, but it also provides nutritional education for McAllen residents.

## **Funding Enhancements**

### **Federal Funding**

United States Code, Title 7- AGRICULTURE, Chapter 51- Supplemental Nutrition Assistance Program (SNAP): 7 USC §2036a: Nutrition Education and Obesity Prevention Grant Program

Funds are allocated under this section by the U.S. Department of Agriculture (USDA) in consultation with the director of Centers for Disease Control and Prevention (CDC). In the fiscal year 2020, 79.22 billion US dollars were spent on SNAP (SNAP statistics, 2021). With 42.1 million participants (2017) throughout the country SNAP is the largest food assistance program for families and individuals with low income (CDC, 2019). For the year 2021 February, in Texas there are 1,368,578 households and 3,162,216 persons participating and benefiting from the SNAP program (SNAP Data tables). An eligible person received about \$127 from the SNAP program in 2018 (CBPP, 2019). The Snap Benefit formula targets according to the need: very poor households receive maximum benefits than those households closer to poverty (CBPP, 2019).

**CDC Grants:** CDC's Office of Financial Resources awards and administers grants to state governments, local governments, and organizations (CDC, 2019). CDC under the Division of Nutrition, Physical Activity and Obesity (DNPAO) provides grants to the State Physical Activity and Nutrition (SPAN) Program (CDC, 2019). For the fiscal year 2020, CDC granted a total of \$4,043,246 for Texas state under DNPAO (CDC, 2020). The CDC provides funding to a total of 16 states to implement evidence-based SPAN programs to improve physical activity and nutrition at state and local level (CDC, 2019).

**Unemployment Insurance:** People who lost their jobs benefit from Federal-State Unemployment Insurance (UI) which temporarily replaces their wages (CBPP, May 2021). States provide the majority of the funding and pay for actual benefits given to workers under basic unemployment insurance for 26 weeks (CBPP, March 2021); the federal government provides 100% funding for extended unemployment benefits (EUB) and administrative costs (BEA, 2021). In the state of Texas regular unemployment Insurance is for 26 weeks and extended unemployment benefits are available up to 13 more weeks (CBPP, May 2021). As of February 2020, unemployed individuals are receiving an average of \$387 per month which may vary according to the state (CBPP, March 2021). On August 8, 2020, a presidential memorandum issued authorized \$44 billion for Lost Wages Assistance (LWA) payments (BEA, 2021).

### **State Funding**

Government Code, Title 6 PUBLIC OFFICERS AND EMPLOYEES, Subtitle B. STATE OFFICERS AND EMPLOYEES, Chapter 664. STATE EMPLOYEES HEALTH FITNESS AND EDUCATION, Subchapter A. STATE EMPLOYEES HEALTH FITNESS AND EDUCATION PROGRAMS.

The Department of State Health Services (DSHS) provides Texas state agencies funds and guidance to create effective health fitness activities and education to improve the health of employees, decrease their health care expenditure, and increase productivity. State agencies can also use these funds from DSHS for health fitness programs.

AGRICULTURE CODE, TITLE 2- DEPARTMENT OF AGRICULTURE, CHAPTER 15- FARMERS MARKET NUTRITION PROGRAMS (FMNP)

FMNP is funded by congress and the state. Federal funds support 70% of the administrative cost of the program and 100% of food cost of the program (Overview of FMNP, 2014). The Texas Department of Health, Bureau of Nutrition Services funds the remaining 30% of administrative cost (Overview of FMNP, 2014). For fiscal year 2020, Texas received a total of \$1,024,377 from the federal grants for FMNP (FMNP Grants data, 2020).

### **Local Funding**

**Hike & Bike trails:** Hidalgo County Metropolitan Planning Organization (HCMPO)

Transportation Policy Committee funds for the bike and hike trail in Hidalgo County connecting City of McAllen, City of Pharr, City of San Juan and City of Edinburg (Hidalgo County Precinct 2, 2020). In the year 2015, HCMPO Transportation Policy Committee granted 6.44 million US dollars for bike and hike trails in Hidalgo County (Hidalgo County Precinct 2, 2020).

**McAllen Bike share program:** McAllen, TX bike share program is funded by Federal Transit Administration Grants (City of McAllen, Texas, 2015). Valley Baptist Legacy Foundation awards grants to bike share programs launched by Lower Rio Grande Valley Development Council (LRGVDC) (Berenice, 2021). McAllen city is part of LRGVDC. In 2018, Valley Baptist Legacy Foundation awarded a \$250,000 grant for bike share programs (Berenice, 2021).

### **Community Health Infrastructure Enhancements**

**National League of Cities (NLC):**

NLC is an organization consisting of leaders from city, town and village who are aimed at enhancing the quality of life for their existing and future generations (NLC, 2021). Over 2,000 cities around the nation participate in NLC programs which aim to enhance local leadership, influence federal policy and create new solutions (NLC, 2021). NLC is the lead partner of the Let's Move Cities, Towns and Counties (LMCTC) program.

