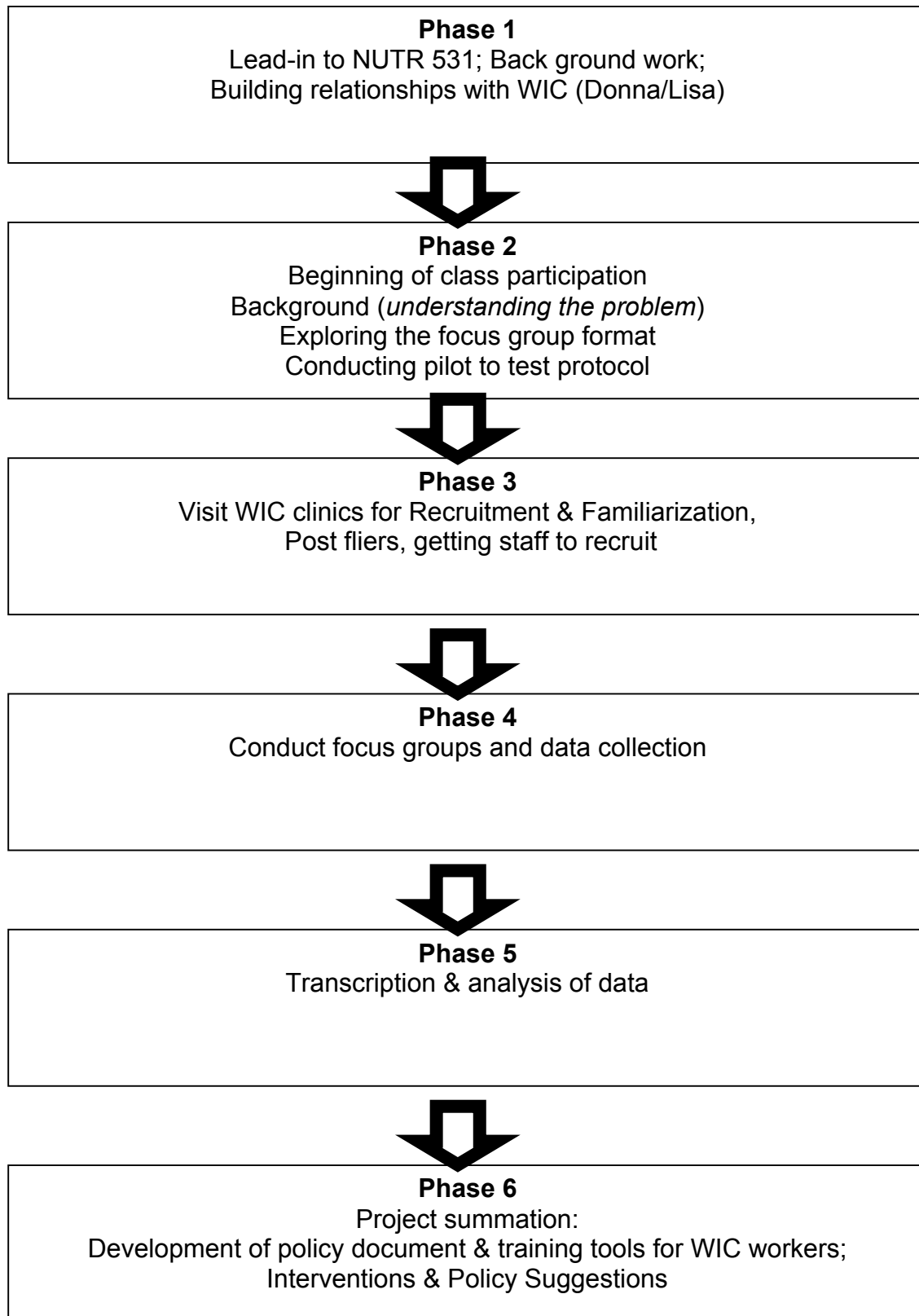


Food Insecurity and Obesity: Perceptions of WIC Clients

An Analysis of Focus Groups in King County WIC Clinics, 2005

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Abstract

OBJECTIVE: The purpose of this study was to study perceptions about the relationship between food insecurity and overweight among the WIC population in the Seattle-King County area.

METHODS: Six focus groups involving a total of 30 English-speaking women enrolled in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) at three Seattle-King County area clinics were asked to identify challenges and strategies concerning food insecurity and its relationship to being overweight. In addition, they were asked their preferred approaches for WIC education and services for improving nutrition, coping with food insecurity, and managing weight. The discussions were audio-taped and transcribed.

RESULTS & RECOMMENDATIONS: The participants in the discussion groups identified four key themes: 1) lack of time and financial resources, 2) stress and fear of hunger, 3) the use and quality of emergency food assistance, and 4) concerns about exercise. Recommendations focused on a need for access and education regarding food and physical activity. Preferred methods of WIC education and service included flexibility in WIC food assistance, expanding the WIC Farmers Market Program, support groups, cooking classes, mother-child exercise activities, printed nutritional materials, and individual counseling. There are a few evidence-based interventions that address the physiological, psycho-social, and socio-economic determinants of food insecurity and obesity, but there is a need to develop and evaluate more effective approaches that address the factors identified by WIC clients.

OUTCOME: The results of this study can be used to improve WIC services to program participants.

Introduction

Food Insecurity (FI) is defined as the limited or uncertain availability of nutritionally adequate and safe foods or the limited or uncertain ability to acquire acceptable foods in socially acceptable ways ¹⁾. Even with the decreasing trend of FI prevalence in Washington State (WA), it still remains a critical issue. According to the Household Food Security in the United States 2003 by USDA ²⁾, 2001-2003 average percentage of households in FI and FI with hunger is still higher than the average of the U.S total (11.6% and 3.9% in WA, 11.0% and 3.4% in the U.S.). In addition to children's educational, behavioral and health problems in FI households, the paradoxical relationship between FI and overweight has recently been brought to the public interest.

