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SUMMARY
CHILDREN AND THEIR FOOD PRACTICES

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Community Food Bank
February 2005 Preliminary Report
April 2005 Final Report

A summary of the report, organized around four themes, follows:

Original Research Questions:

- Among children, ages 5-12 years and their households, who is food insecure and why?
- Do they access available food resources, why or why not?

Additional Research Questions, generated by the data:

- What food resources are important in addressing food security?
- How effective are these resources in addressing food security?
- What other individual, familial and community actions could be taken in order to improve the effectiveness of these resources?

Methodology: Information for this assessment was gathered by the Community Food Bank's Community Food Security Center staff and Research Team through four parent-child interviews at four elementary schools and two focus groups at two of the four elementary schools. Schools participating in this assessment had free and reduced breakfast and lunch rates varying from 37% to 88%. The school districts represented include Tucson Unified, Sunnyside, Flowing Wells and Amphitheater. Each interviewee was provided a letter of explanation and consent form in English and Spanish. Interviews and focus group research were recorded, transcribed, translated and analyzed by the Community Food Bank's Community Food Security Center staff and Research Team.

Theme Data and Analysis

Family Food Practices

- Shopping for food
 - Parents use their own car or a relative's car for transportation.
 - Considerably more time is often spent shopping if children are present.
 - Kids often select food items that mothers feel are not nutritious.
 - NOTE: All parents interviewed used a food pantry at some point in their reported experiences.
- Eating at home
 - Breakfast is important and usually contains protein.

- Some children have “big lunches” after school.
- Mothers learned to cook by watching their mothers cook.
- Children often help prepare meals.
- Eating out
 - Eating out is a family event and typically includes restaurants with activities for children and giveaways.
 - Frequency of visits varies due to cost.
 - Common restaurants include McDonalds, pizza, Mexican, and Chinese.

Health, Nutrition & Exercise

- Mothers had some knowledge of nutrition and preferred that school meals include more fresh vegetables and meat and less sugar and sodium.
- Exercise at home and at school is limited.
 - Physical activity outside of school is often unstructured and after school programs that include physical activity often cost money.
- Health issues such as child asthma, obesity, being underweight and hunger were identified. Adults at schools do not often eat food from the school cafeteria.

Waste & Lack of Food Familiarity

- There is a relationship between lack of food familiarity and food waste at school.
 - Examples of foods thrown away include certain vegetables, trail mix, white milk, greasy pizza.
- Vegetables served at school are not similar to vegetables served in study households.
- Larger portion sizes are lacking for older students.
- Cultural pressures exist around sugar and thinness.

School Policies & Practices

- Children risk tardiness if they eat breakfast and recurring tardies may result in punishment and school suspension.
- Limited choices exist for school breakfast and lunch.
- Flavored and sugared fruit drinks are available in vending machines.
- School policy varies on physical education from none to 30 minutes, 1-3 days per week.
- Student recess varies by age group and are no more than 15 minutes in the morning and 20 minutes after lunch .
- Some schools have a prevention specialist to encourage physical activity during recess.

INTRODUCTION

*...Directions: Put chili and some water into a saucepan with bullion,
garlic which is diced, and salt and pepper and onion
which I don't have and won't mention anymore because
I miss it and you shouldn't ever be anyplace without it,
I don't care where....(from How to Make a Good Chili Stew, Simon Ortiz,
A Good Journey, UA Press, 1977)*

Research History, Rationale and Purpose

In 1976, a committed group of people in Pima County formed the Community Food Bank with the purpose of addressing the issues of hunger and poverty. As stated in its 2005 brochure, "Empty?", published by the Food Bank Community Food Security Center:

Overcoming hunger is about more than filling bowls and bellies....
The number of people coming to us for help has only grown and so,
in addition to emergency food assistance, we are working...to build
self-sufficiency and a local food system based on justice. One in seven
Tucsonans are living in poverty, defined by the federal government as \$9,310 for
an individual; \$12,490 for a household of two; \$18, 850 for a household of four.

The Community Food Security Center's mission is based on establishing food security in response to the problem of food insecurity.

Adapted from the USDA's 2003 report on Household Food Security, **food insecurity** is defined as "those individuals or communities that are unable to get food through normal channels (grocery stores, household gardens, or other non-charitable means) as being at risk for hunger." **Food security** is defined as "when all people at all times have physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life." According to Mark Winne, W.K. Kellogg Food and Society Fellow, **community food security** "is a relatively new food security-promoting strategy that considers all the factors within a region or community's food system that influence the availability, cost, and quality of food to area households, particularly those in lower income communities" (Winne 1).

The Community Food Bank's Community Food Security Center is increasingly successful in promoting proactive and preventative community actions (backyard gardening, farmers markets, gleaning, nutrition education) which help individuals, families, neighborhoods and faith-based and educational institutions address food self-sufficiency. In addition, the Community Food Security Center staff, led by its director, Varga Garland, looks to programs in other states and regions for solutions to increase community food security. Findings from these efforts suggest that the formation of a food policy council is essential to develop and sustain significant community engagement.

A Food Policy Council is defined as a network which supports local food systems, sustainable agriculture, and equitable access from non-emergency sources to healthy, affordable, culturally appropriate, high quality food (Clayton 20).

As steps toward forming such a food council, the center undertook two prerequisite efforts.