LMCTC is part of Michelle Obama's Let's Move! Initiative which aims at reducing obesity by benefitting millions of citizens nationwide through their initiatives which make communities happier and healthy places to live and work (NLC, 2021). Let's Move! Committee in McAllen, TX is a cross-sector collaboration between McAllen Independent School District (ISD), City of McAllen, The Monitor (local newspaper at McAllen). McAllen, TX is the LMCTC participant and first city in America to earn an "All-Star Community"(NLC, 2021). Through five goal areas,

LMCTC calls upon local community leaders and encourages them to adopt effective policies which improves community access to nutritious food and enhances physical activity opportunities which in turn helps to reduce incidence of obesity (NLC, 2021).

#### **Hidalgo County Health and Human Services (HCHHS):**

##### **County Indigent Health Care Program (CICHP) & Hidalgo Blue Program:**

CICHP & Hidalgo Blue Program conducted by Hidalgo County Health and Human Services helps low-income individuals of Hidalgo county to get access to health care services (HCHHS, 2021).

##### **Preventive Health and Health Services Program (PHHSP):**

Preventive Health and Health Services Program focuses on clinical and community level system enhancements to decrease the prevalence of obesity and related co-morbidities in the state of Texas. Through Health promotion, communication and marketing PHHSP promotes healthy lifestyles for individuals, families and communities (HCHHS, 2021). To promote consistent messaging of credible information related to health and collaboration, PHHSP promotes evidence-based education and training for clinicians, patients and communities (HCHHS, 2021).

#### **Texas Department of State Health Services (TDSHS):**

##### **Obesity Prevention Program:**

The Obesity Prevention Program was established in October 2013 by combining Nutrition, Physical Activity and Obesity Prevention (NPAOP) and Worksite Wellness Programs (TDSHS, 2021). This program aims to make healthy options more accessible to all Texans, regardless of where they work, live or play. This program encourages and supports projects that aim to reduce obesity by improving diet and physical activity throughout the state of Texas (TDSHS, 2021). Texas Health and Human Services provides funding to Hidalgo County which in turns promotes obesity programs in McAllen city.

#### **Rio Grande Regional hospital:**

Rio Grande Regional Hospital is in McAllen TX. Rio Grande Regional Hospital features a bariatric surgery program that assists people in losing weight. Bariatric surgery aids in the restriction of intake and absorption of food and long-term maintenance of weight status. Obesity related physical and psychological comorbidities can be avoided with Bariatric surgeries.

#### **Parks and Recreation Centers:**

There are a total of 89 parks and 34 miles of hike and bike trails in McAllen, Tx (McAllen Parks & Recreation 2019). McAllen is a bike friendly community, and the Bike share program of McAllen consists of 80 bikes and 8 bike stations (NLC, 2021). Nearly 6,000 riders in the city have used bikes as their primary mode of transportation and covered a total of 43,000 miles (NLC, 2021) which shows their active participation to improve physical activity.

#### **Transportation:**

Metro McAllen is the primary mode of public transportation in Hidalgo County, Texas. McAllen, TX has a stronger public transit and residents of McAllen benefit from it. Nearly 7,00,000 residents and visitors in McAllen use metro bus transit each year (Litwin, 2018). By regularly

using public transit physical activity improves among residents as they walk to the station and when they walk back home

#### **University of Texas Rio Grande valley (UTRGV):**

##### **South Texas Diabetes and Obesity Institute (STDOI):**

STDOI was established on 13th October 2014 focuses on research programs for diabetes and obesity at UTRGV School of Medicine. STDOI aims to address important public health problems in the South Texas region (UTRGV, 2021). The Department of Health and Human Performance of UTRGV received \$1.4 grants from the federal government to research in childhood obesity (UTRGV, 2017). UTRGV had made cross-sector collaboration to educate residents of Rio Grande Valley about the importance of nutritious diet and physical exercise.

#### **McAllen Medical Center Foundation:**

The McAllen Medical Center Foundation is a non-profit wing of McAllen Medical Center that provides grants to organizations which work to improve the health of McAllen residents (UTRGV, 2015). McAllen Medical Center Foundation has awarded a \$100000 grant in 2015 to UTRGV research, clinical and education program which will perform advanced study in diabetes and obesity and in turn aid in the development of better treatment (UTRGV, 201).

#### **Strengths of the System**

Given the high levels of adult obesity rates in McAllen, TX the overall systems are working collaboratively towards a common health goal by allocating resources and developing interventions at different levels as required to overcome the burden of the obesity epidemic. How policies and infrastructure are established based on the data on health behaviors and social determinants which are funded through the funding department, and community health infrastructure demonstrates the well interconnection of the systems.

#### **Gaps in the System**

Despite the fact that the existing system is great, there is always room for improvements. Identified system gaps include month end crisis in low-income families due to insufficient incentives under SNAP program, Personal Health Investment Today Act H.R. 3109 & S. 844 need to be signed into law, mandate one hour of physical activity daily at workplaces during working hours.



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