Overweight is a well-recognized problem not only in adults but also in children and adolescents. Surveys showed 59% of adults in WA are overweight or obese and 21% of high school students are overweight or at risk of becoming overweight ³⁾. Several studies found the associations between FI and overweight or obesity in women ⁴⁾, with greater risk in African-American and Hispanic women ^{5,6)}. This association has even been reported in girls aged 8 to 16 years ⁷⁾. In addition, data from Washington Behavioral Risk Factor Surveillance System (BRFSS) from years 1995-1999 combined showed how individuals with FI are about 40% more likely to become obese than individuals without food insecurity ⁸⁾. Several mechanisms have been proposed to explain the correlation between FI and overweight. These include the metabolic events induced by chronic stress ⁹⁾, the high consumption of low-cost energy-dense foods (high in sugar and fat) ¹⁰⁾, "food stamp cycle" (binge-restriction cycle) ¹¹⁾ and economically poor food environments with a high prevalence of fast food within such communities ¹²⁾.

The Special Supplemental Food Program for Women, Infants and Children (WIC) is a federal food assistance program, which provides supplemental food and nutrition education to low income (at or below 185% of the U.S. Poverty Income Guideline) women who are pregnant, breast-feeding, or post partum, and to infants and children under age 5 . A survey in 18 King County WIC sites showed that 53.7% of WIC participants have FI and 15.8% among them have FI with hunger. WIC offers several services for maintaining participants' healthy weight including health screening, nutrition and health education, breastfeeding promotion and referrals to appropriate services. Therefore WIC could be a key program to resolve the FI-overweight link.

The purpose of this study is to examine the relationship between FI and overweight in the WIC population in order to develop WIC policies and services that support the reduction of food insecurity and overweight.

Methods

All procedures have been approved by the Human Subjects Research Division of the University of Washington.

This study utilized a focus group approach to examine the association between FI and overweight. The focus group is a common qualitative research tool used by public health practitioners to generate data from a small group of a selected population ¹³⁾.

Initially, in order to train researchers and verify the method of the study, 1 pilot focus group of 3 participants was conducted at Eastgate Public Health on January 14, 2005. Through this pilot study, researchers pretested the methodology for organizing the focus groups including the procedure of the focus group, the roles of researchers (moderator, notetaker and transcriber etc.), the setting up the room, the management of the discussion and participants and the analysis of data ^{14) 15) 16) 17) 18)}. In addition, the Focus Group Discussion Guide and the Focus Group Core Question were piloted with WIC clients. No major changes were made in them. Graduate student researchers were trained to conduct focus groups through a didactic presentation, the use of a focus group training manual and a focus group simulation exercise. Each student researcher signed a Researcher Confidentiality Form.

On February 18, 2005, 6 focus groups of 2-8 participants were conducted in 3 local Seattle-King County WIC clinics (Eastgate, Kent and Renton). Participants were recruited via flyers (see appendix) at each site for two weeks before the focus group session. All participants were WIC participants at least eighteen years old and English speaking. The day before the focus group session, reminder calls were made to confirm attendance for the discussion. On the day of the focus group, a total of 31 females participated (1 was withdrawn from the analysis for lack of a signed consent form). Before it began, a moderator reviewed ground rules including the fact

that there are no wrong answers and all comments are important, and explained the confidentiality policies. Participants were asked to sign a University of Washington Consent Form, and fill out the Demographic Questionnaire so that researchers could examine participants' characteristic. The size of the groups from each discussion and the summary of demographic data are shown below. Appendix iv provides demographic data of the participants.

The Size of the Groups

Site	1st Group	2nd Group	Total
A	4	7	11
B	2	3	5
C	8	6	14
Total	14	16	30

The focus group was led by a moderator through a series of open-ended questions (Appendix v-i), which consisted of two parts. The first few questions asked directly what people do when they run out of food and how they think WIC might be able to help. The next set of questions dealt with issues that WIC clients face in trying to maintain a healthy body weight. A notetaker took notes on the discussion, including the time allotted to each topic and non-verbal responses given by participants. The discussion was recorded by a recording device with the participants' consent. Participants were offered a \$25 gift certificate as a reimbursement for their time. After the focus group, the discussion was reviewed by a moderator and a notetaker as soon as possible.

After completion of transcription an analysis team was composed of six researchers. After reading the transcripts the analysis team identified four main themes relevant to the relationship between FI and overweight. Considerable amounts of information not relevant to this goal were also addressed in the focus groups, and should be analyzed at a later time. The four themes identified included: lack of financial and time resources, stress and fear of hunger,

poor quality of food in emergency food programs, and lack of exercise resources. For each theme we identified codes or keywords that were associated with each idea. For example, for lack of resources (specifically financial resources) we identified 19 potential codes. Examples of codes included “cheap, expensive, money, too much, afford (t afford).” Codes were identified in each theme, our analysis team agreed on the codes prior to analysis, and added any relevant codes we uncovered during our content analysis. Due to time limitations the analysis team did not have the opportunity to assess inter-reader reliability, however, due to considerable overlap of the themes we came to similar conclusions. After identifying the codes and themes we compiled all six focus groups in a single PDF document (totaled 91 pages). We searched for these codes within the focus group documents and extracted the key ideas that were relevant to our project goals and objectives. Key quotes were used to bring home the main ideas. It should also be noted that our coding structure was well designed. We reached saturation after analyzing very few codes, for the lack of resources section saturation was reached after only six of the 19 codes were entered. Similarly, saturation (few new ideas) was reached in all six focus groups. By the time we analyzed the last two focus groups; few new ideas relevant to food insecurity and overweight were addressed.

Results: Analysis of WIC Focus Groups

Introduction

We identified seven themes related to the overall goal of the project, attempting to engage and better understand the relationship between food insecurity and unhealthy weight. We identified six themes related to our goal: lack of financial resources, time, stress, fear of being hungry or experiencing hunger, exercise limitations, and some of the challenges for emergency food. We also feel that it is important to engage the perceptions of our participants regarding healthy and unhealthy foods, and how these perceptions may be related to the other six themes. For each theme we identified codes or keywords that were associated with each idea, we searched for these codes within all of the focus group documents and extracted the key ideas of relevance to our project goals and objectives.