1. In September 2004, people were invited from the area to meet for a Hunger Summit. One hundred fifty-three leaders of Pima County, with invited national and Arizona speakers, participated in the Summit and identified priority areas of interest including education, long-term solutions, economic development, services coordination and collaboration, and local food production (Appendix A).
2. An Action Research team was formed with resources from several sources:
 - a. University of Arizona's Peace Corps Fellowship Program
 - b. Congressional Hunger Center, Bill Emerson National Hunger Fellows Program
 - c. DES Community Food Security Grant

The Action Research team was coordinated by Anita Fonte, an adjunct professor from the University of Arizona's College of Education, and was comprised of Varga Garland; Peace Corps Fellow, Jim Hazen; and Hunger Fellows, Barrett Ebright and Chandra Kring. They were assisted by the Community Food Security Center staff and Community Food Bank staff, Sandy Lujan, Michelle Kuhns, and Marie Buick.

Action research is a methodology with the dual function of producing future change and adding to understanding of an issue or problem. Its origin can be traced back to Kurt Lewin. Carr and Kemmis identified four elements of the action research cycle—planning, action, observation, and reflection (Dick 2).

The original purpose of the action research was to increase the community's understanding of food insecurity by answering the following:

1. Among children, ages 5-12 years, and their households, who is food insecure and why?
2. Do they access available food resources, why or why not?

Background of the Researchers

Varga Garland, director of the Food Bank's Community Food Security Center initiated the study. Her PhD. is in Child and Family Development and she has worked at the Community Food Bank since 1997. Jim Hazen, UA Peace Corps Fellow, is a graduate student in the College of Public Health and while in the Peace Corps, served in Madagascar. Barrett Ebright and Chandra Kring, Hunger Fellows, have degrees in Sociology and Community Studies and Public Policy, respectively, and have eight years of community-based experience. Anita Fonte, an adjunct professor in the University of Arizona College of Education, has taught qualitative and quantitative research methods to masters and doctoral students and also works in various community-based research and engagement roles.

Research Assumptions

The Action Research Team has identified the following key research assumptions that contributed to the collection, analysis and interpretation of the research data:

- The issues of food insecurity and food security are important in the overall goal of decreasing hunger and increasing nutrition and health.
- The nutrition and health of community members contributes to the overall quality of life of a community.
- Through a deeper understanding of a purposive and accessible sample population, the information/data produced would help the Food Bank's staff and community members as practitioners identify steps for future community change.
- The philosophical "lens" of data interpretation was based on ethnographic research and, specifically, grounded theory (Hammersley and Atkinson). Grounded theory advocates data analysis and interpretation that is driven by the data rather than external theories or proposed problems.

Additional research assumptions that were identified by the team during or after data collection and analysis, as the team reflected upon their research practices and the data that was generated, are:

- The school would be providing the most reliable food resource to the children and their households.
- The children's families would not be engaged in healthy food practices.
- Children's health issues would be important.
- Transportation to food resources would be a common impediment.
- Other professionals engaged in food distribution and community members would be open to new understandings generated by our interpretation of the research data.

Research Limitations

Limitations that the Research Team identified at the beginning of the research include:

- The research had to be completed in order for the Hunger Fellows to deliver the report as their Hunger Free Community Report to the Congressional Hunger Center by February 2005.
- Personnel's time and resources.
- Number of schools which could be accessed in order to meet the timeline.
- Availability, access and willingness of students, their parents and school staff.

During and after the research, we added the following limitations:

- The Community Food Security Center staff that provided bilingual interviews did not attend the orientation to research methods. This generated a weakness in internal reliability, due to additional questions the bilingual staff asked during the interviews.
- Specific school data, although available, was not used because it would breach the confidentiality of the school and the school's staff.
- To meet the Hunger Fellow's timeline, it was decided that two reports would be produced. The first, released on February 4, 2005, was delivered to the Congressional Hunger Center, and did not include reviews and edits from the

participants or from peer readers. The second, released April 2005, includes a final text and participant and peer reviews. Upon completion, the second version will also be delivered to the Congressional Hunger Center.

Research Themes

Using thematic coding as the primary data analysis method, four major themes were identified by the Team. Thematic coding is commonly used in ethnographic research.

- Family Food Practices
- Health, Nutrition and Exercise
- Waste and Lack of Food Familiarity
- School Policies and Practices

Each of these themes is addressed in detail in the following report.

METHODOLOGY

Research

On October 29, 2004, the Food Bank Action Research Team met to respond to priority issues identified by the one hundred and fifty three community participants who attended the September 2004 Pima County Hunger Summit. The majority of the Summit participants expressed concern about young children's access to food and suggested that the school was the primary institutional resource to address this issue. Based on this concern and other assumptions cited in the report introduction, the Food Bank's Action Research team decided to focus on elementary schools as the most accessible data source for this study. Through the elementary schools as an "entry point," the Research Team planned to recruit young children, their families and school staff to participate in the study. The Team established an action plan delegating responsibilities to members and setting a timeline for completion of the research.

Design: Interview and Focus Group Questions

Initially, the coordinator facilitated an in-depth discussion of quantitative and qualitative methodologies. It was decided that both would be used in the study, but the primary methodology would be qualitative, using ethnographic and historical research designs. As stated by William Wiersma, 1995, in *Research Methods in Education: An Introduction*, there are several design assumptions that underlie qualitative research:

- The phenomena (situations) should be viewed as complex and cannot be reduced to a few factors.
- The researcher operates in a natural setting and should be "open" to events.
- The perceptions of those in the study are the focus of the research and to the extent possible, those perceptions are to be "captured" as reality.
- Researchers' bias and assumptions are to be identified and thus, minimized.
- The "world" or the phenomena in the world...is not run in a mechanistic manner, according to a set of laws.

Interview and Focus Group questions were designed by the Team. In order to minimize the amount of time required for participants to take part in the process, a limited number of questions were compiled for the parent and child interviews and the focus groups. Questions using simple grammar and vocabulary were outlined for the child interview focusing on daily eating habits, food satisfaction, and physical activity. Questions for parents requested more detail on food and nutrition including access to resources, preparation and eating habits in the home, physical activity, family health, and general knowledge of healthy eating behaviors (Appendix B).

Focus group questions were on food and nutrition in the schools, including breakfast, lunch, and after school food availability and appreciation; the relationship of food and nutrition to illness and academic performance; cultural aspects of food and nutrition and their effect on students; physical activity; and general perceptions of the overall impact of

food and nutrition in the school setting. Questions were designed to promote discussion among focus group participants (Appendix B).

A preliminary list of questions was suggested by the Team and a list of questions was compiled based on group consensus. The list was reviewed by the team, edited, and finalized in a November 2004. All questions were designed to ensure clarity, cultural sensitivity, and applicability based on scope and purpose of the research. For each set of questions, the time required was estimated - child interview-9 questions, 10-20 minutes; parent interview-12 questions, 40-50 minutes; focus group-8 questions, 40-50 minutes.

Interviews and focus groups were scheduled. The research plan included three interviews and three focus groups, but due to participant availability and deadlines, four interviews and two focus groups were conducted. The interviews and focus groups were audiotaped.

Sample

Participants for the interview and focus groups included representatives from four Pima County school districts. The four districts were Tucson Unified School District (TUSD), Flowing Wells School District, Amphitheater School District, and Sunnyside School District. The districts were each chosen because of existing relationships with the Community Food Bank. Four schools within the districts were identified through existing relationships with the Community Food Security Center including food security and education work. The sample for this study was an accessible and purposive sample.

An employee of the Community Food Bank contacted each school. Contacts at each school most often included the Parent Involvement Assistant (PIA), Family Literacy teacher, or school social workers who worked closely with parents and teachers in the schools. If the PIA was not available or not present in the school, discussion took place with the principal or assistant principal. The Community Food Bank staff member provided information on the scope and purpose of the assessment. In addition, a letter of explanation and a consent form, each provided in English and Spanish, were sent to the school contact to review and share with other staff members and parents (Appendices E & F).

After reviewing the letters, parents and their children were identified for the interviews. School staff was identified for the focus group including teachers, nurses, parent involvement assistants, Family Literacy teachers, and any other party working at the school who could provide information on food and nutrition in the school. A minimum of two school staff members were required for a focus group with at least one being the school nurse or a teacher.

Interviews and Focus Groups

All interviewees received a letter of information and consented to participate in the assessment. Interviews and focus groups were conducted in each of the schools by the Team. Except the first parent and child interview, when five members of the Team were present, all other parent and child interviews were performed by two members of the Team. For interviews in Spanish, a bilingual Food Bank staff member was accompanied

by one Team member. The staff member asked questions and the Team member operated the tape recorder and regulated the time given to each question.

The two focus group discussions were conducted by multiple members of the Food Bank staff and Team in English. Two Research team members asked questions sequentially while one staff member operated the tape recorder and regulated time. The Team conducting the interview and focus groups discussed the responses immediately following each meeting. The discussion focused on the following topics: general themes, surprise findings, successes, and items to improve on for future interviews and focus groups.

To emphasize internal research reliability, each interview and focus group began with an overview of the assessment and procedures. Participants were told that a series of questions would be asked and recorded and they would be given time to respond. Participants were also informed that the interview would take approximately one hour total for the parent and child interviews and forty-five minutes to one hour for the focus groups. For parent and child interviews, the parent was also present for the child portion of each interview. Because the bilingual Community Food Bank staff in two interviews posed additional questions, internal reliability was weakened.

Following interviews and focus groups, participants were provided time to discuss any additional issues or concerns relating to food and nutrition in the schools. In some cases, discussion continued; relevant information was included in the data presented in this report. In addition, to conduct participant reviews, all participants were asked to review a draft of the report. Participants interested in receiving a copy of the final report provided mailing addresses.

No participant reviews and one peer review were received as of the date of this publication (Appendix G).

Transcription

All interviews and focus groups were transcribed by members of the Food Bank's Community Food Security Center staff or the Research Team. Spanish transcription was completed by Community Food Security staff, Marie Buick, Dana Helfer and Michelle Kuhns. All information transcribed from Spanish was first written in Spanish by a Community Food Security Department staff member, then written in English.

Data Analysis

All transcripts were first analyzed by the coordinator of the Research Team. Sixteen themes were identified and color-coded based on commonalities in the different interviews and focus groups. The Research Team met to discuss the themes and consolidated the themes into four main categories including:

- Family Food Practices
- Health, Nutrition and Exercise
- Waste and Lack of Food Familiarity
- School Policies and Practices

Research Team members numbered all the data lines in the transcribed narratives and electronically clustered the data into the four categories. For each category, the lines were cut and pasted on wall-sized sheets of paper and labeled by color and theme. The Team reviewed each theme and its components. Main points were outlined by the Team for each category and written on an additional wall-sized paper. For each category, representative quotes and key elements of each theme were produced; the data was typed into a research summary/abstract format for presentation in January 2005 (Appendix H).