Lack of Resources and Perceptions of Healthy and Unhealthy Foods

Perhaps one of the strongest themes that permeated throughout all of the focus groups was the idea that a lack of financial resources may be an important pathway between unhealthy weight and food insecurity. This idea was closely connected with stress, a need for convenience and other challenges, but remains one of the central ideas from our six focus groups. Many respondents reported that they often resort to buying cheaper foods to stretch their food budget. Cheaper foods were more likely to be seen as “bad foods” or as high in sodium or fat, while healthier foods were more associated with being prohibitively expensive. Cheaper foods were also associated with being more convenient as demonstrated by key quotes.

One respondent reported that “*Sometimes when people don’t have enough money to buy food, then that makes them prone to go get whatever is cheaper. That results in buying McDonalds, Burger King, you know, you can find a burger for fifty-nine cents.*” Many other respondents

repeated this notion, that lack of financial resources leads to the purchase of certain “bad foods.”

Fast food, Top Ramen, hot dogs, hamburger, processed food, and Macaroni and Cheese were often used as examples of “bad” and cheap foods. Respondents often identified healthy foods and described how the high cost of these products limited their accessibility. Many participants identified cheese as a healthy, yet expensive food option. Others identified organic food, fresh fruits and vegetables and chicken as “(too) expensive” or as foods that they “can’t (cannot, couldn’t) afford.”

Though not altogether consistent participants had an understanding of the differences between healthy and unhealthy foods, and often described their motivations as economic. One participant argued that the “first thought” when shopping is staying within the budget, and the “second thought” is about whether that food will make her family gain weight/be unhealthy (See below).

Key Quotes:

Lack of Financial Resources makes “good foods” difficult to eat/purchase. Lack of Financial Resources leads to consumption of “bad foods.”

“Getting little Debbie Snacks and stuff are cheaper than going and buying 2 pounds of cheese; buying junk food like chips like \$2 for this big bag of chips will last you more than going and getting a couple of loaves of bread and peanut butter. It’s cheaper so people tend to go to junk food you know vending machines and stuff because it’s cheaper than going out and getting a salad. You know [if] you don’t have the money to pay for the healthy stuff you’re not going to be able to afford to get it...Especially with cheese and milk and eggs and things like that it adds up really fast it’s cheaper to go out for fast food than it is to buy supplies to make dinner.”

“For instance here is the PCC, organic, healthy, expensive. And here is a package of Ramen noodles, jezz, these are ten for one dollar, and you look at the fat content, the sodium content, it’s the most unhealthy thing there is, but it’s also, what am I going to eat. I remember I was nineteen years old, and I was homeless, and I remember that is

basically what I lived on: Ramen noodles and pastries. It was cheap, but boy does it make you gain weight...oh yeah!!!”

“Even when you go to the grocery store. If you have to feed your family and you look at some of the mass produced, just the unhealthier foods are going to be cheaper. You can get a box of macaroni and cheese for not much, but a flat of chicken breast is ridiculous, \$10 or \$11 and I can’t afford that. Your options are limited. You have a little bit of money and you have to make it stretch, you are not going to go buy meats vegetables or fruit’s, because that will cover you for about a day.”

“Vegetables are expensive, especially fresh vegetables and fresh fruit.”

“Olive oil is good for the heart, but gee that’s expensive.”

“I mean look at Whole Foods, totally outrageously out of my budget, but it’s really good for you.”

Fear of Hunger

A couple of the participants mentioned that buying unhealthy foods and overeating is related to a fear of hunger in the future. One participant related the fear of future hunger to having family who went through the Depression. Although fear of hunger was not a pervasive theme in the focus groups, it is possible it would have come out more if the focus groups continued until there was saturation of the data.

Key Quotes:

“Food hording; oh yes!! Because when you don’t think you’re going to have enough you buy too much, and you will end up eating it. It is there so you’re going to eat it. And you’re also going to buy food that all the time that isn’t healthy, I mean ramen noodles are really cheap.”

“I think that came from them being raised in an era where they weren’t sure where their meals were coming from. Like their parents were taught that because they weren’t sure when they were going to eat during the depression and stuff.”

Lack of Exercise Resources

The participants generally wanted more information about (age appropriate for children) exercise in addition to more availability of exercise resources. A few mothers stated they would rather have a health professional suggest activity and/or exercise ideas for their children instead of only saying they are overweight. The resources suggested included: classes, referrals to classes, and activities that a mother and/or her child can do at home. They also mentioned activities such as walking and playing games are forms of exercise. Two participants also mentioned swimming as a good form of exercise for both mother and child. The participants had a favorable view of exercise and recognized it as being part of addressing the problem of overweight. Finally, they suggested that exercise can not only help with overweight, but it can also help children socialize with their peers.

Key Quotes:

“Maybe interpreting the numbers they are getting instead of saying yah OK we have got the measurements they could say you have gained really sharply, may be you want to try these exercises here, cut back on the chips, instead of saying yah that’s a fat little boy.”

“Exercise classes or something that would be great I would like to work out with other women who are still post partum chunky.”

“Yeah exercise I think is besides eating right exercise is also what’s going to help you lose weight, so that’s a really good idea.”

“Or fun games that children can play that give them exercise.”

“even just walking in place for 20 minutes, anything would help.”

“I also think that just giving advise on what activity is safe for them to do at what age because I am the type of mom that tried to keep my baby a baby and he’s like mom I’m ready to move on...”

“I didn’t know that there were certain things I could do with him when he was 3 months, like swimming or whatever or like that that could have stopped him from being in the 97th percentile...”

“So if those kids could get together, it goes back to being sociable. Exercise and being able to talk about it, because when you and your peers have the same situation, you can open up a little bit more.”

Stress, Hunger, and Overweight

There were four major sub-themes within the theme of stress: 1) Stress causes overweight 2) Overweight causes stress 3) Hunger can cause stress 4) Not being able to feed your family causes stress. These quotes show that stress and overweight/food insecurity can have both a cause and effect relationship. Being overweight and hungry causes stress, and being stressed causes overweight. Because low-income families face more stress, they may become caught up in this vicious cycle of stress and overweight. This is one explanation for why obesity rates are higher in low-income families.