The complete data sets were reviewed and integrated for the report. Quantitative data is included in the appendices (Appendix I).

Interpretation of the qualitative data is meaningful as descriptions of the individuals, families and school staff who participated in the research. The internal and external validity of the data is strengthened by the use of “triangulation.” Data was collected from three different sources to answer the research question. The research design used parent and child interviews, school staff focus group discussions, and historical data for each school district.

RESULTS

Family Food Practices

“The evening meal is very important. That’s when we sit together, we sit as a family” (School C, parent interview: ll 429).

While the number of children in a school qualifying for free and reduced price breakfast and lunch communicates how many children are accessing food at school, it does not describe children’s experiences accessing food outside of school. The parents that we interviewed provided an in-depth look into their practices for accessing food for their families. The interviews revealed that parents’ food practices are a very important part of the children’s ability to access food outside of school. Parents were also conscientious of the way their food practices affected their children. The act of purchasing food and preparing food involved children physically or parents kept the nutritional needs of their children in-mind. Interviews with five mothers, revealed three major categories including food shopping practices, eating at home, and eating out.

Food Shopping Practices:

One issue of primary interest was the entire process of families accessing food. Most of the data generated surrounded the mother’s typical trip to the grocery store. Every mother used a vehicle that they owned or borrowed from a relative or friend. “Q: How do you get to the grocery store? A: Me. Me and my car or my boyfriend” (School B, parent interview: ll 128-129). However, the nature of the trips to the store varied greatly depending on whether their kids accompanied them. The presence of children affected the items purchased, with kids often selecting foods considered unhealthy by their mothers, and the amount of time spent at the store. “It takes us two hours because I make a list and they help me . . . they always want to go, because there’s always something they want . . . Like chips or juice or chocolate, which isn’t good food” (School D, parent interview: ll 42-62). The presence of children influenced the length of the trip; if mothers were alone, they could get in and out without any distractions. But for other mothers shopping alone allowed them to take more time. “When I’m by myself it can take me like up to an hour, and when all of us go in, about a half an hour” (School C, parent interview: ll 167-168).

All interviewees reported having used a food pantry at some time in their experience accessing food. One parent reported that while getting food from the food pantries was helpful, she did not feel that the food was always nutritious. “The food bank gives you stuff, there’s no meat and no, there’s just canned stuff. I mean who I am and as a parent I don’t just cook canned foods that don’t contain a lot of nutrition” (School B, parent interview: ll 197 –199).

Another parent felt that some people did not use food pantries because they were unfamiliar with the foods distributed. “The [Hispanic] community doesn’t take advantage of everything you offer. Because it’s not what we’re used to in our countries. For example, powdered milk - the majority of the people don’t use it, they don’t use canned food, we’re not used to it” (School A, parent interview: ll 151-153).

One staff person reported her experience in taking parents to a local food pantry and thought customer service could be greatly improved. “Going to those places is very intimidating . . . it’s not a friendly place . . . I think these people need to be trained how to treat people because that’s, I think that’s part of the problem” (School A, focus group 1: ll 203-230). Another parent told us about her positive experience with a food pantry. “I’m thankful for the food bank up here . . . I would go up there and say I just need groceries for a week to get me through. And I think I walked out of there with nine bags of groceries. And I’m like this is overwhelming to me, and it fed me. Now I donate when I, when I do have the money” (School C, parent interview: ll 276-317).

Eating at Home:

We asked mothers to describe their food preparation. All of the mothers told us their children helped them cook and for some it was a family activity. “I live with my four kids alone and it’s fun to make food together. Sometimes we just laugh and laugh and, you know, we don’t make anything fancy, we just . . . play, but we do it as an activity with just us” (School D, parent interview: ll 84-91). Many interviewees said that it was not only nice to have the help, but that it was important for them to teach their children about food and cooking. “Sometimes they want to help, sometimes I want to teach them” (School C, parent interview: l 179). Most of the mothers reported that they learned to cook from their mothers and family, or in one case had learned what not to cook from her mother. “So, I learned with my family. I didn’t study anything. They’re all recipes from my mom or my grandmother—or my sisters” (School D, parent interview: ll 183-184).

When the Research Team asked the mothers to describe recent meals they had prepared and where their children eat their meals, many talked about breakfast as being a very important meal. Mothers expressed that it was important for their children to start out their day with a good hearty meal that often included protein and carbohydrates. “In the morning we have a big breakfast . . . I always try to give him some protein, like egg or sausage, and bread or . . . carbohydrates” (School D, parent interview: ll 106, School A, parent interview: ll 117-118). Some households also had big meals for their kids to eat after school and a smaller meal closer to bedtime. “In the afternoon when they come home from school—those are the hearty meals, and at night, we just have cereal so it’s not heavy or hard. So, I hardly ever make dinner. It’s a light dinner” (School D, parent interview: ll 107-110).

Eating Out:

For many mothers, eating out was centered on their kids and family. For one household, the family night was once a week and included eating out and a movie. “We eat out pretty much every Friday . . . And then we go to Blockbuster and rent movies” (School B, parent interview: ll 156-159). For others, frequency of eating out depended on cost and was not as much about the food at the restaurants, but the activities for their kids or toy giveaways. Some of the most common places included McDonalds, Subway, pizza, and Mexican or Chinese restaurants. “Well, I take them to McDonalds, I take them to Burger King. It depends on the toys they have. Because they want the Happy Meal, but just the fries and the soda and that’s it. They don’t like the hamburger” (School D, parent interview: ll 235-237).