Key Quotes:

“Stress. Worried that you’re going to run out of food, so the best...I remember...that sometimes you just eat because you’re stressed out, so you get ice cream or whatever you can get to cover you, so you keep eating and eating cause you don’t have enough food, you don’t have any food so you just want to eat. That makes you feel better.”

“It starts really young, too. I work at a pre-school, Head start, and this little girl would be digging out of the trash because she didn’t know when her next meal was and she had already had the lunch set out and a good proportion and they had seconds or whatever and she was still digging, trying to get everyone’s leftovers out of the trash.”

“Because she knows what it is like to be hungry.”

“I was raised that way, where you just eat, eat, eat and then eat again later and I had to teach myself not to do that. It is a lot better now and it is easier for me to teach him that. But when I was younger, we had bread and eggs and potatoes.”

“Another thing I would say too, is that if you don’t have enough food too, it’s because you have a really big appetite and makes you want to eat a lot....and you are like nervous and upset and keep eating and run out of food that way.”

“...to live here, this area and you know there being single parents, I really fall into bed at the end of my day. I don’t feel like firing up my food processor.”

“Because a lot of times when your child is already at that point of being overweight, there might be frustration with the child over herself or himself and the parent and so if there were ways that they could give advice or have some type of service offered for the parent and child, it would help a lot. It would help because kids learn early to put a front on. And they do that around their friends, but sometimes those kids might be depressed in their own little hole and it could be with their weight. So if those kids could get together, it goes back to being sociable. Exercise and being able to talk about it, because when you and your peers have the same situation, you can open up a little bit more. As oppose to if you are one of the few who are overweight and 80% are slim and trim, you are not going to say anything. You are going to feel out of place. So if they did have, okay here is this session at this time and if you want to bring your child and have them open up and be sociable with other children. That would really help. It really would.”

“Yeah, what if you are trying to lose weight cause you are stressed out and you got people on you about how “you have to go to workout club, you need to do this and that.” Then what do you do? That’s a good one.”

“Because like adults, there’s no food in the house, stressed...(Some interruption by A: can’t hear) You think what a child is going to through, as well, when they want something to eat, and that thing is not there, ya, it’s not easy for them.”

“Ya, causes a lot of stresses to the child, ya. That kind of stress is translated to effect in school.”

“It also effects their teeth and their bones...and they could end up with ulcers cause they’re worried about food all the time, where they are going to get their next food...constantly asking.”

“The reason that I think, not in all cases, the reason that I think that it is easier to go and get the unhealthy foods because they are so inexpensive. So you are looking at your balance of your dollar signs that you have to deal with when you are budgeting and of course we gear that because it’s unhealthy, that is a second thought. The first thought is, how can I stretch this money. And second thought is that produces weight gain in you and your children.”

“I feel bad about it, but I have got to feed my family!”

“Different information different ways you gave that both the child and the mother can go out and do things, or do things at home. Cause you know sometimes you are too tired to have these ideals, and you can go, ‘maybe I should’ve done that,’ or ‘that sounds like a good idea.’ I wish someone could of told me then what I could’ve done

“I think the big part of it, people just want to be able to, because I didn’t now about WIC until a friend of mine told me. You know, I didn’t know what they offer, how works, whatever, so I was just calling blindsided, trying to get information. I think the big part of it is if you are hungry and you need food, you know, you just want to be as simple as possible, pick up the phone, maybe come on down here, you know what I mean, get the voucher, certificate or something to be able to go through, but a lot of programs take you through the ringer. (A: can’t hear.) Oh, ya, really because my daughter is two month, and we got on last month and literally was struggling to make it from one point to the next. And a friend of mine says,” hey, you just need to call them up.” And I contemplate it for a really long time, oh no, they’re just going to take me through the ringer. And I just keep putting it off and putting it off. You know, you just get frustrated. You know, you think it’s not even worth it. You just think that.”

Time

The desire to be able to make healthy choices while leading a busy lifestyle on a low budget was evident. There was a perception that eating healthy foods required time and

that there was no time to exercise. Time limitation was cited for a mother's inability to curb her child from overeating. Also, it was perceived that health care providers didn't have time to help with weight issues. Time created limitations in food choices. Whether rushing to work or school, food choices were based on what they could grab. For example, breakfast cereals that required cooking were abandoned because of time constraints. There was awareness that "fast food" was not healthy, but no other options were realistic when limited by time. The challenge to make "quick" foods healthy creates the need for ideas for recipes that could be prepared quickly.

Key Quote:

"People are so pressed for time, they have to fit so many things into the day, you have all these dollar menus and everything and you don't want to get out of the car so you are looking for things that are only drive-thru."

Emergency Food/Food Bank

Individuals that do not have enough food to feed their families must look to food assistance programs to help supply meals, such as food banks and churches. However, these programs usually offer high-energy foods with empty calories. Quality of food offered by these programs lack nutritious value, but is rich with calories, refined sugars and high fat content. Even though the individuals that use these food programs are aware of the poor quality and minimal nutritious advantage to the food offered, they must continue to use these assistance programs to ensure that their family is fed. As a result, food insecurity that exists in households forces many to utilize food programs with poor quality food. Fresh produce and whole grains are usually scant in these programs and families end up with starchy, high fat foods that contribute to obesity, linking food insecurity to an increased incidence of obesity.

Key Quotes:

“I was going to say when you run out of food and go down to the food banks they load you up with donuts and bread and it’s hard to balance your diet that way”

“Also with the food banks, most of their stuff has expired and especially the dairy products they can make them sick, you know, so you want to be careful with that.”

*“Food banks, WIC office, DSHS” *said in the context of when running out of food where to go or what to do**

“...every week at the food bank they posted a new recipe using food bank foods (yehs from others) they’d put a different kind of Chinese salad you could make with roman noodles or something. It was nice because you could make a meal out of something that wouldn’t necessarily be nutritious and they would tell you how to do it out of junk food.”

*“In my friend’s situation, I took her to the food bank” *said in the context of when running out of food where to go or what to do**

*“I escorted her to the food bank, and she gets foods from there.” *said in the context of when running out of food where to go or what to do**

“Because you know the food bank thing I got from here. I was advised, you know, they were asking me, because I don’t work and my fiancée he works part-time job. So they were asking me,” how do you manage?” They advise you can always go to the food bank. I had a situation where my friend really had nothing, she had finished all the WIC, the juice and the milk that she had. And I just took her to the food bank that I was told to go to.”

*“Food banks. If time permit’s.” *said in the context of why families have trouble having enough food to feed families and what they can do to remedy that**

*“Ever been to a food bank? They give you pies, cakes, sodas, Capri suns. The fruit’s and vegetables and commodities that they give there are really, really unhealthy stuff. Like the top shelf would be like cheesecake, au gratin potatoes, you know you don’t really get really good fresh produce there. So you are getting candies, and really high sugar stuff. No fresh meats, mostly snacks, and really bad foods for you.” *said in the context of why people who do not have money to buy food are more likely to be overweight**

“Go to the food bank.” *said in the context of when running out of food where to go or what to do*

“A lot of places do it like Salvation Army and Hopelink and then there are all kinds of catholic churches that have stuff like that.” *said in the context of places that can help individuals financially*

“‘Um, my church actually has a center set up there, where you don’t have to bring anything in, just show your id, and you have no statements for (can’t hear) how much you made for last month, or anything like that, you just walk in and say, ‘hey, I’m hungry.’ You know, so that would be one of my first options certainly to tell them about that.”

“No, its just foods you can take home like canned goods, stuffs like that. So that would be an option. And I’m just learning about WIC, so that’s one thing, I’ll be honest with you, I wouldn’t kind of recommended, if I had known any of the information now, that would be my first, I’m always telling people go to the churches.” *clarifying foods that are found in food banks and what she would suggest to others who need help feeding there families*

I know they do have the emergency card depending on where you live certain churches that write out a card with the number in your family and they allow you to take it to that church and since WIC gave it to you they’ll give you like a small basket and depending on your family size they’ll give you some canned goods and things like that.” *said in the context of what WIC could do to help their friends have enough food*

“Yeah, a little card that you take to the church. Take advantage of free meals at churches.” *said in the context of when running out of food where to go or what to do*

“I think your kids have to be under 4 to receive the milk and cheese and the eggs and the items that they give you, but if they do give you the card and the church to go to then that’s real helpful.”

“...yeah their services like with the card they give you when you’re running out of food knowing that there are churches that you can call that there are only specific

churches that do it you know they know about it and just being more informative...”

Said in the context of what WIC could do to be more helpful

“Talk to your church, or somebody who is at a church, they are more than happy to provide with a little bit extra if you ask...but it’s hard for some people to ask...sometimes you will mention it and someone else will get it for you.”

Discussion & Suggested Interventions

Determinants of Food Insecurity and Overweight

Previous studies have suggested three possible mechanisms of the association between food insecurity and overweight: physiological, psycho-social, and socio-economic. Physiological mechanisms include fluctuation of eating behavior, increased secretion due to chronic stress, and preference for palpable energy-dense food among people with food insecurity (9,10;19-28). These physiological factors seem to be related to psychological factors.

The primary explanation for this psychological mechanism is the food acquisition cycle of food insecure households. One study showed that 42% of food stamp households conduct major grocery store trips just once per month or less (29). On a related note, another study showed that the mean number of meals in soup kitchens exhibits a striking pattern: there is a peak at the end of every month (30), indicating that low-income people run out of food toward the end of the month and need to rely on emergency food services more. In the food acquisition cycle, when individuals experience periods without food as is suggested by the soup kitchen data, individuals tend to overeat when food is available. This disordered eating mechanism causes weight gain (31-35).

The major socioeconomic mechanism is energy cost, which is the monetary cost of a unit of food energy. Energy-dense foods that are usually rich in sugar and fat have stable shelf lives and relatively lower costs (10, 36,37). Similarly, foods with high nutrition quality generally cost more (10, 37). Thus, food insecure populations largely depend on low-cost, energy-dense foods (38, 39). Fast food restaurants that generally serve low-cost, energy-dense foods sometimes in large portion sizes are located more in

low-income communities, attributing to the high intake of these foods among people with food insecurity (12; 40-43).

It is important to note that these mechanisms are still unclear, since they have been suggested mainly based on data of cross-sectional studies with limited variables to determine food insecurity. Nonetheless, the mechanisms suggest a relationship between food insecurity and overweight. Further research needs to be conducted to determine the exact nature of the mechanism.

Interventions

Based on the issues WIC clients shared in the focus group sessions, there are a number of intervention activities that could be implemented, and which prior research has shown to be promising. Below is a list of possible interventions, grouped into one of four categories, which encompass the main themes that emerged from the six focus group sessions with King County WIC clients: 1) *Access to healthy food*; 2) *Access to physical activity*; 3) *Education about healthy food and nutrition*; and 4) *Education about physical activity*. Access to healthy food and education about healthy food and nutrition address WIC clients' concerns regarding a lack of financial resources, stress, fear of hunger, and unhealthy options offered by emergency food programs. Access to and education about physical activity (PA) help meet clients' expressed desire to engage in PA and to have more options available for this activity. Besides exercise limitations, these interventions help address WIC clients' stress as well as their concerns about costs. Finally, interventions that help provide greater access to government services answer the themes of lack of money, stress, fear of being hungry, and emergency food assistance challenges.

The interventions listed below are targeted at those who are similar in demographic characteristics to WIC clients, simply because our focus group research has

centered on this population. So, children 5 years and under, their parents, and pregnant mothers are targeted. Interventions designed specifically for schoolchildren, or for the elderly, are not included, although many of these activities will impact these populations. Some of these activities can also be applied to environments that serve these audiences, such as schools and senior centers.