The Research Team was also interested in other ways families access food. Mothers and school staff were asked if they knew about other community or family organized food sharing. None of the mothers reported other types of food sharing, but one school staff person explained that she and her neighbors share food they prepare with each other. “It’s neighbors with neighbors you know. I mean if I make tamales I’ll take my neighbor, you know, tamales or if I make some soup or something. They do that, but that’s not everybody you know, just a few” (School A, focus group 1: 11 267-269).

Summary:

Based on the data, mothers have a great impact on their children’s experience with food outside of school. Children are often involved with food shopping and meal preparation. Just as mothers reported learning about cooking from their families, their children’s knowledge of cooking and food are coming from their families as well. Mothers also considered their children when making choices concerning when the important large meals were eaten, particularly large breakfasts and after school meals. Lastly, eating out was considered a family activity or an experience for the children where they could play and take advantage of toy giveaways.

Health, Nutrition & Exercise

“The food here, it’s not very good . . . other schools they even have a salad bar, and I feel like the food is really poor here in this school district . . . it should change because I don’t feel it’s as nutritious” (School A, parent interview: 11 97-100).

As a part of the purpose to learn who is food insecure and why, it was important to investigate the nutrition level of the food children are accessing as well as the amount and type of physical activity. The following data represents children, parent and school staff impressions and opinions surrounding children’s nutrition, exercise and health at home and school. The three categories that emerged were parent nutrition knowledge, exercise outside of school, and health issues.

Parent Nutrition Knowledge:

Many of the mothers interviewed shared their knowledge of nutrition through what they fed their children and their opinion on school meals. Most mothers reported that they received nutrition education through their mothers or in school. In addition, one mother stated that she learned nutrition through other sources and stated, “When there is an opportunity to learn, I jump” (School C, parent interview: 11 332-333). One mother spoke to us about the food she tries to keep her kids from eating. “A lot of diseases come from what you eat. So, I try not to give them chips or soda . . . I know how they could eat better and so I try to avoid the things they shouldn’t eat” (School D, parent interview: 11 190-192). Overall, mothers expressed a preference for fresh vegetables and fruit, more meat and less sugar and salt in school meals. According to one parent, “I think it’s [school meals] okay, I think they could use some work, on variety. On things other than hotdogs and hamburgers . . . instead of doing canned vegetables, they can do fresh vegetables or fresh fruit. Canned fruits have a lot of sugar” (School B, parent interview: 11 163-170). However, a parent expressed that she did not expect schools to serve the

quality or variety of food that she would feed her kids at home. “They [school] can’t do it like at home . . . I have four kids. Each one has different tastes” (School D, parent interview: l 350).

Exercise Outside of School:

Mothers reported that most of their children’s physical activity outside of school is unstructured. When asked where parents can take kids for exercise one parent responded, “We know of several places to go, but we can just go into our backyard, we have a big backyard . . . Yeah, we run around like little monkeys. I have three boys, so they keep me pretty busy” (School B, parent interview: ll 213 -215). Often times, cost was cited as a barrier for parents getting their kids involved in after school programs and more structured exercise activities. “We don’t go to the gyms . . . I would like to swim with my girls, but we can’t because it’s so expensive” (School D, parent interview: ll 704-705). School staff echoed parents’ sentiment that cost was a challenge because many after school and sports programs have a cost. “After school recreation. They go outside and they play different games and all that . . . it used to be a bigger program, but they charge for it now . . . it used to be free” (School A, focus group 1: ll 304-313).

Health Issues:

Many different children’s health issues were mentioned throughout the interviews including asthma, obesity, being underweight or too thin, and hunger. Quite a few parents reported that their children had asthma including a mother who said, “Yes, all four have asthma. They’re in a program for asthma . . . so everything is well under control” (School D, parent interview: ll 752-753). Both school staff and parents expressed concern about child obesity. One school staff person was worried that some school meals may be contributing to this problem. “There are a few children who I think do have a little bit of a weight problem . . . And I have a little bit of concern for those who get in the habit of eating pizza every single day, because I know how easy it is to gain weight on pizza” (School B, focus group 2: ll 212-214). Another parent was also aware of the danger of obesity for her children. “My sister’s extreme obese. I don’t want that for family, for my husband and my three boys. How can I avoid that? Nutrition, exercise, education” (School C, parent interview: ll 346-348).

At the other extreme there was worry about children being too thin and in one case a school staff person felt that it was related to, “the culture of our whole nation, for the older kids. I think there is a problem in that there is an over emphasis on being thin in the United States and I think some girls are choosing not to eat as much as they should because of that problem” (School B, focus group 2: ll 144-147). A parent also reported that one of her children is underweight, “The doctor is involved. The youngest drinks a special milk for his low weight . . . he’s been like that for a long time” (School D, parent interview: l 761).

We also asked all of the children interviewed about the meals they ate and if they felt full afterwards. Many children responded that they were full after that day’s breakfast or lunch, but others reported they were not full and often would joke about still being hungry. Q: “Did you feel full when you were done?” A: “No.” Q: “No? You were hungry?” A: “Um hmm. A little bit” (School D, child interview: ll 40-43).

Lastly, one school staff person reported a concern about food storage and the illness of children they witnessed at school. “One of my concerns is like either, does somebody have their electricity turned off and therefore is the food spoiling? . . . I do think that I see illness based on lack of nutrition and inability to store food right” (School A, focus group 1: ll 282-284).