Access to Healthy Food

- ❑ **Locate new and larger supermarkets in low-income neighborhoods.** Studies have shown that the proximity of these businesses helps shoppers obtain food, including fruits, vegetables, and other healthy options, at lower costs. Serious health problems such as food insecurity and overweight have been shown to be addressed by this action (44-46).
- ❑ **Encourage farmer's markets to set up near low-income communities and sites where needy families work.** Doing so will enable and remind families to obtain locally-grown, fresh fruits and vegetables which can be made available at low cost through supplemental food program incentives (47).
- ❑ **Expand the WIC Farmer's Market Nutrition Program (FMNP) to cover all counties in Washington state.** As the voucher program has proven to be successful in 23 counties already and the remaining 16 counties have clients and producers clamoring for involvement, this program seems likely to engender success. Food insecurity and obesity can be addressed through greater access to fresh fruits and vegetables for low-income families, while at the same time helping local economies (44,45,47).

- ❑ **Utilize existing transportation routes and vehicles to provide inexpensive or free transportation to low-income families from their communities to farmer's markets and larger supermarkets.** Studies in low-income neighborhoods have shown that providing low-cost or no-cost bus service or shuttle busses to venues that sell lower-cost, healthy food helps residents' health as well as supermarkets (44,46,49). This intervention will help program participants access healthy food while proximate large supermarkets and farmer's markets are under formation.
- ❑ **Provide tax incentives for smaller supermarkets and convenience stores to sell fresh produce and healthier food.** Since low-income families have been shown to have trouble accessing markets that vend inexpensive healthy food because these types of markets are not located in their communities, expanding the selection of low-cost options at smaller, neighborhood groceries will help increase access to nutritious food, thereby reducing food insecurity and overweight (44).
- ❑ **Implement policies that lower the price of healthy food and raise the price of unhealthy food.** As cost is a major concern of the WIC clients, this intervention is essential for encouraging increased consumption of fruits and vegetables, and healthier food options. Studies have shown that price incentives and increased variety of healthy foods encouraged the purchase of healthier foods (50). Similarly, studies on the impact of raised prices on smoking behavior and alcohol consumption suggest that a tax on unhealthy food would deter consumption (44).

- ❑ **Offer cooking classes and community kitchens to low-income families where food can be produced communally, relying on pooled resources and labor to feed a group of families.** These types of arrangements have been shown to help families who lack time and money for cooking healthy food. At these community kitchens, parents can cook together, sharing ingredients, knowledge, and childcare responsibilities. Learning, cooking, and eating together also helps create social support networks that have been shown to encourage and maintain healthy behaviors (51). A study of community kitchens in Canada have shown that these kitchens play an important role in augmenting household resources, skills building (meal planning, food preparation), and fostering mutual support (52).
- ❑ **Adopt municipal and rural town policies that encourage the formation and use of community gardens in low-income neighborhoods through free land, free water, and free garbage removal services.** Community gardens provide a direct link between families and low-cost produce without the need for transport, farmer's markets, or large supermarkets (46,53). So, food insecurity issues and overweight problems can be addressed through this increased access to healthy food. An added bonus is the physical activity and formation of community networks (social capital) that results from these gardens, both important for creating a healthy community (44).
- ❑ **Distribute excess food from community gardens to low-income housing projects or neighborhood service centers.** Bringing fresh produce to low-income families who may not live close to a large supermarket or farmer's market or who lack the financial resources to purchase fresh fruits and vegetables helps

create access. As has been shown to be successful in the Michigan Food Bank Garden Project, volunteers from community gardens distributed surplus fruits and vegetables to residents in low-income communities, helping improve the families food security and in the long run, helping reduce the risk of overweight in these communities (53).

- ❑ **Train workers at food banks, churches, community centers, and other emergency food assistance programs about the underutilized, federally-funded CACFP to provide suppers to preschool-aged children in childcare.**

The CACFP program helps address hunger and food insecurity by providing free meals to participants. Typically this program is held in afterschool programs, but the funding is available for organizations that serve the wider community and could reach children under 5 years. Offering and publicizing this meals program will help reduce food insecurity and fear of hunger in the community (54).

- ❑ **Provide subsidized, donated, or low-cost refrigeration systems and storage facilities to emergency food service venues to increase these vital services' ability distribute healthy fruits and vegetables.** Because evidence exists that people who rely regularly on emergency food services such as food banks or community soup kitchens may have inadequate nutritional intake (53), increasing the availability of healthy foods, including fruits and vegetables that require refrigeration, is an essential step for alleviating this inadequacy. Unfortunately, most emergency food service facilities currently do not have adequate equipment for proper storage of produce, so an intervention that installs this equipment would be the first improvement. As the focus groups with the WIC clients

confirmed, food insecure families are likely to seek out food banks in times of hunger or lack of money. While the food provided there may relieve the hunger pains and provide needed energy, the lack of nutritious offerings can lead to overweight. Proper equipment and provision of fresh produce in these venues would help stall this effect from occurring.

- ❑ **Replace unhealthy options in worksite, community center, hospital, transit center, and school vending machines with healthy foods.** Since vending machines and cafeterias are often convenient ways for people to buy food, particularly those people who do not have a lot of time like the WIC clients we spoke with, providing greater access to healthy options in these machines is helpful for reducing overweight (44,46).
- ❑ **Require meals in workplace and hospital cafeterias to meet nutritional standards.** Private businesses, public agencies, and hospitals that offer cafeterias to their employees need to ensure that their food meets federal nutritional standards, especially including the Five-A-Day program. These policies have been shown to increase healthy food consumption, and thus lower obesity and chronic disease risks (44,46).
- ❑ **Establish state policies that require employers to give employees an adequate time to eat at work (breakfast, lunch, or dinner depending on the shift).** Providing employees enough time to eat will reduce consumption of fast-food—the option of choice for many who only have 15-30 minutes for lunch (44).
- ❑ **Encourage employer policies that provide the time, venue, and friendly environment for breastfeeding.** Since breastfeeding plays such a vital role in

giving infants adequate nutrition, protection against overweight, and a healthy start in life, baby-friendly worksites are an important intervention for increasing overall nutritional status of children and reducing the risk of overweight (44).

- ❑ **Establish low-cost or free childcare centers at community centers, WIC clinics, and low-income neighborhood housing areas so that parents have time to take classes on nutrition and preparing healthy foods on a budget.**

Although this intervention has not been tried or proposed in the academic literature to date, it is a promising approach since many of the WIC clients in the focus groups indicated that time was a big barrier to eating healthy. Fast food was an easier alternative to cooking a healthy meal. As we saw firsthand in our recruitment efforts for these focus groups, childcare responsibilities do take up a lot of time and act as a major barrier to parental participation in activities. Freeing up low-income parents from these responsibilities may enable them to learn about nutritional meal options and to implement these recipes in their own kitchens.

Access to Physical Activity

- ❑ **Increase funding for parks and recreation departments to upgrade and expand existing parks and facilities.** Improving the physical infrastructure of Washington's numerous state, county, and municipal public parks as well as expanding the program offerings and hours of operation can help encourage low-income families to engage in physical activity (44,46). As these facilities are

public, families can reap rewards at little cost (if any), an important concern as shown in our focus groups with WIC clients.

- ❑ **Improve physical infrastructure of low-income neighborhoods, parks, and neighborhood commercial centers to create safe, exercise-friendly venues for families to enjoy.** Studies have shown that improving or creating sidewalks, walking paths, bike paths, and their surroundings encourages physical activity. Sidewalks need to connect housing areas with shopping centers and parks, and need to be constructed so that they do not cross dangerous parking lots that act as deterrents to use (44,46). Encouraging walks to the store with safe, inviting sidewalks and surroundings combines practical, everyday demands, such as access to healthy food, with PA, helping families save time and reduce stress. This type of activity is relatively low-cost (except the cost of the bicycle) and family-friendly so WIC clients can enjoy the benefits.
- ❑ **Establish local land-use policies that encourage mixed-use development in urban and suburban areas.** Locating housing near commercial centers and near public transportation has been shown to encourage physical activity and reduce trips in the car (44,46). People need to feel comfortable walking in their neighborhoods as well as have a destination to go to in order to reduce their reliance on cars.
- ❑ **Increase funding for personnel and change liability issues in order to open school gymnasiums, athletic fields, and school grounds to the public.** Since schools are often centered within neighborhoods, are visible and known to the public, and are not often in use on the weekends or evenings when working

families may have time to exercise, opening these facilities to the non-schoolgoing population is a viable option for creating exercise venues. Previous efforts in small communities such as Moses Lake, WA have shown this intervention to be desired and successful (44). Existing facilities are used, reducing land needs and construction costs for new centers, and community connectedness is encouraged since the exercise venues are neighborhood-based.

- ❑ **Provide sliding scale fees or eliminate sales tax for physical activity programs for low-income families.** Venues such as YMCAs, community pools/athletic centers, or the school-based centers described above need to be made more accessible to low-income families in order to encourage physical activity. Studies have shown that sliding scale fees help encourage use (44).
- ❑ **Offer incentives to health insurance and healthcare providers to reduce insurance premiums or rebates to individuals who document physical activity.** Providing financial incentives to individuals who meet regular fitness tests has shown to encourage regular exercise (44). For families such as the WIC clients who expressed an interest in physical activity as well as a concern about costs, this intervention helps address both of these issues.
- ❑ **Encourage worksite wellness programs that provide incentives for physical activities.** Studies have shown that employees respond to employer policies that reward workers who engage in physical activity with lower insurance premiums, cash rebates, extra vacation days and extra break time (44,46). For workers who do not have a lot of time after work because of family and other responsibilities,

this option is a practical way to increase people's physical activity levels and subsequently reduce stress and overweight.

- ❑ **Encourage people to use the stairs by revamping existing facilities and designing new buildings with inviting and prominent stairwells, and displaying signs that encourage their use.** In most buildings, stairs are hard-to-find, unpleasant, and sometimes dangerous places that discourage- as opposed to encourage- use. As has been done at Starbucks headquarters in Seattle, existing buildings need to upgrade their stairwells with paint, plants, music, and clear signage in order to invite people to use them instead of the elevator. Posting signs prompting use of the stairs and playing music in the stairwells has been successful at increasing use at Starbucks (44). New buildings need to incorporate friendly stairwells as part of their design and not place them in out-of-the-way places. Moreover, through a creative social marketing campaign, stairwells need to be signed properly and encouraged to be the norm over elevators in lower-rise buildings; elevators should be for physically challenged people, for equipment, and for people who need to reach the higher levels.
- ❑ **Create low-cost or free childcare centers at community centers, WIC clinics, and low-income neighborhood housing areas so that parents have time to engage in physical activity and take classes.** Although this intervention has not been tried or proposed in the academic literature to date, it is a promising approach since many of the WIC clients in the focus groups indicated that time is a big barrier to healthy behavior. As we saw firsthand in our recruitment efforts for these focus groups, childcare responsibilities do take up a lot of time and act

as a major barrier to parental participation in activities. Freeing up low-income parents from these responsibilities may enable them to learn how to engage in a successful PA program and to incorporate exercise into their daily routine.

- ❑ **Utilize existing transportation routes and vehicles to provide inexpensive or free transportation to low-income families from their communities to parks, YMCAs, and other venues for exercise classes, led activities, and recreational sports teams of which they are a part.** Similar to the intervention listed above that would provide greater access to farmer's markets and large supermarkets for healthy food, this program tactic would increase access to organized physical activities, enabling more low-income families to participate. This intervention will help program participants engage in PA in a supportive social setting that reinforces behavior while walking/bike paths in their neighborhoods are under formation.
- ❑ **Adopt municipal and rural town policies that encourage the formation and use of community gardens in low-income neighborhoods through free land, free water, and free garbage removal services.** This intervention addresses both food insecurity and overweight. As noted above, community gardens increase a community's access to healthy food simply because fruits and vegetables are grown there. Studies have also shown that community gardens are effective at increasing the physical activity of community members who work in them, so this intervention will tackle two significant health issues simultaneously (44).