Summary:

The mothers expressed general knowledge of nutrition and discussed what they felt their children should not be eating and recognized that fresh vegetables and fruits versus canned are better. Just as mothers wanted less sodium, sugar and fat in school meals, school staff reported not eating school meals for the same reasons. “I don’t usually eat the meals in the cafeteria . . . too much fat because it’s breaded or fried, um things on the menu . . . I generally don’t eat in the cafeteria either” (School A, focus group 1: ll 22-23). It was also reported that children are somewhat active outside of school, but often in non-structured activities; and cost is a barrier for involving kids in after school programs and sports activities. Asthma, obesity, thinness and hunger were all health issues that parents and school staff were concerned with for children.

Waste & Lack of Food Familiarity

“If they serve something they [kids] are not familiar with, it’s going to go to waste because they are going to throw it away” (School A, focus group 1: ll 29-32).

When asking school staff and parents their opinions about the nutritional value of school meals, the interviewees took this opportunity to tell us about other issues surrounding school meals. Although we did not ask questions about food waste in schools, it was an issue that was brought up again and again by both school staff and parents. Many discussed different explanations for why food is thrown away and how school meals might be changed to reduce food waste, and to encourage more children to eat the meals. While discussing school meals, interviewees also brought up portion size and food choice.

Food Waste:

Parents and school staff cited many different reasons why they think children throw away their school meals, but all made the point that it happens frequently. Parents often talked about their children simply throwing it away because they did not like the food. “And my girls go to the cafeteria, but there are things that they don’t like. There are times when they see it and I don’t like it when they throw it out” (School D, parent interview: ll 150-152).

Many school staff talked about children’s lack of familiarity with foods served at schools. “And some of the kids, they have never heard or seen a celery stick . . . If they’re not familiar with something they won’t do [eat] it” (School A, focus group 1: ll 176-177).

When school staff was asked if they thought language or culture played a role in nutrition, one said that some foods served are uncommon in the Hispanic culture. “Sometimes the cafeteria will at lunchtime [serve] a trail mix and they have these raisins and nuts and all these things you know. And they [students] won’t touch them. They throw the little cups away” (School A, parent interview: ll 182-184).

School staff told us about programs and classroom practices to introduce children to unfamiliar foods. “Over at Head Start . . . they eat very nutritious meals, and they have to try everything . . . So they are getting exposed to new foods in Head Start” (School A, focus group 1: ll 192-193). One teacher makes an effort to familiarize her students with fresh produce. “In my classroom we have a letter of the week and we taste some sort of food, and we usually try to push the fruits and vegetable, apples, bananas, carrots” (School B, focus group 2: ll 152-154).

While most interviewees made a connection between lack of food familiarity and waste of school food, two parents suggested that improving the presentation of the food might encourage more kids to try the food before throwing it away. “There’s just a bun, with a weenie, and that’s all, and I think it just needs a little extra effort in the presentation . . . if you just put a little mustard and mayonnaise, they would eat it up . . . because the worst thing is the waste of buying this food or wasting the food” (School D, parent interview: ll 390-393).

Another parent thought that school food carried a stigma that turned kids off from even eating foods that are familiar. “He eats, like I said, the vegetables at the house, he doesn’t eat school vegetables. I think it’s just a, I think it’s a label, school vegetables, eeww everybody’s cursed the school vegetables. [group laughter] But he does eat them at the house” (School C, parent interview: ll 567–570).

Finally, children told us that one of the results of throwing away their school food is that they often end up eating very little at school. One child told us, “Well, sometimes I don’t like the food here. . . so, I just drink my milk” (School A, child interview: l 404). Another child reported, “I don’t know what there was, but I didn’t like it either. I don’t like to eat in the cafeteria.” “Q: Okay. So you never eat lunch here? A: No. Yesterday I ate chips” (School D, child interview: ll 104-105).

Food Portions and Choice:

Some of the parents and school staff were concerned about the portion size of school meals, especially for the older students. “If we go with our cafeteria meals we are served the student portion most likely . . . but um I sometimes feel the student portion sizes are a little lacking. We have these six graders who probably should be eating as much as I do or more, and I’m hungry sometimes” (School B, focus group 2: ll 78-81).

It was also suggested that increasing the number of healthy choices that students have would improve students’ satisfaction with school meals and meals would be healthier. “We are seeing in our cafeteria the days that we serve the hot turkey lunches . . . that’s what most students want, they don’t want the pizza. They want that nice hot meal with the vegetables, everything. So, I think if we offered it they would choose it more so then pizza” (School B, focus group 2: ll 273-276).

Summary:

As the data indicates, food waste is a problem in schools. Many students are not consuming the meals that are provided for them and therefore are often not eating complete meals at school. One of the major reasons cited for food waste was lack of familiarity with some foods that are served. Parents and school staff suggested improving the presentation of food served and increasing the number of healthy meal choices to cut down on food waste.

School Policies & Practices

“If kids are our future we need to fix the problem. We have obesity going on . . . and if we are showing it in our schools, you know, not doing anything about it in our schools like serving nachos and crud like that, you know. If we are giving them these choices then what are we telling them?” (School B, focus group 2: ll 262-265).

During interviews with school staff and parents it became apparent that school policies affect when and what children eat at school and the amount of physical exercise they get during school hours. Discussion in each focus group included nutrition education and the general nutrition curriculum taught in their respective schools. Information from the Arizona Department of Education described current nutrition education policy, “There is no real standard for ‘nutrition education’ within Arizona – only health education. The state has set up the topics that need to be addressed within health education- but the time and how that information is taught is at the district level to decide” (Arizona Department of Education staff, 11/1/04).