Education About Healthy Food and Nutrition

- ❑ **Provide nutritional education at farmer's markets when offering incentives for low-income families to buy fruits and vegetables, such as the WIC Farmer's Market Nutrition Program.** According to research, combining nutrition education with farmer's market coupons given to WIC clients reaped the maximum positive benefit on increasing fruit and vegetable intake (53).
- ❑ **Improve the nutrition education provided by WIC by providing information about portion size and culturally appropriate recipes and cooking classes.** In a study done on how to improve WIC services, numerous survey respondents requested education on appropriate portion sizes such as the appropriate amounts of formula and juice to feed children. Furthermore, WIC clients expressed interest in having educational sessions include actual food package samples such as cereal boxes so they could accurately identify the correct size to buy for storing food properly (54). In addition, recipes and cooking classes provided by WIC should be more culturally appropriate due to the diverse nationality of WIC clients.
- ❑ **Utilize home visits, telephone counseling, and group classes to engage low-income families in discussions about healthy eating, including how to cook healthy meals on a limited income.** Research suggests that low-income, postpartum women are likely to respond to interventions that incorporate formal and informal social support networks, home visits, and telephone sessions for encouraging healthier diets and PA. Because this population is more homebound and tied up with childrearing demands, the research suggests that these

approaches may prove to be efficacious in encouraging behavior change (55). As our focus groups with WIC clients indicated that time is a major barrier to eating healthy food, these methods will be employed to educate our program recipients.

- ❑ **Employ social marketing activities, such as a regular newsletter to WIC clients, to educate families about how healthy foods affect long-term health and children’s development, how to prepare low-cost, healthy, and tasty meals, and how to determine portion size.** A study of Pennsylvania’s nutrition education program found this activity useful for increasing fruit and vegetable consumption, decreasing soda consumption, increasing food label reading, cutting back on fat intake, and cooking healthy meals using the recipes from the newsletter. The majority of newsletter recipients were low-income, having received Food Stamps within the past year (57).
- ❑ **Encourage worksite wellness programs to provide nutritional information about healthy and unhealthy food, healthy and unhealthy portion sizes, healthy menu suggestions, and recipes.** Studies have shown that information that employees receive at work helps increase healthy behaviors (44). Receiving messages through this venue may be useful for people who cannot take classes because of time and financial constraints—key issues that emerged from our focus group sessions with WIC clients.
- ❑ **Offer low-cost and easy-to-prepare recipes and cooking demonstrations in WIC clinics, community kitchens, and emergency food programs.** As noted above, these types of arrangements have been shown to help families who lack time and money for cooking healthy food. At these community kitchens, parents

can cook together, sharing ingredients, knowledge, and childcare responsibilities. Learning, cooking, and eating together also helps create social support networks that have been shown to encourage and maintain healthy behaviors (56).

- ❑ **Provide gardening workshops to communities where community gardens are implemented to instill self-efficacy in residents.** Studies have shown that these workshops are effective at encouraging people to garden, which increases fruit and vegetable consumption as well as physical activity (53).
- ❑ **Establish local and state policies that require restaurants to provide nutritional labeling on their menus and teach parents how to read food labels through programs at worksites, WIC clinics, community centers, and emergency food assistance centers.** Helping people be more aware of what to look for in healthy food has shown to increase healthier choices in food according to studies done regarding restaurant labeling (44). Since the federal government now requires this labeling on all non-prepared food sold in the U.S., the information is readily accessible to all. Now, parents need to be empowered with the tools to read these labels and compare them with each other in order to make healthy choices.

Education about Physical Activity

- ❑ **Offer physical activity preparatory courses at WIC Clinics, community centers, health centers, and schools.** The IMPACT Study conducted in the San Francisco Bay Area among low-income women showed that a small-group, preparatory course encouraged women to exercise. For people in the

precontemplation stage of behavior change, the eight 1-hour, weekly sessions created social support networks that motivate participants to act. These social support networks were effective in motivating readiness to change behavior as well as in increasing PA levels (51). Since many of the focus group participants indicated exercise readiness as well as requested classes, these types of preparatory courses may help instill good physical activity habits.

❑ **Encourage organizations that serve low-income communities (e.g. WIC**

Clinics) to offer classes on physical activities that parents and children can do

together. Engaging in exercise together can develop healthy habits for both the parent and child as the parent role models good behavior for the child, and the child's interest encourages the parent to continue the activity. Shared physical activity sessions also encourage bonding while having fun and relieving stress.

These types of activities are particularly useful for WIC clients because our focus group research showed that the clients do not have time to exercise although the desire is there. Because childrearing takes up time and lack of childcare often prevents low-income parents from engaging in activities on their own, joint PA sessions with their children are a practical way to increase the parent and child's physical activity.

❑ **Provide walking/biking route maps to families of the local community and of recreational parks in the area where families may go to exercise.**

Understanding how sidewalks, walking paths, and bikepaths are connected to schools, neighborhood parks, and commercial centers will help encourage physical activity. In Washington's Safe Routes to School program, route maps

were shown to be effective in encouraging physical activity (44, 46). Similarly, knowing what is offered at area parks will prompt families to visit these parks and take advantage of the exercise opportunities as well.

Summary of Intervention Recommendations for the WIC Program

- Expand the WIC Farmer's Market Nutrition Program to cover all counties in Washington State.
- Make EBT cards available to WIC clients for use at farmer's markets.
- For maximum benefit, ensure that all WIC Farmer's Market Nutrition Program participants receive adequate nutrition education along with their EBT cards.
- Improve nutrition education by providing information about portion size, as well as culturally appropriate recipes and cooking demonstrations.
- Offer physical activity preparatory courses as well as classes on physical activity that parents and children can do together.
- Offer free childcare to WIC parents so they may be able to concentrate and learn more in the nutrition and physical activity classes without being distracted by caring for their children.

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Appendices

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