School district representatives contacted by the Research Team stated that in the health curriculum, there is a section on nutrition, but the time allotted for these activities is dependent on individual teachers. Tardiness, vending machine products and physical education policies (particularly following breakfast) were issues raised by interviewees.

Tardy Policy:

According to many parents and school staff, students often must make the decision between eating school breakfast and getting to class on time. Often there is little time in the morning to eat school breakfast and at one school children may choose to skip breakfast to get to class on time in order to be eligible for a good attendance award.

“If they get here at 7:35 they have 15 minutes to eat, if they get here at 7:45 they have five minutes to get over there and get it. And if you don’t get here by 10 of I don’t think they’re allowed in the cafeteria . . . The kids have to decide do I go to the cafeteria or do I go to class. Well hey if you go to class and you’re here every day, then there is a prize for you (School B, focus group 2: ll 243-245 and 236-238).”

In another school there is a strict tardy policy that some interviewees felt discouraged children from eating school breakfast. “You eat here at school, you’re going to be tardy to class, you have three tardies you have in-school suspension, which is ISS” (School C, parent interview: l 384). It was also reported that sometimes it is out of children’s control to arrive at school in time to eat breakfast and if students do not eat in the morning it may affect the rest of their day. “Frequently I’ll hear them say, well I didn’t have time to eat breakfast because my mom or dad was running late . . . they don’t feel like they have any option but to go to class hungry, so they come to my office half way through the school day because they have a stomachache or a headache or are dizzy” (School B, focus group 2: ll 226-233).

Flavored Fruit Drinks:

During one focus group, school staff discussed the presence of a vending machine at the elementary school. The staff felt that even though the machine does not sell soda, “the majority are vitamin C added um flavored drinks . . . sugar water,” and one staff person felt, “it takes away from other things the kids should be having in a lot of circumstances.” The focus group also discussed the children’s habit of sharing the large vending machine bottles which mortified the school nurse, “One of them will buy one juice and four or five will drink out of the bottle . . . I did not know that! I’ve always thought the bottles were too large. They’re 20 ounce bottles.” While staff cited negative affects of having the juice machine, one staff person exclaimed that there are advantages for the school to have a vending machine. “It’s a wonderful moneymaker and it funds certain activities” (School A, focus group 1: ll 337-350).

Physical Activity at School:

According to the Arizona Department of Education, time devoted to physical activity depends on each school’s policy. Information obtained from schools indicate that physical education classes can range from thirty minutes per day for grades K through 5 to four times for 30 minutes every two weeks. One of the school staff reported that, “they have 15 minutes in the morning and then they have their PE, you know once a week . . . it’s the second year we’ve had PE here . . . Once a week for about forty minutes and then at lunchtime” (School A, focus group 1: ll 291-293).

Recess also varied with some schools providing no recess to kids in grades 4 through 6 to 15 minutes every morning for younger children grades K through 3. The majority of schools allow 20 minutes after lunch for students to participate in physical activity. One school reported that recess time depended on the classroom schedule and is sometimes used as an incentive for good student behavior.

“For the older children . . . P.E. program is once every three days... for almost an hour or so. And the grades, according to what’s happening in the classroom also have a recess in the middle of the day . . . And some of them will have an afternoon recess depending on if they have all their work done. They get that as a reward for about 15 minutes (School B, focus group 2: ll 181-186).”

The focus groups reported that their schools have special programs designed to encourage more student physical activity during recess. “We have, um, a prevention specialist, um, who specifically makes a point of going out to recess duty and doing active things with the kids. Games or sports like things where they are running, jumping and doing things” (School A, focus group: II 322-326). At another school there is a, “mileage program for grades 2 to 6 . . . I guess they are running laps after lunch” (School B, focus group 2: 1 192).

Summary:

Students often have a limited time to eat breakfast at school. Furthermore, tardy policies might have the unintended effect of discouraging children from eating breakfast at school for fear of being late to class. While the presence of a juice vending machine in one school raised issues about nutritional value of the juice, school staff recognized that it brought in money for the school. Nutrition curriculum and physical education in schools is largely determined by each school and varies significantly. In addition, there was minimal concern among teachers and parents regarding the small amount of physical activity in and outside of schools.

DISCUSSION OF RESULTS AND IMPLICATIONS FOR FUTURE RESEARCH AND ACTION

Expanded Purpose Based on the Data

The original purpose of the research was to increase the community's understanding of food insecurity by answering the following:

1. Among children, ages 5-12 years and their households, who is food insecure and why?
2. Do they access available food resources, why or why not?

Although it was not the intent of the research to explore the effectiveness of food resources such as the Food Bank and school cafeterias, the participants of the study identified these two elements of the food system as very important and expressed clear perspectives on the effectiveness of these resources. Thus, the expanded purpose of our research includes:

3. What food resources are important in addressing food security?
4. How effective are these resources in addressing food security?
5. What other individual, familial and community actions could be taken in order to improve the effectiveness of these resources?

Discussion and Implications of Data and Themes

Family Food Practices:

- Parents usually have their own car or use a relative's car for transportation. The researchers assumed that transportation would often be an impediment.
- Often more time is spent grocery shopping and other food items, usually of less nutritional value, are purchased if children are present. A limited number of grocery stores offer child play areas to accommodate children accompanying their families.
- All parents participating in the study had, at some time, used the local food pantry. In most cases, service and quality of food were described as good; in one case, service was identified as very poor. Concern about the nutritional value (such as white bread), or cultural appropriateness of some food items was expressed.
- Breakfast is important and usually contains protein. Because children may choose not to eat school lunches, big meals are prepared for them when they come home from school. This finding was unexpected and may be significant to why some children who qualify for school lunches may be choosing not to eat at school.
- All mothers learned how to prepare food (or, in one case, how not to prepare food) from their mothers. The generational transfer of food preparation was apparent; girls and boys are introduced to food through their mothers' practices.
- Children often help prepare meals and for several families, this is a fun activity. Food preparation appears to be a strong element in children's access to food outside of school.

- Eating out is a family event and typically includes restaurants with activities for children and toy giveaways. Frequency of visits to restaurants (usually fast food) depends on cost.

Implications for Future Research and Action

- Identify the extent of the practice of skipping school lunch and replacing it with a large afterschool meal at home.
- Identify local pantries that have customer service issues and provide customer service training.

Health, Nutrition and Exercise:

- Based on pre-research assumptions, mothers had more knowledge of nutrition and preferred that school meals include more fresh vegetables and meat, and less sugar and sodium. Cinnamon rolls and cereal for breakfast were identified as unhealthy by adult participants.
- Exercise at home and school is limited. Physical activity outside of school is often unstructured and participation in after school activities is limited due to cost. Little time is allotted for physical activity in schools.
- Health issues such as child asthma, obesity and being under weight were mentioned by adult participants.
- School staff usually does not eat food from school cafeterias, which suggests that the food quality does not meet their standards.

Implication for Future Research and Action

- Review of local school district food policies is needed to understand local practices.
- Review of federal food guidelines for schools and how policies are implemented in other regions of Arizona is needed.
- Examine utilization of a prevention specialist in an expanded physical education program.
- Review of current health, nutrition and exercise research would help to inform discussion of children's health issues.

Lack of Food Familiarity and Waste:

- A relationship between lack of food familiarity and food waste at school exists. Examples of wasted food include vegetables, trail mix, milk (not chocolate) and "greasy pizza." Waste was raised as a significant issue by all school staff and parents.
- Vegetables served at school are not familiar to some children. Members of the Research Team who also work with the Community Food Bank's Backyard Garden program were not surprised by this finding and noted that culture is reflected in the selection of seeds for family gardens.
- There was a shared perspective among children, parents, and school staff that choices for school breakfast and lunch were limited and larger portion sizes for older elementary school children were needed. Concerns expressed about food

- portion size and presentation were unanticipated findings and have implications for food service policies and/or practices.
- Discussion of the easy availability of products high in sugar in and out of school is reflected in recent public discussion. As this report goes to press, the Arizona Department of Education is releasing a report on school vending machines and nutrition; and state legislation is being introduced to ban the sale of “minimal nutritional value” foods at schools beginning August 2005 (Fisher and Gassen). State actions will likely generate additional public discussion of the issues.

Implications for Future Research and Action

- Document the extent of food waste in schools.
- Inquire into school district and/or each school’s policies regarding the establishment of a “food sharing table” to increase understanding of food sharing and waste.
- This report will be shared with the Arizona Department of Education and state legislators, as well as school districts, school food service personnel and school boards.

School Policies and Practices:

- Children risk tardiness and possibly in-school suspension if they eat school breakfast. There is some indication that schools are addressing this issue.
- Flavored and sugared fruit drinks are available in vending machines, supplied in twenty ounce bottles. An important non-nutritional issue related to vending machines: the income that is generated from these beverage contracts with schools can be \$10,000-\$12,000 per year (Fischer and Gassen A11). The fiscal impact of exchanging these products with healthier options in vending machines will also need to be examined.
- School policy varies on physical education from no P.E. to 30 minutes, 1 to 3 days per week. This issue is related to school, state and federal funding resources.
- Student recess varies by age group and is no more than 15 minutes in the morning and 20 minutes after lunch.
- Some schools have special programs to encourage physical activity during recess.
- Some schools are taking proactive steps to find creative solutions to complex problems and need support from the public.

Implications for Future Research and Action

- Further investigation into school tardiness and the relationship it may have to skipping breakfast is needed.
- Parent education and outreach on the importance of getting children to school on time is needed.
- The impact of fruit drink vending machines on health and nutrition needs to be explored recognizing the fiscal impact of vending machines on school programs.
- Further inquiry and better understanding of school funding for physical education activities might produce a community action plan to raise funds for school physical education programs or classes.

- Inquiry into schools which leverage other personnel to expand structured physical education activities during school should be explored and possibly adapted to other schools.

CONCLUSION

This research generated data and questions for additional research. Additional resources for the Community Food Bank to support this research will be necessary. This report would not have been possible without the Congressional Hunger Center and Peace Corps Fellows.

Early distribution of the research summary generated initial strong response from a limited audience. Findings from the data, such as the extent of maternal knowledge on nutrition and the minimal importance of transportation, emphasize the importance of the data-driven research approach.

The Food Bank's Action Research Team, which began as an idea, demonstrated by this example that ongoing action research can be a vital element of the Community Food Bank's service and educational outreach to the community. It is hoped that this research will be utilized to support the development of a Pima County Food Policy Council and the statewide Arizona Food Policy Coalition in order to promote effective anti-hunger and food security policies throughout Pima County and the state of Arizona.

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